ATTACHMENT A
DISTRICTS' RESPONSE TO COMMENTS ON DRAFT LICENSE APPLICATION

APPENDIX D
RESPONSE TO TUOLUMNE COUNTY BOARD OF SUPERVISORS' COMMENTS ON THE DISTRICTS' SOCIOECONOMIC STUDY REPORT

WATER & POWER
Serving Central California since 1887

Modesto Irrigation District
The Power to Grow

April 16, 2014

Mr. Evan Royce, Chairman
Tuolumne County Board of Supervisors
2 South Green Street
Sonora CA 95370

Dear Mr. Royce:

On February 18, 2014, the County of Tuolumne's Board of Supervisors ("Tuolumne County") submitted a response to TID and MID's Socioeconomic Study Report ("Study") filed with the Federal Energy Regulatory Commission ("Commission" or "FERC") on January 6, 2014. Tuolumne County states that the Study adequately describes the direct benefits provided by the water stored in Lake Don Pedro to irrigation, municipal, and industrial uses to Central Valley farmland, business, and residences, "while ignoring the fact that as the steward of this watershed, Tuolumne County receives very little benefit from this project."

Tuolumne County recognizes that the Study addresses the estimated $10 million to $15 million per year of economic benefits, and the estimated 100 jobs, created by users of Lake Don Pedro and their economic spinoff to Tuolumne County.[1] Notwithstanding, Tuolumne County suggests that "these benefits are miniscule" compared to the much larger total regional economic benefit attributable to water storage at Lake Don Pedro. Because of this differential between the local benefits from recreation at Lake Don Pedro received by Tuolumne County and the total regional economic benefit, which also includes Tuolumne County and the greater Central Valley, Tuolumne County believes it deserves compensation because Tuolumne County's "responsibility outweighs its benefit."

Tuolumne County identifies three direct services – law enforcement (including boat patrol), fire suppression, and road maintenance on County-maintained roads – for which Tuolumne County states that it cannot conclude from the Study whether the costs for these direct services are "recouped by Tuolumne County in the form of sales tax, transient occupancy tax, or property tax." Tuolumne County further states that during the recent Rim Fire, it "worked tirelessly" with myriad Federal, State, and local agencies to protect the "watershed" without any direct water supply benefit to Tuolumne County. Tuolumne County explains that it has no adjudicated water right, and therefore receives no financial benefit or water supply benefit from Lake Don Pedro.

[1] In the letter from Tuolumne County, the economic benefit from recreation at Lake Don Pedro was cited at $25.4 million, which is the estimated economic value of recreation, and not the amount of money flowing into the regional economy. Economic value is measure of a consumer's willingness to pay for recreation. As described in Section 5.3.2 of the report, *if visitors to Don Pedro Reservoir are willing to pay $50 to fish for a day, but the actual cost of their fishing trip is only $20, they receive a net economic benefit of $30 per day from their fishing experience.* The regional economic impact of recreation is described in Section 6.3.3 of the report.

Tuolumne County also faults the Study because it does not mention the current practice within Tuolumne Utilities District's main water system to divert an average of 7,000 acre feet of water from the South Fork Stanislaus River to storage in Lake Don Pedro as part of the PG&E main canal system and Phoenix Powerhouse operations. Tuolumne County asserts that "[t]his routine operation benefits the downstream users with no return consideration to Tuolumne County."

Tuolumne County concludes that "[a]s the origin of this water source, it is imperative that Tuolumne County work with MID and TID and examine how Tuolumne County can be remunerated for its responsibility to protect the water source and provide municipal services to Lake Don Pedro." Therefore, Tuolumne County seeks "revisions" to the Study "to more clearly see the benefit of this water storage facility to its host County."

The goal of the Study was to quantify baseline economic values and socioeconomic effects of current Don Pedro Project operations so that the effect of proposed changes in operations in the relicensing proceeding on the socioeconomic resource could be assessed. The baseline economic values quantified in the Study included the monetary benefits to Tuolumne County from recreation and ancillary services related to recreation at Lake Don Pedro. Therefore, Tuolumne County is incorrect in asserting that it receives "very little benefit" from the Project; in fact, it receives at least $10 million annually from recreation alone at Lake Don Pedro.

The "responsibilities" identified by Tuolumne County for which it believes it should be compensated by the potential licensee are normal municipal services. The Commission has clearly stated that Commission licensees like the Districts are not responsible for the provision of law enforcement or public safety services on project lands and waters; rather, law enforcement is the responsibility of County and State agencies. *County of Butte, California v. California Department of Water Resources*, 129 FERC ¶ 61,133, at

P 19 (2009) ("[N]othing in the FPA . . . or our precedent suggests that licensees are responsible for the provision of law enforcement or safety services."), *appeal denied sub. nom, County of Butte, California v. FERC*, 445 Fed.Appx. 928 (9th Cir. 2011) (unpublished). Accordingly, the Commission has consistently rejected proposals to require licensees to pay for local personnel or to subsidize local services. *See, e.g., Avista Corp.*, 127 FERC ¶ 61,265, at P 193 (2009); *Public Utility County District No. 2 of Grant County, Wash.*, 123 FERC ¶ 61,049, at P 79 (2008); *Portland General Electric Co.*, 117 FERC ¶ 61,112, at P 83 (2006); *Policy Statement on Hydropower Licensing Settlements*, 116 FERC ¶ 61,270, at P 24 (2006). Likewise, the Districts also are not responsible for fire suppression in the "watershed," which in this case includes much of the Stanislaus National Forest which is managed by the United States Department of Agriculture and Yosemite National Park which is managed by the United States Department of the Interior, because the "watershed" is not within the Project Boundary of the Don Pedro Project.

Wildland fire suppression on private lands within the Tuolumne Watershed is the primary responsibility of CalFire (Resources Agency) and not the County Fire Department. It is further supported by a Helitack and Air Attack Base operated by CalFire at Columbia Airport during wildfire season. Therefore, the primary responsibility for wildland fire protection within the Tuolumne Watershed would not rest with the County of Tuolumne.

Tuolumne County's suggestion that the licensees of the Don Pedro Project should be responsible for the cost of "road maintenance on County-maintained roads" also is incorrect. In general, roads primarily serving non-project purposes and only incidentally providing access to project facilities are not considered necessary for project purposes. *Portland General Electric*, 117 FERC ¶ 61,112, at P 45 (2006) ("While the extent to which roads may be found necessary for project access may vary from case to case, as a general matter, the concept of roads being 'necessary' for a project must be restricted to roads used solely by a project."). Tuolumne County has not identified any County-maintained road used to provide access to project facilities that is used *solely* by the project. FERC does not have the authority to regulate land or facilities outside the Project Boundary. *See Sierra Club v. Nebraska Public Power District*, 53 FPC 1836, 1837-38 (1975); *Central Maine Power Co.*, 40 FERC 61,075 (1987), *reh'g denied*, 42 FERC ¶ 61,387 (1988), *aff'd sub nom. Kokajko v. FERC*, 873 F.2d 419 (1st Cir. 1989); *South Carolina Electric & Gas Co.*, 7 FERC ¶ 61,180 (1979), *order on reh'g*, 8 FERC ¶ 61,161 (1979). Therefore, the Districts have no responsibility to maintain general purpose roads not included within the Project Boundary.

Finally, Tuolumne County seems to suggest that because it cannot discern whether the Study concluded that Tuolumne County's direct costs for law enforcement, watershed fire suppression, and maintenance of non-project County-maintained roads are recouped by Tuolumne County through its sales tax, transient occupancy tax, or property tax, the licensees should "remunerate" Tuolumne County in lieu of these taxes. The Commission has rejected such payment-in-lieu-of-taxes, explaining that the Commission is not a taxing authority and nothing in the FPA indicates that Congress intended for the Commission to assume the responsibility for overseeing the provision of local safety and law enforcement. *County of Butte*, 129 FERC ¶ 61,133, at P 25 (2009); *see also New York Power Authority*, 120 FERC ¶ 61,266, at P 33 (2007). The Commission has further stated that while tax-related issues are important for local communities, reviewing all tax information related to the project and surrounding communities is beyond the scope of a licensing proceeding. *Public Utility District No. 1 of Douglas County, Wash.*, 122 FERC ¶ 61,032, at P 9 (2008).

We appreciate your continuing interest in the Don Pedro Hydroelectric Project relicensing.

Sincerely,

Steve Boyd
Turlock Irrigation District
P.O Box 949
Turlock, CA 95381
(209) 883-8364
seboyd@tid.org

Greg Dias
Modesto Irrigation District
P.O. Box 4060
Modesto, CA 95352
(209) 526-7566
gregd@mid.org

DON PEDRO HYDROELECTRIC PROJECT
FERC NO. 2299

FINAL LICENSE APPLICATION

ATTACHMENT B
CONSULTATION RECORD





Prepared by:
Turlock Irrigation District
P.O. Box 949
Turlock, CA 95381

and

Modesto Irrigation District
P.O. Box 4060
Modesto, CA 95352

April 2014

Table of Contents

Section No.	Description	Page No.
1.0	**RELICENSING PARTICIPANTS EMAIL GROUP**	**1-1**
2.0	**RELICENSING PARTICIPANTS RECORD LOG**	**2-1**
3.0	**AGENCY CONSULTATION RECORD LOG**	**3-1**
4.0	**RELICENSING WEBISTE ANNOUNCEMENTS RECORD**	**4-1**

List of Tables

Table No.	Description	Page No.
Table 1.0-1.	Don Pedro Project relicensing partipants email group.	1-1
Table 2.0-1.	Record log of advisories and other communications with the relicensing participants.	2-2
Table 3.0-1.	Record log of advisories and other communications with the agencies and other interested parties with the studies.	3-2

List of Appendices

Appendix A	Relicensing Participants Consultation Record Documents
Appendix B	Agency Consultation Record Documents
Appendix C	Relicensing Website Announcements Record Documents

List of Acronyms (Specific to Consultation Record)

ACOE.....U.S. Army Corps of Engineers (also USACOE)

AR.....American Rivers

AW.....American Whitewater

BAWSCA .....Bay Area Water Supply & Conservation Agency

BLM.....U.S. Department of the Interior, Bureau of Land Management

CSPA.....California Sportfishing Protection Alliance

CCSF.....City and County of San Francisco

CDFG.....California Department of Fish and Game (CDFW as of January 2013)

CDFW .....California Department of Fish and Wildlife

CDPR .....California Department of Parks and Recreation

CDWA .....Central Delta Water Agency

CFR.....Code of Federal Regulations

CSERC.....Central Sierra Environmental Resource Center

Districts.....Turlock Irrigation District and Modesto Irrigation District

DLA .....Draft License Application

DOI .....Department of Interior

DPRA.....Don Pedro Recreation Agency

EDF .....Environmental Defense Fund

FERC.....Federal Energy Regulatory Commission

FLA.....Final License Application

FOT .....Friends of the Tuolumne

ILP.....Integrated Licensing Process

ISP.....Initial Study Plan

ISR .....Initial Study Report

MID.....Modesto Irrigation District

MoFo.....Morrison & Foerster

NGO.....Non-Governmental Organization

NMFS.....National Marine Fisheries Service

NOAA .....National Oceanic and Atmospheric Administration

NPS .....U.S. Department of the Interior, National Park Service

PAD.....Pre-Application Document

PPT.....PowerPoint

PSP.....Proposed Study Plan

PTL .....Progress Tracking List (requests and/or action items from the initial relicensing meetings)

Reclamation .....U.S. Department of the Interior, Bureau of Reclamation (also USBR)

RP.....Relicensing Participant

RHH .....Restore Hetch Hetchy

RSP .....Revised Study Plan

RW .....Relicensing Website (www.donpedro-relicensing.com)

RWG .....Resource Work Group (i.e., Cultural Resources, Recreation Resources, Terrestrial Resources, and Water & Aquatic Resources)

SD1 .....Scoping Document 1

SD2 .....Scoping Document 2

SFPUC .....San Francisco Public Utilities Commission

SPD .....Study Plan Determination

SWRCB.....State Water Resources Control Board

TCWC .....Tuolumne County Water Company

TID.....Turlock Irrigation District

TNC.....The Nature Conservancy

TRC.....Tuolumne River Conservancy

TRT .....Tuolumne River Trust

USACOE.....U.S. Army Corps of Engineers (also as ACOE)

USBR .....U.S. Bureau of Reclamation

USDA.....U.S. Department of Agriculture

USDOC .....U.S. Department of Commerce

USDOI .....U.S. Department of the Interior

USFS .....U.S. Department of Agriculture, Forest Service

USFWS .....U.S. Department of the Interior, Fish and Wildlife Service

USP .....Updated Study Plan

USR.....Updated Study Report

VELB .....Valley Elderberry Longhorn Beetle

CONSULTATION RECORD – THE PROCESS

The following excerpt from the Code of Federal Regulations (CFR) at 18 CFR § 5.18(b)(5)(G) describes the required content of the Consultation Record.

5.18(b)(5)(G) Consultation Documentation. Include a list containing the name, and address of every Federal, state, and interstate resource agency, Indian tribe, or member of the public with which the applicant consulted in preparation of the Environmental Document.

In accordance with the communications guidelines outlined in sections 2.4.3 and 2.5.3 of the Pre-Application Document (PAD) filed with the Federal Energy Regulatory Commission (FERC) on February 10, 2011, the Turlock Irrigation District (TID) and Modesto Irrigation District (MID) (collectively, the Districts) have established and maintained an extensive Relicensing Participants Email Group. This group listing has been used to keep all interested parties, including agencies, tribes, non-governmental organizations (NGOs), and interested members of the public, advised of all relicensing activities. Table 1.0-1 contains a list of the current Relicensing Participants Email Group, by name and affiliation.

The total relicensing Consultation Record to date consists of five sections:

Previously filed with FERC:

Consultation Record filed as Appendix A to the PAD on February 10, 2011 (FERC E-Library Accession No. 20110210-5159)

Consultation Workshops Record filed as Attachment A to the Draft License Application (DLA) on November 26, 2013 (FERC E-Library Accession No. 20131126-5015)

Filed with this license application:

Relicensing Participants Consultation Record
Agency Consultation Record
Relicensing Website Announcements Record

Table 2.0-1 is the record log of advisories and other communications with the relicensing participants. Copies of the documents recorded are either provided in Appendix A to this Attachment or reference is made to their location on FERC's E-Library www.ferc.gov (by Accession Number) and/or on the Don Pedro relicensing website www.donpedro-relicensing.com.

Table 3.0-1 is the record log of consultation with agencies and other interested participants in the various studies associated with the relicensing. Copies of these documents are provided in Appendix B to this Attachment.

The Relicensing Website Announcements Record (see Appendix C to this Attachment) is a summary of the Districts' announcements to all interested parties published under the

ANNOUNCEMENTS tab on the Don Pedro relicensing website at www.donpedro-relicensing.com.

1.0 RELICENSING PARTICIPANTS EMAIL GROUP

Table 1.0-1. Don Pedro Project relicensing partipants email group.

Name	Affiliation
Alves, Jim	City of Modesto
Amerine, Bill	
Ansley, J S	Duane Morris LLP
Asay, Lynette	Newman-Romano LLC
Ayala, Nancy	Picayune Rancheria of the Chukchansi Indians
Barnes, James	BLM
Barnes, Peter	SWRCB
Barrera, Linda	CDFW
Beeco, Adam	FERC
Berliner, Thomas	Duane Morris LLP
Blake, Martin	
Bond, Jack	City of Modesto
Boucher, Allison	TRC
Boucher, Dave	TRC
Bowes, Stephen	NPS
Bowman, Art	
Brenneman, Beth	BLM
Brochini, Anthony	Southern Sierra Miwuk Nation
Buckley, John	CSERC
Buckley, Mark	
Burke, Steve	
Burt, Charles	Cal Poly State
Byrd, Tim	
Cadagan, Jerry	
Carlin, Michael	SFPUC
Charles, Cindy	Golden West Womens Flyfishers
Cooke, Michael	City of Turlock
Cowan, Jeffrey	
Cox, Stanley Rob	Tuolumne Band of Me-Wuk Indians
Cranston, Peggy	BLM
Cremeen, Rebecca	CSERC
Damin, Nicole	Stanislaus County Department of Environmental Resources
Day, Kevin	Tuolumne Band of Mu-Wuk Indians
Day, Peter	MoFo
Denean	
Derwin, Maryann Moise	Town of Portola Valley
Dowd, Maggie	USFW
Drake, Emerson	
Drekmeier, Peter	TRT
Edmondson, Steve	NMFS
Eicher, James	BLM
Fargo, James	FERC
Ferranti, Annee	CDFW
Ferrari, Chandra	CDFW
Findley, Timothy	Hanson Bridgett LLP
Fleming, Mike	
Fuller, Reba	Central Sierra Me-Wuk and Tuolumne Band of Me-Wuk Indians
Furman, Donn	CCSF
Ganteinbein, Julie	Water & Power Law Group

Name	Affiliation
Giglio-Willoughby, Deborah	USFW
Gordus, Andy	CDFW
Gorman, Elaine	Yokuts Sierra Club
Grader, Zeke	Pacific Coast Federation of Fishermen's Association
Groves, Catherine	Hanson Bridgett LLP
Gutierrez, Monica	NMFS
Hackamack, Robert	
Hastreiter, James	FERC
Hatch, Jenny	Sierra Avalanche Center
Hayden, Ann	EDF
Hellman, Anita	Habitat for Humanity
Heyne, Tim	CDFW
Holley, Thomas	NMFS
Holm, Lisa	USBR
Horn, Jeff	BLM
Horn, Timi	
Hudelson, Bill	Stanislaus Food Products
Hughes, Noah	
Hughes, Robert	CDFW
Hume, Noah	Stillwater Sciences
Hurley, Michael	BAWSCA
Jackson, Zac	USFW
James, Les	Southern Sierra Miwuk Nation
Jauregui, Julie	
Jennings, William	CSPA
Jensen, Laura	TNC
Johannis, Mary	USBR
Johnson, Brian	CalTrout
Johnson, Jay	Southern Sierra Miwuk Nation
Jones, Christy	USACOE
Justin	
Keating, Janice	
Kempton, Kathryn	NMFS
Kinney, Teresa	
Koepele, Patrick	TRT
Kordella, Lesley	FERC
Levin, Ellen	CCSF
Linkard, David	TRT
Lwenya, Roselynn	Buena Vista Rancheria
Lyons, Bill	Mape's Ranch
Manji, Annie	CDFW
Marko, Paul	
Marston, Dean	CDFW
Martin, Lois	Southern Sierra Miwuk Nation
Martin, Michael	Merced Fly Fishing Club
Mathiesen, Lloyd	Chicken Ranch Rancheria of Me-Wuk
McDaniel, Dan	CDWA
McDevitt, Ray	Hanson Bridgett LLP
McDonnell, Marty	Sierra Mac River Trips
Mein, Janis	Stanislaus County Department Environmental Resources
Miles, John	Offices of John S Mills
Motola, Mary	Picayne Rancheria of the Chukchansi Indians

Name	Affiliation
Murphey, Gretchen	CDFW
Murray, Shana	FERC
O'Brien, Jennifer	CDFW
Orvis, Tom	Stanislaus Farm Bureau
Ott, Bob	
Ott, Chris	
Pope, Rhonda Morningstar	Buena Vista Rancheria
Pool, Richard	
Powell, Melissa	Chicken Ranch Rancheria of Me-Wuk
Puccini, Stephen	CDFW
Raeder, Jessie	TRT
Ramirez, Tim	SFPUC
Rea, Maria	NMFS
Reed, Rhonda	NMFS
Reynolds, Garner	City of Turlock
Richardson, Daniel	County of Tuolumne
Richardson, Kevin	USACOE
Ridenour, Jim	
Riggs, Tracie	County of Tuolumne
Romano, David	Newman-Romano LLC
Roos-Collins, Richard	Water & Power Law Group
Rosekrans, Spreck	RHH
Roseman, Jesse	
Rothert, Steve	AR
Sandkulla, Nicole	BAWSCA
Saunders, Jenan	State Office of Historic Preservation
Schutte, Alison	Hanson Bridgett LLP
Sears, William	SFPUC
Shakal, Sarah	
Shipley, Robert	
Shumway, Vern	USFS
Shutes, Chris	CSPA
Sill, Todd	
Simsiman, Theresa	AW
Slay, Ronn	CA Natural Resources Foundation
Smith, Jim	Moccasin Piont Marina LLC
Stapley, Garth	The Modesto Bee
Steindorf, Dave	AW
Steiner, Dan	
Stender, John	NAES Power Contractors
Stone, Vicki	Tuolumne Band of Me-Wuk Indians
Stork, Ronald	Friends of the River
Stratton, Susan	State Office of Historic Preservation
Taylor, Mary Jane	CDFW
Terpstra, Thomas	Thomas H Terpstra Law Office
TeVelde, George	
Thompson, Larry	NMFS
Tsao, Steve	CDFW
Ulibarri, Nicola	
Verkuil, Collete	MoFo
Vierra, Chris	
Villalobos, Amber	SWRCB

Name	Affiliation
Wantuck, Richard	NMFS
Ward, Walt	
Welch, Steve	ARTA River Trips
Wenger, Jake	
Wesselman, Eric	Friends of the River
Wetzel, Jeff	SWRCB
Wheeler, Dan	
Wheeler, Dave	
Wheeler, Douglass	Hogan Lovells
Wilcox, Scott	Stillwater Sciences
Williamson, Harry	NPS
Willy, Allison	USFWS
Wilson, Bryan	MoFo
Wooster, John	NMFS
Workman, Michelle	USFWS
Yoshiyama, Ron	UC Davis
Zipser, Wayne	Stanislaus Farm Bureau

2.0 RELICENSING PARTICIPANTS RECORD LOG

Table 2.0-1 is the record log of advisories and other communications with the relicensing participants. Copies of the documents recorded are either provided in Appendix A to this Attachment or reference is made to their location on FERC's E-Library www.ferc.gov (by Accession Number) and/or on the Don Pedro relicensing website www.donpedro-relicensing.com.

Table 2.0-1. Record log of advisories and other communications with the relicensing participants.

Date	From	To	W[1]	Subject	Details
Year 2011					
02/23/2011 through 02/25/2011	Rose Staples, HDR	RPs	--	Relicensing Organizational Meeting 02/28/2011	Meeting logistics
03/02/2011	Sheila Pitts, HDR	RPs	--	RP Doodle Poll	Availability for future meeting dates, by areas of interest
03/03/2011	Rose Staples, HDR	RPs	--	Relicensing Organizational Meeting 02/28/2011 – Post meeting action	Confirmation of participation; alert regarding upcoming relicensing website postings; notification of next relicensing meeting to be held on 04/01/2011
03/07/2011	John Devine, HDR	RPs	--	Use of Meeting Facilitator	Districts' Response to request
03/10/2011	Rose Staples, HDR	RPs	X	Relicensing Organizational Meeting 02/28/2011 – Post meeting action	Meeting materials uploaded to the relicensing website: Agenda, PPT Presentation, Process Plan & Schedule, Participation List, and PTL
03/15/2011	John Devine, HDR	RPs	X	Relicensing Organizational Meeting 02/28/2011 Post meeting action and Relicensing Meeting 04/01/2011	Update of PTL items brought up at the meeting, including meeting/filing dates out through end of 2011, agenda for upcoming 04/01/2011 meeting, and Project Boundary maps of area below Don Pedro Dam. See 03/10/2011 uploading of PTL and PPT Presentation
03/16/2011	James Barnes, BLM	Rose Staples, HDR	--	Project maps	Request for more detailed maps of Project lands
03/25/2011 through 03/31/2011	Rose Staples, HDR	RPs	--	Relicensing Meeting 04/01/2011	Logistics including agenda, posting of advance meeting materials, updated PPT presentation on 03/31/2011
04/08/2011	Emails to RPs from John Devine and Rose Staples, HDR		X	RWG Meetings 04/19-20/2011	Agendas; confirmation of participation, alert regarding recent postings to website (3 PPT presentations); notification of FERC issuance of SD1 (FERC E-Library Accession No. 20110408-3053) and Notice of Commencement of Proceedings (FERC E-Library Accession No. 20110408-3038)
04/11/2011 through 04/14/2011	Rose Staples, HDR	RPs	--	Relicensing Meeting 04/01/2011-Post meeting action	Confirmation sought of questions/information requests made at 04/01/2011 meeting; with responses from Richard Roos-Collins, Water & Power Law Group; Chris Shutes, CSPA; and Peter Day, Morrison & Foerster

[1] Relicensing website at www.donpedro-relicensing.com

Date	From	To	W[1]	Subject	Details
04/15/2011	Rose Staples, HDR	RPs	X	RWG Meetings 04/19-20/2011 and FERC Site Visit 05/10/2011	Advance material to be posted on relicensing website on 04/16/2011 as well as additional post-meeting material for the 02/28/2011 and 04/01/2011 meetings (see 04/16/2011 posting). Also, draft itinerary for 05/10/2011 FERC site visit posted on website calendar (see 04/27/2011 posting for revised itinerary)
04/16/2011	Rose Staples, HDR	RPs	--	Relicensing Meetings 02/28/2011 and 04/01/2011 post meeting action; RWG Meetings 04/19-20/2011	Advance PPTs for Recreation, Cultural, Terrestrial, Water & Aquatic RWG Meetings posted on relicensing website, along with 04/01/2011 meeting participants list and updated PTL on items from the 02/28/2011 meeting, as well as logistics for the upcoming 04/19-20/2011 RWG Meetings
04/19/2011 through 04/20/2011	Exchange of emails among Tom Terpstra, Attorney-At-Law; Rose Staples, HDR; and John Devine, HDR		--	Interest in Relicensing Proceedings	Addition to RP Email group
04/27/2011	Rose Staples, HDR	RPs	X	FERC Site Visit 05/10/2011	Revised itinerary uploaded to relicensing website
04/28/2011	Rose Staples, HDR	RPs	--	RWG Meetings 04/19-20/2011 – Post meeting action	Schedule for responding to April 19-20 study requests
05/02/2011	Rose Staples, HDR	RPs	X	Relicensing Newsletter	Volume 1 Issue 1 posted on relicensing website
05/05/2011	Rose Staples, HDR	RPs	--	Relicensing Meeting 04/01/2011 and 04/19-20/2011 RWG Meetings – post meeting action	04/01/2011 updated list of questions/information requests posted to relicensing website, along with Districts' responses to data gap study requests from 04/19-20/2011 RWG Meetings
05/05/2011 through 05/11/2011	Rose Staples, HDR	RPs	--	FERC Scoping Meetings 05/11/2011 and RWG Meetings 05/18-19/2011	Logistics
05/13/2011	Rose Staples, HDR	RPs	X	RWG Meetings 05/18-19/2011	Updated PTL posted to relicensing website; meetings agenda; logistics
05/18/2011	Rose Staples, HDR	RPs	--	Study Plans	Water Temp & IFIM Study Plans
05/18/2011 through 05/19/2011	Exchange of emails among Richard Roos-Collins, Water & Power Law Group; Rose Staples, HDR: and John Devine, HDR		--	Questions/Requests from 04/19-20/2011 RWG Meetings – Post meeting action	Clarification of request

Date	From	To	W[1]	Subject	Details
05/19/2011	Carin Loy, HDR	RPs	--	Water & Aquatic RWG Meeting 05/19/2011	Logistics
05/20/2011	Rose Staples, HDR	RPs	--	Relicensing Website	New Location for reference materials for Resource Working Groups. See 05/18/2011 posting. Includes Recreation and Terrestrial reference material—as well as Water-Aquatic from 05/18/2011 posting
05/27/2011 through 05/31/2011	Rose Staples, HDR	RPs	--	Bathymetry Study Plan / Conference Call set for 06/02/2011	Posting of draft study plan, check on availability for conference call; announcement of 06/02/2011 date for conference call; logistics
06/03/2011	Carin Loy, HDR	RPs	X	Study Plans	Draft Cultural and Recreation Study Plans posted to relicensing website
06/06/2011	Rose Staples, HDR	RPs	X	Progress Tracking List	Updated PTL on relicensing website
06/10/2011	Rose Staples, HDR	RPs	--	Comments on SD1	Districts file comments on SD1 (FERC E-Library Accession No. 20110610-5132)
06/15/2011	John Devine, HDR	RPs	X	RWG Meetings 06/21-22/2011	Cancellation of meetings
07/25/2011	Rose Staples, HDR	RPs	X	SD2 & PSP	FERC issues Scoping Document 2 (SD2) (FERC E-Library Accession No. 20110725-3020); also FERC clarification of SD2 (Accession No. 20110729-3028). Districts issue Proposed Study Plan (PSP) (Accession No. 20110725-5097)
08/08/2011	Ron Kanz, SWRCB	John Devine, HDR / Ruth Porter, Hogan Lovells / RPs	--	Request for Information	Expressed interest in same information as Ruth Porter has been requesting
08/11/2011	Rose Staples, HDR	RPs	--	RHH requested material	RHH requested material uploaded to relicensing website under DOCUMENTS (not attached due to size). (See DOCUMENTS tab, RHH Form Request folder, 5 documents on relicensing website)
08/24/2011 through 08/25/2011	Exchange of emails among Carin Loy, HDR; Bill Lyons, Mapes Ranch; Tom Orvis, Stanislaus Farm Bureau		--	Socioeconomic Subgroup Doodle Availability Poll	Initial doodle poll regarding meeting availability; concerns expressed regarding meeting location; updated doodle poll sent out
08/26/2011	Annie Manji, CDFG	John Devine, HDR / RPs	--	04/01/2011 meeting – post meeting action	Two additional requests for information
06/16/2011 through 08/29/2011	Exchange of emails among Rose Staples, HDR; Ruth Porter, Hogan Lovells; and John Devine, HDR		--	Request for Additional Information	Requests for additional information regarding PTL Items 21, 23, and 24--among which were items uploaded to the relicensing website (see DOCUMENTS).
08/30/2011	John Devine, HDR	Annie Manji,	--	Request for Additional	Response to 08/26/2011 email

Date	From	To	W[1]	Subject	Details
		CDFG		Information	
09/01/2011	John Devine, HDR	RPs	--	Doodle Poll	Doodle Poll results and updated meeting schedule
09/01/2011	Jessie Raeder, TRT	RPs	--	Socioeconomic Subgroup	Query regarding date choice for next meeting
09/02/2011	Rose Staples, HDR	RPs	--	Water Rights List	Release of Water Rights Lists of Pre-1914
09/02/2011	Rose Staples, HDR	RPs	X	Progress Tracking List	Updated PTL on relicensing website
09/08/2011	Carol Brown, HDR	RPs	--	Study Plans	Study Plans on relicensing website (see DOCUMENTS tab, Studies folder, RWG Study Plan Development sub-folder)
09/09/2011	Rose Staples, HDR	RPs	--	Socioeconomics Meeting 09/13/2011	Logistics
09/19/2011 throgh 09/26/2011	Exchange of emails among Carin Loy, HDR; John Alves, City of Modesto; Rose Staples, HDR	RPs	--	Water & Aquatic Conference Call 09/28/2011	Availability for follow-up conference call to meeting; announcement of 09/28/2011 date set for call; logistics
09/27/2011	Rose Staples, HDR	RPs	--	Study Plans W&AR-03, 05, and 06	Red-lined version of study plans on relicensing website
09/28/2011	Rose Staples, HDR	RPs	--	RWG Meetings 10/4-5/2011 and 10/12/2011	Agendas
10/02/2011	Rose Staples, HDR	RPs	--	Study plans, Relicensing Newsletter, RWG Meetings 10/4-5 & 12/2011	Study plan revisions on relicensing website (DOCUMENTS/Studies/Study Plan Development); relicensing newsletter Volume 1 – Issue 2 released; logistics for RWG Meetings
10/03/2011 through 10/10/2011	Rose Staples, HDR	RPs	--	Water & Aquatic RWG Meeting 10/04/2011	Logistics; change to study plan revisions; upload of Mill Creek Model link to relicensing website
10/13/2011	Rose Staples, HDR	RPs	--	Study plans	Status update of posting most recent revisions to relicensing website
10/14/2011	Rose Staples, HDR	RPs	--	Updated Study Plan (USP)	Posted on relicensing website Also on FERC E-Library Accession No. 20111014-5077
10/17/2011 through 10/18/2011	Exchange of emails between Peter Barnes, SWRCB and Rose Staples, HDR; advisory to RPs		--	1992 Lower Tuolumne Predator Abundance report	Request for report which was uploaded to relicensing website
10/19/2011	Rose Staples, HDR	RPs	--	PSP comments due date	Confirmation of 10/24/2011 due date for RP comments on PSP

Date	From	To	W[1]	Subject	Details
10/20/2011	Exchange of emails between Rose Staples, HDR and Ruth Porter, Hogan Lovells		--	Updated Study Plan Location on FERC E-Library	Seeking confirmation of e-filing of USP with FERC; response with docket number used with e-filing
10/31/2011 through 11/03/2011	Rose Staples, HDR	RPs	X	NO RWG meetings this week; Water & Aquatic RWG Conference Call 11/03/2011	Cancellation of 11/3-4/2011 RWG Meetings; Logistics for 11/03/2011 Water & Aquatic Conference Call
11/22/2011	Rose Staples, HDR	RPs	X	RSP	Notification of Filing of RSP with FERC FERC E-Library Accession No. 20111122-5117 Uploaded to relicensing website
12/09/2011	Rose Staples, HDR	RPs	--	CCSF's Socioeconomic Study Plan	Forwarded at request of Donn Furman with CCSF
12/22/2011	Rose Staples, HDR	RPs	X	FERC's Study Plan Determination	FERC E-Library Accession No 20111222-3041 Uploaded to relicensing website
Year 2012					
01/18/2012	Rose Staples, HDR	RPs	X	W&AR-05 Study Plan	Materials available on CD
01/20/2012	Rose Staples, HDR	RPs	X	W&AR-18, 19, and 20 Study Plans	Draft study plans for 30-day review and comment
01/24/2012	Rose Staples, HDR	RPs	X	Motion to Disqualify Agency Dispute Panel Member	Districts' filing with FERC FERC E-Library Accession No 20120124-5021
02/07/2012	Rose Staples, HDR	RPs	X	2012 W&AR Workshop Schedule	Meeting/workshop schedule for 2012
02/07/2012	Rose Staples, HDR	RPs	X	Districts' Request for Time Extension for filing study plans W&AR-18, 19 & 20	FERC E-Library Accession No. 20120207-5017
02/17/2012	Rose Staples, HDR	RPs	--	W&AR-18, 19, & 20 study plans	New comment due date on draft study plans W&AR-18, 19, and 20
02/21/2012	Rose Staples, HDR	RPs	--	W&AR-12 study plan	Draft for 30-day review & comment
See Draft License Application (DLA) filed with FERC on 11/26/2013 for the Consultation Workshops Record from March 2012 through November 2013) (FERC E-Library accession No. 20131126-5015; www.ferc.gov). Studies involved with the Consultation Workshop Process are W&AR-02 Project Operations, W&AR-05 Salmonid Population Information Synthesis, W&AR-03 Reservoir and W&AR-16 River Temperature Models, and W&AR-06 Chinook salmon and W&AR-10 O.mykiss Population Models.					
03/19/2012	Alan J Wilhelmy, Rogers Joseph O'Donnell	Carin Loy, HDR / Jeanna Borovansky,	--	Property on Shawmut Road	Expressing need for additional barriers or fencing to prevent illegal dumping to protect watershed and Lake Don Pedro

Date	From	To	W[1]	Subject	Details
		HDR			
03/29/2012	Rose Staples, HDR	RPs	X	Relicensing Newsletter	Volume 2-Issue 1 released
04/02/2012	Rose Staples, HDR	RPs	X	W&AR-14 Meeting 04/11/2012	Agenda and advance materials
04/06/2012	Rose Staples, HDR	RPs	X	W&AR-12 Study Plan	Revised study plan filed with FERC FERC E-Library Accession No. 20120409-5012
04/09/2012	Rose Staples, HDR	RPs	--	Meetings April 9-11, 2012	Additional logistics
04/10/2012	Rose Staples, HDR	RPs	--	Meetings April 10-11, 2012	Additional logistics
04/13/2012	Rose Staples, HDR	RPs	X	W&AR-14 Meeting 04/11/2012	Advance material posted on relicensing website
04/23/2012	Rose Staples, HDR	RPs	--	NMFS' request for additional information	Districts' response filed with FERC FERC E-Library Accession No. 20120423-5110
07/31/2012	Rose Staples, HDR	RPs	X	Study Dispute Resolution	Districts filed with FERC a request for clarification on Director's Formal Study Dispute Resolution of 05/24/2012 FERC E-Library Accession No. 20120731-5216
08/06/2012	Exchange of emails between Karl Morton and Rose Staples, HDR		--	Request for Information	Request for and response to regarding Don Pedro relicensing
09/26/2012	Rose Staples, HDR	RPs	X	ISR & ISR Meeting Schedule	Districts filed with FERC a request for schedule extension to file ISR and to hold ISR Meeting FERC E-Library Accession No. 20120927-5012
10/16/2012 through 10/18/2012	Exchange of emails between Jim Alves, City of Modesto and John Devine, HDR		--	W&AR-15 Socioeconomic Study	Clarification of individual and group meetings
10/19/2012	Rose Staples, HDR	RPs	--	W&AR-15 Socioeconomics Meeting 11/09/2012	Agenda
10/30/2012	Rose Staples, HDR	RPs	--	RR-1 Field Survey 11/08/2012	Announcement of field survey being conducted for dispersed recreation use site assessment
11/01/2012	Rose Staples, HDR	RPs	X	W&AR-14 Workshop 11/16/2012	Agenda
11/08/2012	Rose Staples, HDR	RPs	--	W&AR-14 & 15 Workshop/Meeting	Advance materials posted to relicensing website
11/15/2013	Jenna Borovansky, HDR	RPs	--	W&AR-14 Meeting 11/16/2012	Time Change

Date	From	To	W[1]	Subject	Details
11/16/2013	Bill Lyons, Mapes Ranch	John Devine, HDR	--	Socioeconomics	Response filed with FERC FERC E-Library Accession No. 20121206-5181
11/30/2012 11/09/2012	Rose Staples, HDR Tim Findley, Hanson Bridgett	Tim Findley, Hanson Bridgett Rose Staples, HDR	--	Socioeconomic Meeting 11/09/2012	List of Action Items and areas of significant discussion to be posted on relicensing website Request for copy of meeting notes
12/06/2012	Rose Staples, HDR	RPs	X	ISR Meeting 01/30-31/2013	Agenda filed with FERC FERC E-Library Accession No. 20121206-5186
12/12/2012	Rose Staples, HDR	RPs	X	W&AR-14 Meeting 11/16/2012	Draft notes for 30-day review and comment
Year 2013					
01/03/2013	Rose Staples, HDR	RPs	X	Relicensing Newsletter	Volume 2 – Issue 2 published
01/08/2013	Annie Manji, CDFW	RPs	--	IRS & ISR Meeting objectives	Reference to CDFW 12/21/2012 filing with FERC
01/17/2013	Rose Staples, HDR	RPs	X	ISR	ISR filed with FERC FERC E-Library Accession No. 20130117-5086 Also available on CD
01/23/2013	Rose Staples, HDR	RPs	--	ISR Meeting 01/30-31/2013	Agenda; logistics
01/23/2013	Exchange of emails between Peter Drekmeier, TRT and John Devine, HDR		--	Socioeconomic Study Report	Response to query on status of report
01/25/2013	Rose Staples, HDR	Steve Burke	--	Information for new member of RP group	Relicensing information provided
01/29/2013	Rose Staples, HDR	RPs	X	ISR Meeting 01/30-31/2013	Additional logistics
01/30/2013	Rose Staples, HDR	RPs	X	ISR Meeting 01/30/2013	Meeting slides to be used on 01/30/2013 uploaded to relicensing website (ANNOUNCEMENTS)
01/31/2013	Rose Staples, HDR	RPs	X	ISR Meeting 01/31/2013	Meeting slides to be used on 01/31/2013 uploaded to relicensing website (ANNOUNCEMENTS)
01/31/2013	Rose Staples, HDR	James Barnes, BLM	--	ISR Historic Properties and TCP reports	Request for Attachment B of TCP report, which was filed with FERC on 1/17/2013 as privileged information
02/08/2013	Rose Staples, HDR	RPs	X	ISR Meeting Summary	ISR Meeting Summary filed with FERC FERC E-Library Accession No. 20130208-5156
02/15/2013	Rose Staples, HDR	Allison Boucher	--	Email Group Listing / List of Reference	Response to request for lists

Date	From	To	W[1]	Subject	Details
				Codes for Studies	
02/26/2013	Rose Staples, HDR	Allison Boucher	--	Contact Info for BLM Representative	Response to request for contact info
03/04/2013	Rose Staples, HDR	Brian Welde, Angling Technologies	--	GIS Bathymetry Data	Request for information
03/08/2013	Rose Staples, HDR	Allison Boucher, TRC	--	Request for Info	Request for contact information for new TID biologist
03/11/2013	Larry Thompson, NOAA	John Devine, HDR		ISR Info Request	Seeking location in ISR for information needed; location provided in response
03/16/2013 Back to 02/27/2013	John Devine, HDR	Ramon Martin, USFWS	--	ISR Meeting	Follow-up on request made at ISR meeting
04/09/2013	Rose Staples, HDR	RPs	X	ISR	Districts' Response to RP comments on ISR filed with FERC FERC E-Library Accession No. 20130430-5465
04/11/2013	Rose Staples, HDR	RPs	--	New Meeting Schedule	Advisory New Meeting Schedule pending
04/30/2013	Rose Staples, HDR	RPs	X	W&AR-07 Predation	2013 W&AR-07 study plan filed with FERC FERC E-Library Accession No. 20130430-5465
06/11/2013	Rose Staples, HDR	RPs	--	W&AR-07 Predation - draft study plan meeting 06/19/2013	Agenda
06/13/2013	Rose Staples, HDR	RPs	--	W&AR-07 2014 Predation and W&AR-21	Request filed with FERC to extend time to file FERC E-Library Accession No. 20130613-5133
06/18/2013	Rose Staples, HDR	RPs	--	W&AR-07 draft study plan meeting 06/19/2013	Logistics
07/08/2013 through 07/10/2013	Exchange of emails between Mike Marshall, RHH and Rose Staples, HDR		--	Cost of relicensing process	Query referred to Districts for response
07/23/2013	Rose Staples, HDR	RPs	--	Relicensing Newsletter	Volume 3 Issue 2 published
08/08/2013	Rose Staples, HDR	RPs	--	W&AR-07 Predation – 2014 study plan	Draft for 30-day review and comment
08/09/2013	Rose Staples, HDR	RPs	--	W&AR-21 Floodplain Hydraulic Assessment	Draft for 30-day review and comment

Date	From	To	W[1]	Subject	Details
				study plan	
08/12/2013	Rose Staples, HDR	RPs	--	RR-3 Lower TR Lowest Boatable Flow Study	Call for Volunteers
09/16/2013	Rose Staples, HDR	RPs	X	W&AR-07 2014 Predation and W&AR-21 Floodplain Hydraulic Assessment	Study Plans filed with FERC FERC E-Library Accession Nos. 20130916-5128 and 20130916-5124
10/30/2013	Rose Staples, HDR	RPs	--	Technical Memorandum Pacific lamprey, Sacramento splittail, and non-native predatory fish habitat assessments	Provided for a 30-day review and comment
11/05/2013	Allison Boucher, TRC	Rose Staples, HDR / RPs	--	Technical Memorandum	Comment on Tech Memo
11/05/2013	Rose Staples, HDR	RPs	--	DLA	Alert of upcoming filing; CD copy available upon request
11/15/2013	Rose Staples, HDR	RPs	X	USR Filing	Alert USR will be filed 12/10/2013 and USR Meeting date will be 12/19/2013
11/15/2013	Annie Manji, CDFW	Rose Staples, HDR	--	USR Meeting	Alert of conflicting MERCED meeting for 12/19/2013
11/15/2013	Rose Staples, HDR	RPs	--	USR Meeting	Date Change to 12/18/2013
11/25/2013	Rose Staples, HDR	RPs	X	USR Filing & USR Meeting Date	Request for extension to 01/06/2014 (USR Filing) and 01/16/2014 (USR Meeting Date) filed with FERC FERC E-Library Accession No. 20131125-5059
11/26/2013	Rose Staples, HDR	RPs	X	DLA	DLA filed with FERC FERC E-Library Accession No. 20131126-5015 CD copy available upon request
11/27/2013 through 12/03/2013	Exchange of emails between Julie Rentner, River Partners and Rose Staples, HDR		--	Integration of studies with floodplain habitat restoration	Response to contact request
12/05/2013	Rose Staples, HDR	RPs	X	Relicensing Newsletter	Volume 3 Issue 2 uploaded to relicensing website
Year 2014					
01/06/2014	Rose Staples, HDR	RPs	X	USR	USR Filed with FERC FERC E-Library Accession No. 20140106-5091
01/07/2014	Rose Staples, HDR	RPs	X	USR Meeting	Revised Agenda
01/09/2014	Rose Staples, HDR	RPs	--	RP Mailing Addresses	Request for updated mailing addresses for FLA

Date	From	To	W[1]	Subject	Details
01/16/2014	Rose Staples, HDR	RPs	X	Draft Technical Memorandum on Pacific lamprey and Sacramento splittail 1-D PHABSIM Habitat Assessment	For 30-day review and comment
01/16/2014	Rose Staples, HDR	RPs	X	USR Meeting	PPT presentations uploaded to relicensing website (attached to meeting announcement on the relicensing website CALENDAR)
01/28/2014	Rose Staples, HDR	RPs	--	Training Sessions February 2014	Reservoir Temperature (02/13/2014), Chinook salmon and *O.mykiss* (02/24/2014), and Floodplain Hydraulic Assessment (02/13/2014)
01/28/2014	Rose Staples, HDR	RPs	X	USR Meeting Summary	USR Meeting Summary filed with FERC FERC E-Library Accession No. 20140127-5182
02/11/2014	Rose Staples, HDR	RPs	X	Training Sessions	Additional logics (regarding computer needs)
02/25/2014	Rose Staples, HDR	RPs	--	CCSF Socioeconomic Meeting 03/24/2014	Meeting announcement and logistics for meeting forwarded at the request of Ellen Levin, CCSF
03/04/2014	Rose Staples, HDR	RPs	X	Floodplain Hydraulic Assessment Workshop 02/13/2014	Draft workshop notes for review and comment

3.0 AGENCY CONSULTATION RECORD LOG

Table 3.0-1 is the record log of consultation with appropriate agencies and other interested participants with the various studies associated with the relicensing. Copies of these documents are provided in Appendix B to this Attachment.

Table 3.0-1. Record log of advisories and other communications with the agencies and other interested parties with the studies.

DATE	FROM	TO	SUBJECT	DETAILS
Year 2010				
07/15/2010 through 07/16/2010	Exchange of emails between Albert Franklin, BLM and Robin Kent, HDR		Request for Botanical Info	Request for and response regarding The Red Hills ACEC and Don Pedro Reservoir area
Year 2011				
05/18/2011	Patrick Koepele, TRT	John Devine, HDR; Nancy Craig, HDR; and Stephen Bowes, NPS	Lower Tuolumne River Parkway: A Framework for the Future	Transmittal of report, as requested
09/08/2011	Stephen Bowes, NPS	Recreation Focus Group	Recreation Study Plans	Review comments on Recreation Study Plans
09/08/2011	Annie Manji, CDFG	Nancy Craig, HDR	RR-01 Study	Review comments on proposed visitor survey
09/29/2011 through 10/10/2011	Exchange of emails between Charles Vertucci, HDR and Shelly Schubert, CDFG		RR-01 Study Request for Data	Transmittal of data requested and additional email exchange to clarify data
Year 2012				
01/06/2012	Susan Imholt, on behalf of HDR	Alison Willy, USFWS; Peggy Cranston, and James Eicher, BLM	CRLF Site Assessment Fieldwork Notice	Invitation to participate in site assessment fieldwork 02/6-10/2012
01/19/2012 through 01/20/2012	Exchange of emails among Chrissy Sonke and Jason Guignard, FISHBIO; Jeffrey Jahn, BLM; and Mary Nicholl, NMFS		2012 4(d) application modification	Request for procedure to modify--and subsequent clarifications
01/26/2012 through 02/14/2012	Exchange of emails between Jason Guignard, FISHBIO and Sunil Rajappa, CDFG		SCP amendments	Request to expedite amendments
02/28/2012	Susan Imholt, HDR	Alison Willy, USFWS; Peggy Cranston and James Eicher, BLM	CRLF Site Assessment Field Notice	Notification of field work scheduled for 4/2-4/2012, with invitation to participate
02/16/2012 through 03/05/2012	Exchange of emails between Jason Guignard, FISHBIO and Jamie Cary, CDFG		SCP Amendments	Follow-up on status of SCP amendments
03/05/2012 through 03/06/2012	Exchange of emails among Jason Guignard and Jim Inman, FISHBIO; Jamie Cary, CDFG; and Gina De La Rosa, CDFG		SCP Amendments	Additional follow-up on SCP amendments
03/08/2012	Susan Imholt, HDR	Peggy Cranston, BLM	Don Pedro Herp Record	Request for record information on WPT, FYLF, CRLF, or CTS; notification of fieldwork on FYLF and WPT early April 2012
03/09/2012	Exchange of emails between Justin Tortosa, HDR and		Don Pedro LTAM Site	Request for contact information and approval of

DATE	FROM	TO	SUBJECT	DETAILS
	Peggy Cranston, BLM		Locations	site locations selected
03/14/2012	Justin Tortosa, HDR	Peggy Cranston, BLM	Bald Eagle nesting survey	Notification of upcoming survey work and request for any additional information regard nests locations
03/15/2012	Robin Kent, HDR	Beth Brenneman, BLM	Botanical Surveys March 2012	Notification and invitation to participate
03/12/2012 through 03/15/2012	Exchange of emails between Jason Guignard, FISHBIO and Jamie Cary, CDFG		Predation SCP Amendment	Status of SCP; query regarding sampling time limit
03/12/2012 through 03/16/2012	Exchange of emails between Jason Guignard, FISHBIO and Jamie Cary, CDFG		Predation SCP Amendment	Permit conditions
03/21/2012	Jason Guignard, FISHBIO	Nicole Stowe, CDFG	SCP Amendment for Rob Fuller	SCP amendment for Tuolumne Predation study not received for R Fuller
03/19/2012 through 03/21/2012	Exchange of emails among Jason Guignard and Andrea Fuller, FISHBIO; Steve Tsao, CDFG; and Domenic Giudice, CDFG		Predation Study sampling	Notification of sampling March 22-29, 2012
03/23/2012	Robin Kent, HDR	Alison Willy, USFWS	Potential VELB Hole Findings	Notification of findings, with photos
03/26/2012	Exchange of emails between Jason Guignard, FISHBIO and Mark Clifford, CDFG		Merced River Hatchery Fish Request	Guidelines provided for making official request
03/26/2012 through 03/27/2012	Susan Imholt, HDR	Peggy Cranston and James Eicher, BLM	field work April 2-3, 2012 and week of 04/16/2012	Notification of field work and invitation to participate
04/05/2012	Kelly Bricker, HDR	Tuolumne River Commercial Outfitters, Managers, and Private Boaters	RR-02 Study Focus Group Meeting 04/17/2012	Invitation to participate in focus group for Whitewater Boating Take-Out Improvement Feasibility Study
03/05/2012 through 04/17/2012	Exchange of emails among Rachel Barnett-Johnson, UCSC; Maia Singer, Stillwater Sciences; and Tim Heyne, CDFG		Otolith Sample Request / MOU	Determining availability of otoliths
04/09/2012	Robin Kent, HDR	Alison Willy, USFWS	Potential VELB hole findings	Notification, accompanied by photos, of potential occurrences
04/10/2012	Robin Kent, HDR	Alison Willy, USFWS	Potential VELB hole findings	Notification, with photos, of potential boreholes
04/09/2012 through 04/12/2012	Exchange of emails among Dean Marston, CDFG; Andrea Fuller and Jason Guignard, FISHBIO		Tuolumne River Fish Study Request	Clarification of study purpose of fish requested

DATE	FROM	TO	SUBJECT	DETAILS
04/05/2012 through 04/13/2012	Patrick Koepele, TRT	Kelly Bricker, HDR	RR-02 Focus Group Meeting 04/17/2012	Advisement Bob Hackamack (TRT board member) to attend instead; transmittal of Storesund Consulting preliminary conceptual ideas for a Wards Ferry Bridge takeout
04/05/2012 through 04/16/2012	Exchange of emails between Robin Kent, HDR and Beth Brenneman, BLM		Botanical Work April 2012	Notification of field work and invitation to participate
04/27/2012	Susan Imholt, HDR	Alison Willy, USFWS and Peggy Cranston and James Eicher, BLM	CRLF Site Assessment Field Notice	Notification of late May-June 30, 2012 field work and invitation to participate
05/14/2012	Susan Imholt, HDR	Alison Willy, USFWS and Peggy Cranston and James Eicher, BLM	CRLF and CTS Site Assessment Reporting approach	Seeking comment on proposed approach for reporting
05/17/2012	Robin Kent, HDR	Alison Willy, USFWS	Potential VELB hole findings	Notification of occurrence, with photos, of potential boreholes
05/21/2012	Kelly Bricker, HDR	Potential Boaters	Boater Survey period May 30-June 3, 2012	Call for volunteers
05/21/2012	Stephen Bowes, NPS	Kelly Bricker, HDR	Boating Volunteers	Unable to boat; but will stop by
05/21/2012	Robin Kent, HDR	Alison Willy, USFWS	Potential VELB hole findings	Notification of potential occurrences, with photos
05/18/2012 through 05/24/2012	Exchange of emails between Robin Kent, HDR and Beth Brenneman, BLM		Botanical Surveys	Logistics for BLM participation on May 23, 2012
05/26/2012	Kelly Bricker, HDR	Patrick Koepele, TRT; Potential Boaters	Boater Survey period May 30-June 3, 2012	Additional logistics
05/29/2012	Robin Kent, HDR	Beth Brenneman, BLM	Botanical Surveys June 2012	Notification of final 2012 botanical surveys, and invitation to participate
05/30/2012	Beth Brenneman, BLM	Robin Kent, HDR	Botanical Surveys June 2012	Coordination for participation date
06/01/2012	Nancy Craig, HDR	Patrick Koepele, TRT; Stephen Bowes, NPS; and Volunteer Boaters	Flow Study Participation 06/01/2012	Thank you for 5/31/2012 participation; invitation to participate on 6/1/2012
05/26/2012 through 06/01/2012	Exchange of emails among Kelly Bricker and Nancy Craig, HDR; group of Potential Boaters; and Chris Guptill, private boater		Flow Study Participation June 1-3, 2012	Cancellation of 6/2 and 6/3/2012; update on 6/1/2012 results; logistics for 5/30-6/3/2012 flow study days
05/31/2012 through 06/01/2012	Exchange of emails between Gaea Bailey, HDR and Beth Brenneman, BLM		Botanical Surveys June 2012	Notification of locations of June 6-8 and 11-15, 2012 field surveys; invitation to participate

DATE	FROM	TO	SUBJECT	DETAILS
06/04/2012	Bob Hackamack	Dan Steiner / RPs	Simplified TR Water Balance	Proposing a simplified view of TR unimpaired flow
06/15/2012	Exchange of emails among Kelly Bricker, HDR; Stephen Bowes, NPS; and Dave Steindorf, American Whitewater		Follow-up conference call on Boatable Flow study results	Request for and logistics with planning conference call date
06/15/2012	Patrick Koepele, TRT	Kelly Bricker, HDR / Stephen Bowes, NPS / Dave Steindorf, American Whitewater	Follow-up conference call on Boatable Flow study results	Request for alternative dates
06/21/2012 through 06/23/2012	Email exchange between Sunil Rajappa, CDFG and Jason Guignard, FISHBIO		SCP Amendments – Electrofishing	Status check of permit requests
06/29/2012	Susan Imholt, HDR	Alison Willy, USFWS	CRLF and CTS site assessment reporting approach	Follow up on approach approval
07/05/2012	Robin Kent, HDR	Alison Willy, USFSW	Potential VELB hole findings	Notification, with photos, of potential occurrence
07/27/2012	Robin Kent, HDR	Beth Brenneman, BLM	Botanical Surveys 2012	Notification that botanical surveys have been completed for 2012 and some areas not surveyed due to safety issues
08/09/2012	Exchange of emails between Jason Guignard, FISHBIO and Jeffrey Jahn, NMFS		Section 10 Permit	Notification of exceedance of authorized take
08/28/2012	Kelly Bricker, HDR	Interested Boaters	Flow Study 09/29-10/01/2012	Call for volunteers to participate
05/14/2012 through 08/29/2012	Exchange of emails among Susan Imholt, HDR, Alison Willy, USFW; Peggy Cranston and James Eicher, BLM; and Devin Malkin, HDR		CRLF and CTS site assessment reporting approach	Follow-up on initial requests for approval of tabular approach to reporting
09/14/2012 through 09/21/2012	Exchange of emails between Jason Guignard, FISHBIO and Dustin Harrison, CDFG		SCP Amendments for Electrofishing	Confirming receipt and status
09/21/2012 through 10/18/2012	Exchange of emails between Maia Singer, FISHBIO and Tim Heyne, CDFG		TR Otolith	Status check; offer of assistance
09/26/2012 through 11/16/2012	Exchange of emails between Patrick Koepele, TRT and Nancy Craig, HDR		Lower TR Boatable Flow study 09/29-10/1/2012	Advisory TRT has another event during this period; expressed concerns about implementation of study. Response from N Craig regarding these concerns
10/24/2012	Exchange of emails between Stephen Bowes, NPS and		Wards Ferry Study	Query and response to query regarding progress;

DATE	FROM	TO	SUBJECT	DETAILS
through 11/16/2012	Nancy Craig, HDR			call for study update conference call; N Craig response to query
11/20/2012	Steve Pavich, Cardno Entrix	James Bond, City of Modesto	Meeting 10/19/2013	Follow-up to meeting, with list of information/data sources to be provided
11/29/2012	Stephen Bowes, NPS	Nancy Craig, HDR	09/29-10/01/2012 Lower TR Boatable	Supported need for follow-up conference call
11/30/2012	Lane Menezes, The Ranch Realtor	Steve Pavich, Cardno Entrix	Socioeconomics Study – land values	Reaching out to obtain relevant information on land values and affect of Don Pedro Project
Year 2013				
01/03/2013 through 01/11/2013	Exchange of emails between Stephen Bowes, NPS and Nancy Craig, HDR8		ISR Meeting	Expressed concern about length of time allotted to recreation studies; response by N Craig that at conclusion of ISR Meeting the group can decide if post-meeting teleconference/meeting needed
02/06/2013 through 02/11/2013	Exchange of emails between Stephen Bowes, NPS and Nancy Craig and John Devine, HDR		ISR Meeting Followup	Request if there are any design drawings on proposed improvements, reservoir level info, scanned copies of boatable flow surveys, and clarification of status of drift boater
03/05/2013	Devin Malkin, HDR	Alison Willy, USFWS	ISR Meeting request for VELB borehole findings photos	CD being sent of photos of potential VELB boreholes collected during 2012 studies and originally submitted as attachments to series of emails April 9 through July 5, 2012
02/28/2013 through 03/05/2013	John Wooster, NMFS	Scott Wilcox, Stillwater Sciences	W&AR-04 Study	Conference call discussion
03/06/2013 through 03/07/2013	Exchange of emails between Nancy Craig, HDR and Stephen Bowes, NPS		Boatable Flow study volunteers	Reminder of ISR Meeting request for breakdown of information regarding boaters who participated in the 4-day flow study days
03/07/2013	Exchange of emails between Nancy Craig, HDR and Stephen Bowes, NPS		Boatable Flow study volunteers	Further clarification of data transmitted 03/07/2013
03/07/2013	Devin Malkin, HDR	Alison Willy, USFWS	ISR Meeting request for VELB borehole findings photos	Advisement CD of photos referenced in 03/05/2013 communication being shipped 03/07/2013
03/19/2012	Susan Imholt, HDR	Alison Willy, USFWS; Peggy Cranston and James Eicher, BLM	CRLF Site Assessment	Notification of rescheduling of continuing fieldwork 4/02-04/2013 to 04/17-19, 2013
03/21/2013	Peter Barnes, SWRCB	Carin Loy, HDR		Concern if most recent updated Basin Plan was used in the analysis
03/23/2013	Exchange of emails between Gretchen Murphey, CDFG		E-fishing schedule	Request to be advised if sampling cancelled on

DATE	FROM	TO	SUBJECT	DETAILS
	and Jason Guignard, FISHBIO			account of weather
04/25/2013	Exchange of emails between Annie Manji, CDFG and Noah Hume, Stillwater Sciences		Districts Response to ISR Comments	Request for location of online copy of report referenced in response; response indicating report included on background information CD provided in January 2012
04/30/2013	Devin Malkin, HDR	Alison Willy, USFWS and Peggy Cranston, BLM	Notice of Bald Eagle field work	Notification of first survey, on 05/08-09/2013; together with an invitation to participate
07/08/2013	Steve Bowes, NPS	Nancy Craig, HDR	Meeting Confirmation: TR Float Trip	Confirming date/time for 08/06/2013 Upper TR Float Trip and Wards Ferry/Deer Flat visits
07/08/2013	Nancy Craig, HDR	Interested Boaters	Boater Survey beginning 08/17/2013	Call for Volunteers
07/08/2013	Stephen Bowes, NPS	Nancy Craig, HDR	Boater Survey beginning 08/17/2013	Confirmation of participation all 4 days
07/09/2013	Exchange of emails between Patrick Koepele, TRT and Nancy Craig, HDR		Boater Survey beginning 08/17/2013	Advisory of unavailable for 08/17/2013 but would spread the word
07/18/2013	Exchange of emails between Peter Drekmeier, TRT and Nancy Craig, HDR		Boater Survey beginning 08/17/2013	Advisory of potential summer rafting trips, so likely interest in keeping rafts as part of the study
07/18/2013	Nancy Craig, HDR	Interested Boaters	Boater Survey beginning 08/17/2013 and continuing through 09/21/2013	Call for volunteers; logistical details; notification of conference call doodle poll on availability from 07/24-07/26/2013
07/19/2013	Theresa Simsiman, American Whitewater	Nancy Craig, HDR	Boatable Flow Study	Request to be added to list of volunteers and distribution list
07/23/2013	Nancy Craig, HDR	Interested Boaters	Boater Survey Participants teleconference 07/26/2013	Logistics for teleconference to discuss schedule and protocols
07/26/2013	Stephen Bowes, NPS	Nancy Craig, HDR	Boater Survey Participants teleconference 07/26/2013	Notes from teleconference on tentative agreement points
07/23/2013 through 07/26/2013	Exchange of emails between Andrea Fuller, FISHBIO and Ramon Martin, USFWS		Draft 2014 Predation Study	Seeking and receiving comments and edits on initial draft
07/29/2013	Nancy Craig, HDR	Theresa Simsiman, American Whitewater	Descriptions of Selected LTR Reaches for Boatable Flow Study	For use in seeking volunteers
07/29/2013	Nancy Craig, HDR	Interested Boaters	Boatable Flow Study 08/17/2013	Call for volunteers
07/29/2013	Dave Steindorf, American Whitewater	Nancy Craig, HDR	Standard Boating Survey Questions	Suggested additions to the survey questions
07/29/2013	Exchange of emails among Stephen Bowes, NPS; Nancy		Lowest Boatable Flow	Logistics for 08/06/2013

DATE	FROM	TO	SUBJECT	DETAILS
through 07/30/2013	Craig, HDR; and Vern Shumway, USFS		Study	
08/01/2013	Nancy Craig, HDR	Recreation Focus Group	2012 Survey Instrument	Suggested changes
08/02/2013 through 08/03/2013	Exchange of emails between Vern Shumway, USFS and Nancy Craig, HDR		Wards Ferry Bridge/ TR Rafting Trip 08/06/2013	Logistics
08/05/2013	Bob Hackamack	Nancy Craig, HDR	Lowest Boatable Flow Study	Two points in follow-up to 07/26/2013 teleconference on schedule and protocols
08/05/2013	Exchange of emails between Alex Cantatore, Turlock City News and Nancy Craig, HDR		Lowest Boatable Flow Study	Request for information
08/05/2013	Vern Shumway, USFS	Nancy Craig, HDR	Wards Ferry Bridge / TR Rafting Trip	Confirmation of date, 08/06/2013
08/07/2013	Duke York, County of Tuolumne	David Jigour, TID; J Horn, BLM, Nancy Craig, HDR; Vern Shumway, USFS	Wards Ferry Bridge / TR Rafting Trip	Copies of maps used on 08/06/2013 trip
08/07/2013	Nancy Craig, HDR	Theresa Simsiman, American Whitewater	Boatable Flow Study	Transmittal of ads / announcements the Districts are running for the study
08/07/2013 through 08/08/2013	Exchange of emails between John Holland, Modesto Bee and Nancy Craig, HDR		Boatable Flow Study	Request for information regarding the study for a news story
08/08/2013	Theresa Simsiman, American Whitewater	Nancy Craig, HDR	Boatable Flow study	Advisement of information provided to additional paddlers/floaters groups regarding volunteers for the study
08/08/2013	Exchange of emails between Ramon Martin, USFWS and Noah Hume, Stillwater Sciences		Chinook Salmon Population Model Workshop 08/06/2013	Request for and transmittal of growth model dissertation reference in Chinook population model report
08/10/2013	Peter Drekmeier, TRT and Nancy Craig, HDR		Boatable Flow Study	Advisement of reach out for additional boaters
08/12/2013 through 08/15/2013	Exchange of emails among Stephen Bowes, NPS; Peter Drekmeier, TRT; and Nancy Craig, HDR		Wards Ferry Visit	Inquiry as to status on comments on survey instrument; Call for volunteers for August float
08/15/2013	Nancy Craig, HDR	Flow Study volunteers	Boatable Flow Study	Logistics for 08/17/2013
08/15/2013	Exchange of emails between Dustin Harrison, USFWS and Andrea Fuller, FISHBIO		Predation Study	Request for and submittal of Updated Predation Study
08/16/2013	Nancy Craig, HDR	Boatable Flow Volunteers	Boatable Flow Study	Survey instrument for preview
08/16/2013	Nancy Craig, HDR	Boatable Flow	Boatable Flow Study	Liability form for preview

DATE	FROM	TO	SUBJECT	DETAILS
		Volunteers		
08/20/2013	Stephen Bowes, NPS	Nancy Craig, HDR	Boatable Flow Study	4 additional surveys received
08/20/2013	Stephen Bowes, NPS	Potential Volunteers	Boatable Flow Study	Call for volunteers, with logistics
08/23/2013	Nancy Craig, HDR	Boatable Flow Volunteers	Boatable Flow Study	Final logistics for 08/24/2013, the second of four study days
08/28/2013	Exchange of emails between Susan Burke, Cardno Entrix and Jennifer Heguy, UCCE Stanislaus and San Joaquin Counties		Socioeconomic	Contact information
09/02/2013	Charlie Pike, Author Paddling North Caroline	Peter Drekmeier, TRT	Boatable Flow Study	Additional comments regarding TR at 150 cfs
09/03/2013	Exchange of emails between Stephen Bowes, NPS and Nancy Craig, HDR		Boatable Flow Study 09/07/2013	Setting the flow rate for 09/07/2013 flow study day
09/03/2013	Stephen Bowes, NPS	Potential Volunteers	Boatable Flow Study	09/07/2013 flow study announcement
08/18/2013 through 09/04/2013	Exchange of emails among Noah Hume and Dennis Halligan, Stillwater Sciences and Ramon Martin, USFWS		LWD Information	Request for and transmittal of information regarding reference
09/05/2013	Nancy Craig, HDR	Flow Study volunteers	Boatable Flow Study	Logistics for 09/07/2013 flow study
09/09/2013	Nancy Craig, HDR	Interested RPs	Deer Creek and Deer Flats Site Visit	Invitation to participate in site visit
09/10/2013	Nancy Craig, HDR	Flow Study volunteers	Boatable Flow Study 09/14/2013	Logistics for 09/14/2013 flow study
09/10/2013	Nancy Craig, HDR	Potential flow study volunteers	Boatable Flow Study 09/14/2013	Call for participation and getting the word out about the 09/14/2013 flow study day
09/10/2013	Nancy Craig, HDR	Flow study volunteers	Boatable Flow Study 09/14/2013	
09/11/2013	Exchange of emails between Jarvis Caldwell, HDR and Ramon Martin, USFWS		W&AR-21	Seeking and receiving further clarifications on language in USFWS 09/09/2013 comment letter to FERC for W&AR-21 Study Plan
09/13/2013	Exchange of emails between Stephen Bowes, NPS and Nancy Craig, HDR		Boatable Flow Study	Availability to participate and number of other volunteers expected
09/16/2013	John Wooster, NMFS	Jay Stallman, Stillwater Sciences	Potential Sediment Transport Model Nodes	Recommendations for potential reach breaks
09/16/2013	Exchange of mails between Ryan Stifter, Cardno Entrix and Jennifer Heguy, UCCE Stanislaus and San Joaquin Counties		Socioeconomics	Confirm 09/17/2013 call and transmittal of a list of questions to be asked
10/18/2013	Devin Malkin, HDR	Annie Manji, CDFW	Special-Status Plant reference Population	Response to ISR Meeting request for information on the use of reference populations
10/18/2013	Exchange of emails between Devin Malkin, HDR		Special-Status Plant data	Transmittal of raw data on ESA-Listed, CESA-

DATE	FROM	TO	SUBJECT	DETAILS
through 10/22/2013	And Beth Brenneman, BLM			listed, and Special-Status plants, as requested in CDFW's 03/11/2013 response to ISR Report
10/14/2013 through 10/31/2013	Exchange of emails between Stephen Bowes, NPS and Nancy Craig, HDR		Boatable Flow Study	Request for and transmittal of copies of the surveys collected during the 2013 boatable flow study days; and request of TRT for surveys collected during Paddle-to-the-Sea
10/14/2013 through 11/04/2013	Exchange of emails among Rebecca Steivater and Patrick Koepele, TRT and Nancy Craig, HDR		Paddle-to-the-Sea Surveys	Request for copies of any boatable flow surveys from Paddle to the Sea
11/20/2013	Exchange of emails between Noah Hume, Stillwater Sciences and Monica Gutierrez, NMFS		*O.mykiss* Population Estimate	Request for and logistics for call regarding a population estimate for O.mykiss spawners
12/17/2013	Exchange of emails between Monica Gutierrez, NMFS and Noah Hume Stillwater Sciences		Redd Mapping Study	Advisory, in response to a request for a copy of the study report, that it will be published later this month as part of the ISR
2014				
01/06/2014 through 01/08/2014	Exchange of emails between Brian Hensley, CDFW and Andrea Fuller, FISHBIO		SCP Amendments for Predation Study	Doodle Poll check of availability to meet to discuss
01/14/2014	Andrea Fuller, FISHBIO	Stafford Lehr, CDFW	SCP Amendments for Predation Study	Follow-up on setting meeting date
01/17/2014	Exchange of emails among Brian Hensley, CDFW; Lehr Stafford, CDFW; and Andrea Fuller, HDR		SCP Amendments for Predation Study	01/28/2014 date selected for SCP meeting
01/23/2014	Jenna Borovansky, HDR	John Wooster, NMFS	Operations Model	Transmittal of Operations Model Version 3.0 and associated hydrology file, as requested on 01/16/2013 email to John Devine, HDR
02/03/2014	Exchange of emails between Noah Hume, Stillwater Sciences and Chris Shutes, CSPA		2003 IFIM vs Temperature Report cited by SPUC	Transmittal of Stillwater Sciences (2003) Draft TRTAC memorandum requested during USR meeting
02/03/2014	Nancy Craig, HDR	James Eicher, BLM	Dispersed Recreation data	Transmittal of GIS data requested during ISR meeting
02/05/2014	Exchange of emails between Monica Gutierrez, NMFS and Noah Hume, Stillwater Sciences		*O.mykiss* Population Study Report	Request, and response, for clarification of data regarding numbers of adult *O.mykiss* for 2011 and 2012
02/14/2014	Andrea Fuller, FISHBIO	Amanda Cranford, NMFS	Predation Study Extension Request	Notification of Districts' request for one-year extension of time; will pursue permits to conduct study in 2015
02/25/2014	Andrea Fuller, FISHBIO	Daniel Kratville, CDFW	SCP amendments for swim tube study	Status check on SCP amendments

DATE	FROM	TO	SUBJECT	DETAILS
12/04/2013 through 02/27/2014	Exchange of emails between Beth Brenneman, BLM and Robin Kent, HDR		ESA and CESA Plant Occurrence Table	Request and eventual transmittal of occurrence table
03/06/2014	Exchange of emails between Carlos Nava, Stanislaus Fire Protection and Nancy Craig, HDR		Request for data/results of boatable flow study	Transmittal of study report presenting results of 2012 and 2013 study effort
03/11/2014	Exchange of emails between Dustin Harrison, CDFW and Jason Guignard and Andrea Fuller, FISHBIO		SCP Amendments	Follow-up on status of pending SCP's and amendments

4.0 RELICENSING WEBISTE ANNOUNCEMENTS RECORD

The Relicensing Website Announcements Record (see Appendix C to this Attachment) is a summary of the Districts' announcements to all interested parties published under the ANNOUNCEMENTS tab on the Don Pedro relicensing website at www.donpedro-relicensing.com.

ATTACHMENT B
CONSULTATION RECORD

APPENDIX A
RELICENSING PARTICIPANTS
CONSULTATION RECORD DOCUMENTS

From:	Staples, Rose
Sent:	Wednesday, February 23, 2011 7:50 PM
To:	Aud, John - SCERD; Beuttler, John - CSPA; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Buckley, John - CSERC; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cremeen, Rebecca - CSERC; Devine, John; Donaldson, Milford Wayne - OHP; Edmondson, Steve - NOAA; Eicher, James - BLM; Eisenman, Marty H - USACE; Furman, Donn W - SFPUC; Ganteinbein, Julie - NHI; Giglio, Deborah - USFWS; Gorman, Elaine - SC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Heyne, Tim - CDFG; Holden, James ; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Laura - TNC; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lahi, Derald - SFF; Lein, Joseph; Levin, Ellen - SFPUC; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; O'Hara, Kerry - USFWS ; Orvis, Tom - SCFB; Pinhey, Nick ; Porter, Ruth - RHH; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Roos-Collins, Richard - NHI; Rothert, Steve - AR; Sears, William - SFPUC; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Wesselman, Eric - TRT; Wheeler, Douglas - RHH; Wilson, Bryan - MF; Workman, Michelle - USFWS; Zipser, Wayne - SCFB
Cc:	Loy, Carin; Pitts, Sheila
Subject:	Feb 28 Don Pedro Relicensing Organizational Meeting - Directions to HDR|DTA Sacramento Office and Other Details
Attachments:	Sacramento Office Directions.pdf; DonPedro_RelicensingOrganizationalMeeting_AGENDA_110228.pdf
Follow Up Flag:	Follow up
Flag Status:	Completed

Don Pedro Relicensing Organizational Meeting
Monday, February 28th – 9:30 a.m. to 3:00 p.m.

Location:
HDR|DTA Sacramento Office
2379 Gateway Oaks Drive Suite 200
Sacramento, CA 95833
(916) 564-4214 - (916) 564-4203 (fax)

General Directions (more detailed directions attached) / Check-In for Meeting Room Location
The Sacramento office of HDR|DTA on Gateway Oaks Drive is located in the Natomas Gateway Corporate Center (between both ends of the Venture Oaks Way loop). The HDR|DTA Office is at 2379 Gateway Oaks, located in Suite 200 (on the second floor). Driving directions are attached, as well as a copy of the meeting agenda (as previously published). As noted, the HDR|DTA offices are

located on the second floor of the building. Please check in with the receptionist at the front of the HDR|DTA offices for further directions to the meeting room.

Call-In number will be provided:
Hopefully you will be able to attend the meeting and participate in person; but if you need to call-in instead, the following conference line number is being provided: 866-994-6437, Conference Code 5424697994.

Rose Staples CPS/CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com

Don Pedro Relicensing Meeting

February 28, 2011

Location: HDR|DTA Offices, 2379 Gateway Oaks Dr Ste 200, Sacramento
Time: 9:30 AM to 3:00 PM
Meeting Purpose: Organize, initiate, and manage an efficient relicensing process

Agenda

[1] **Introductions**
(Name, location, organization, background, primary areas of interest)

[2] **Project Facilities Overview** (approximately 20 minutes)

[3] **Relicensing Process Plan and Schedule Review**

[4] **Meeting Locations**

[5] **Communications Plan**
(Website overview; website management; electronic document sharing)

[6] **Relicensing Participants Contact List** (additions; deletions; management)

[7] **Resource Work Groups**

- **Water resources** (hydrology; hydraulics; water quality; aquatic resources; Project operations)
- **Terrestrial resources** (wildlife; botanical; land management; riparian)
- **Recreation resources**
- **Cultural resources**

[8] **2011 Schedule of Meetings**

March 31
April 01
April 19-20
May 12-13
June 21-22
August 23-24
September 14-15
October 4-5
November 3-4

All of these dates were cross-checked with the Merced relicensing to verify that there are no conflicts.

[9] **Progress Tracking List and its Use**

[10] **Next Meeting and Meeting Agenda**

[11] **Closure**

From: Staples, Rose
Sent: Friday, February 25, 2011 3:44 PM
To: Aud, John - SCERD; Beuttler, John - CSPA; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Buckley, John - CSERC; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cremeen, Rebecca - CSERC; Devine, John; Donaldson, Milford Wayne - OHP; Edmondson, Steve - NOAA; Eicher, James - BLM; Eisenman, Marty H - USACE; Furman, Donn W - SFPUC; Ganteinbein, Julie - NHI; Giglio, Deborah - USFWS; Gorman, Elaine - SC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Heyne, Tim - CDFG; Holden, James ; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Laura - TNC; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lahi, Derald - SFF; Lein, Joseph; Levin, Ellen - SFPUC; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; O'Hara, Kerry - USFWS ; Orvis, Tom - SCFB; Pinhey, Nick ; Porter, Ruth - RHH; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Roos-Collins, Richard - NHI; Rothert, Steve - AR; Sears, William - SFPUC; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Wesselman, Eric - TRT; Wheeler, Douglas - RHH; Wilson, Bryan - MF; Wood, Dave - FR; Workman, Michelle - USFWS; Zipser, Wayne - SCFB
Subject: Additional Info on Feb 28 Don Pedro Meeting Logistics As a Result of Questions Asked

Some questions have been asked about the logistics of Monday's meeting at the HDR|DTA Sacramento Offices:

(1) The first was for a clarification of the directions from I-5—as to why one turned right off Route 5, rather than turning left as maps might suggest. I queried my associates in the Sacramento Office and received the following response (see in ITALIC).

From I- 5 North (from north of Sacramento e.g., Sacramento Airport, Woodland)

2. At the light, make a right onto Garden Highway.
3. At the next light, turn right onto Gateway Oaks Drive, proceed for 0.5 miles.
4. Pass Venture Oaks Way on your right and turn into the second driveway on your right. The building marked 2379 will be directly in front of you.

From Highway 5, the Garden Highway exit loops around and one must merge right onto Garden Highway, passing underneath Highway 5 and then one will get to the Gateway Oaks intersection and then it is a right turn onto Gateway Oaks.

(2) The second question was to whether tables and electrical outlets would be available for laptops—or if those who had requested paper copies (B&W) and had received them already should bring them along. *I am advised that there is a good quantity of electrical outlets in the room being used—and that there is significant conference table space for laptops--that should accommodate most of the need. However, if you do have a paper copy and want to reference it during the meeting, you may want to bring it along with you. As an FYI for those who have requested color copies, they are scheduled to be shipped out the first of next week.*

Thank you!

Rose Staples CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com

From: Pitts, Sheila
Sent: Wednesday, March 02, 2011 3:07 PM
To: Tony_Brochini@nps.gov; Aud, John - SCERD; Beuttler, John - CSPA; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Brewer, Doug - TetraTech; Buckley, John - CSERC; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Donaldson, Milford Wayne - OHP; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Findley, Timothy - Hanson Bridgett; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - NHI; Giglio, Deborah - USFWS; Gorman, Elaine - SC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lahi, Derald - SFF; Lein, Joseph; Levin, Ellen - SFPUC; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; O'Brien, Jennifer - CDFG; O'Hara, Kerry - USFWS ; Orvis, Tom - SCFB; Pinhey, Nick ; Porter, Ruth - RHH; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Roos-Collins, Richard - NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Sears, William - SFPUC; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Wesselman, Eric - TRT; Wheeler, Douglas - RHH; Wilson, Bryan - MF; Wood, Dave - FR; Workman, Michelle - USFWS; Zipser, Wayne - SCFB
Cc: Devine, John; Loy, Carin; Staples, Rose; Snider, William; Risse, Danielle; Malkin, Devin; Craig, Nancy
Subject: Poll: Don Pedro Relicensing Participants Meeting Dates

Don Pedro Relicensing Participants-

We are polling to identify which of the future meeting dates Relicensing Participants are able to attend.

Here is the link to the poll: http://doodle.com/thw8dgpqrkmv4dmd.

In the same field as your name, use as many of the following abbreviations as you may have interest in:
W=Water
T=Terrestrial
R=Recreation
C=Cultural

If you can only participate by phone, please indicate with a “P” (also in the same field as your name).

To submit your poll answers, click on the "Save" button.

Please respond by 5:00 pm (PST) on Monday, March 7, 2011.

Sheila Pitts
Project Administrator
HDR|DTA
2379 Gateway Oaks Drive, Suite 200 | Sacramento, CA | 95833
Office: 916.564.4214| Direct: 916.679.8798 | Fax: 916.564.4203
Email: sheila.pitts@hdrinc.com

From: Staples, Rose
Sent: Thursday, March 03, 2011 5:35 PM
To: Alves, Jim - City of Modesto; Aud, John - SCERD; Beuttler, John - CSPA; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Brewer, Doug - TetraTech; Buckley, John - CSERC; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Donaldson, Milford Wayne - OHP; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Findley, Timothy - Hanson Bridgett; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - NHI; Giglio, Deborah - USFWS; Gorman, Elaine - SC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lahi, Derald - SFF; Lein, Joseph; Levin, Ellen - SFPUC; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Roos-Collins, Richard - NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Sears, William - SFPUC; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Wesselman, Eric - TRT; Wheeler, Douglas - RHH; Wilson, Bryan - MF; Wood, Dave - FR; Workman, Michelle - USFWS; Zipser, Wayne - SCFB
Subject:Don Pedro Relicensing Post-Meeting Updates

>We would like to confirm participation in the February 28th meeting. Currently I have the following people listed—and ask that you advise me if I missed you on the sign-in list—or if you were there by conference call? (Please indicate if you were there in person, or on the phone.)

In Person
Brewer, Douglas
Buckley, John
Catlett, Kelly
Charles, Cindy
Day, P
Drekmeier, Peter
Eicher, James
Fuller, Reba
Hatch, Jennie
Hayat, Zahra
Heyne, Tim

Hughes, Robert
Kanz, Russ
Koepele, Patrick
Levin, Ellen
Manji, Annie
Marshall, Mike
Raeder, Jessie
Roseman, Jesse
Roos-Collins, Richard
Shutes, Chris
Stork, Ron
Verkuil, Colette
Walters, Eric
Wilson, Bryan

By Conference Call
Boucher, Alison
Bowes, Steve
Brochini, Tony
Furman, Donn
Giglio, Debbie
Jackson, Zac
Johnson, Brian
O'Brien, Jennifer

> By early next week we expect to upload to the www.donpedro-relicensing website the following materials—I will email an alert when they are all up there—and where.

Slides presented during the Feb 28th meeting
Process Plan and Schedule (as in the PAD and also handed out at the meeting)
First issue of the Don Pedro Relicensing Progress Tracking sheet
List of Meeting Participants

> You all should have received a request from Sheila Pitts to participate in a DoodlePoll regarding your availability for the meeting dates listed, if you were going to be a by-conference call only participant, as well as your interest in one or more of the resource working groups (RWGs): Cultural, Recreation, Terrestrial, and Water. If you didn't receive the email, please let me know. Also, if you indicated interest in participating in more than one group, please prioritize your interests (i.e. top priority #1;, next, #2) and let me know. This will assist us with the order in which we schedule the various RWG sections over the two-day meetings periods.

>The next confirmed Relicensing Participants Meeting will be held on Friday, April 1st at the MID Offices in Modesto, from 9:00 a.m. to Noon. Agenda to be a Review of Project Operations and an Update on the two On-Going Studies: Temperature Modeling and IFIM.

> All requests for the PAD CD and/or Paper copies (both B&W and color) have been shipped. If you have NOT received your FEDEX (street address) or FIRST CLASS (P O Box) shipments yet, please let me know. We have more CDs available if you would like one; just email me at the address below.

From: Devine, John
Sent: Monday, March 07, 2011 12:09 PM
To: Alves, Jim - City of Modesto; Aud, John - SCERD; Beuttler, John - CSPA; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Brewer, Doug - TetraTech; Buckley, John - CSERC; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Donaldson, Milford Wayne - OHP; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Findley, Timothy - Hanson Bridgett; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - NHI; Giglio, Deborah - USFWS; Gorman, Elaine - SC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Roos-Collins, Richard - NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Wesselman, Eric - TRT; Wheeler, Douglas - RHH; Wilson, Bryan - MF; Wood, Dave - FR; Workman, Michelle - USFWS; Zipser, Wayne - SCFB
Cc: Robert M. Nees; Greg Dias; Joy Warren; Art Godwin; Bill Johnston; Loy, Carin; Staples, Rose
Subject: FW: Districts' Response to Use of a Facilitator for Don Pedro Relicensing

Relicensing Participants,

At the February 28, 2011 meeting of Relicensing Participants in HDR|DTA's offices in Sacramento, some agencies and NGO parties requested that the Districts employ the use of a facilitator for relicensing meetings. The Districts continue to

believe that relicensing meetings can, and will, be effectively, openly, and transparently conducted under the management and guidance of the Districts' consultant, HDR|DTA. The Districts and HDR|DTA are fully committed to a professional, civil and engaging relicensing process that will provide for the free exchange of all ideas and viewpoints with courtesy and respect.

The Districts and HDR|DTA will work diligently to foster, promote, and ensure an environment where all parties feel they are welcome to communicate directly and meaningfully with each other. To suggest that such an environment cannot be developed even before the relicensing process really begins would be a disservice to all participants. While we should all expect differences of opinions to arise at times, and some strongly expressed, the Districts, for their part, can ensure relicensing participants that differences will be expressed respectfully and will be focused on the ideas espoused, not as attacks on the person expressing the opinion or idea. Therefore, as stated in the February 28 organizational meeting, we do not believe it necessary to engage the services of a facilitator. We look forward to working closely with all relicensing participants.

John Devine, P.E.
Project Manager
HDR|DTA
970 Baxter Blvd, Suite 301| Portland, ME | 04103
Office: 207.775.4495 | Fax: 207.775.1742
Cell: 207-776-2206
Durango, CO: 970-385-4995

From: Staples, Rose
Sent: Thursday, March 10, 2011 6:27 PM
To: Alves, Jim - City of Modesto; Aud, John - SCERD; Beuttler, John - CSPA; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Brewer, Doug - TetraTech; Buckley, John - CSERC; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Donaldson, Milford Wayne - OHP; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Findley, Timothy - Hanson Bridgett; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - NHI; Giglio, Deborah - USFWS; Gorman, Elaine - SC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Roos-Collins, Richard - NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Taylor, Mary Jane - CDFG; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Wesselman, Eric - TRT; Wheeler, Douglas - RHH; Wilson, Bryan - MF; Wood, Dave - FR; Workman, Michelle - USFWS; Zipser, Wayne - SCFB
Subject:Materials From Feb 28 Meeting Posted on Don Pedro Website

I have posted new documents on the Don Pedro relicensing website. Click on the MEETING tab, and then select MEETINGS CALENDAR. If you then click on the announcement title in the February 28, 2011 calendar block, you will bring up the announcement and all the attachments:

Materials Used at the February 28 Meeting
Agenda
PowerPoint Slides
Process Plan & Schedule

Additional Materials
List of Relicensing Participants (In Person and via Conference Call)
Progress Tracking List

If you have difficulty in locating and/or downloading the documents, please let me know. Thank you.

Rose Staples CPS CAP

Don Pedro Relicensing Meeting

February 28, 2011

Location: HDR|DTA Offices, 2379 Gateway Oaks Dr Ste 200, Sacramento
Time: 9:30 AM to 3:00 PM
Meeting Purpose: Organize, initiate, and manage an efficient relicensing process

Agenda

[1] **Introductions**
(Name, location, organization, background, primary areas of interest)

[2] **Project Facilities Overview** (approximately 20 minutes)

[3] **Relicensing Process Plan and Schedule Review**

[4] **Meeting Locations**

[5] **Communications Plan**
(Website overview; website management; electronic document sharing)

[6] **Relicensing Participants Contact List** (additions; deletions; management)

[7] **Resource Work Groups**

- **Water resources** (hydrology; hydraulics; water quality; aquatic resources; Project operations)
- **Terrestrial resources** (wildlife; botanical; land management; riparian)
- **Recreation resources**
- **Cultural resources**

[8] **2011 Schedule of Meetings**

March 31
April 01
April 19-20
May 12-13
June 21-22
August 23-24
September 14-15
October 4-5
November 3-4

All of these dates were cross-checked with the Merced relicensing to verify that there are no conflicts.

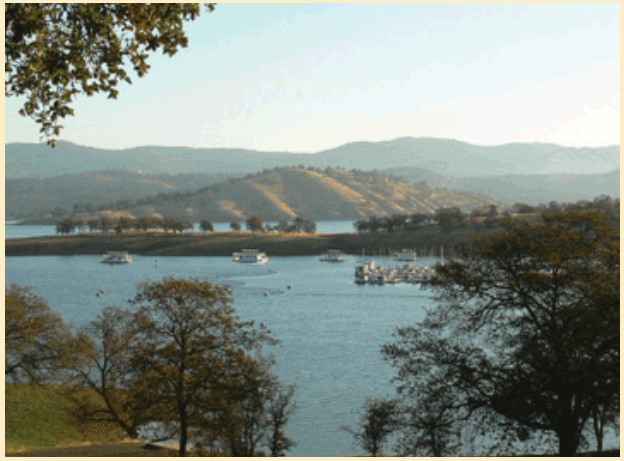
[9] **Progress Tracking List and its Use**

[10] **Next Meeting and Meeting Agenda**

[11] **Closure**

Don Pedro Project Relicensing

MODESTO IRRIGATION DISTRICT | TURLOCK IRRIGATION DISTRICT



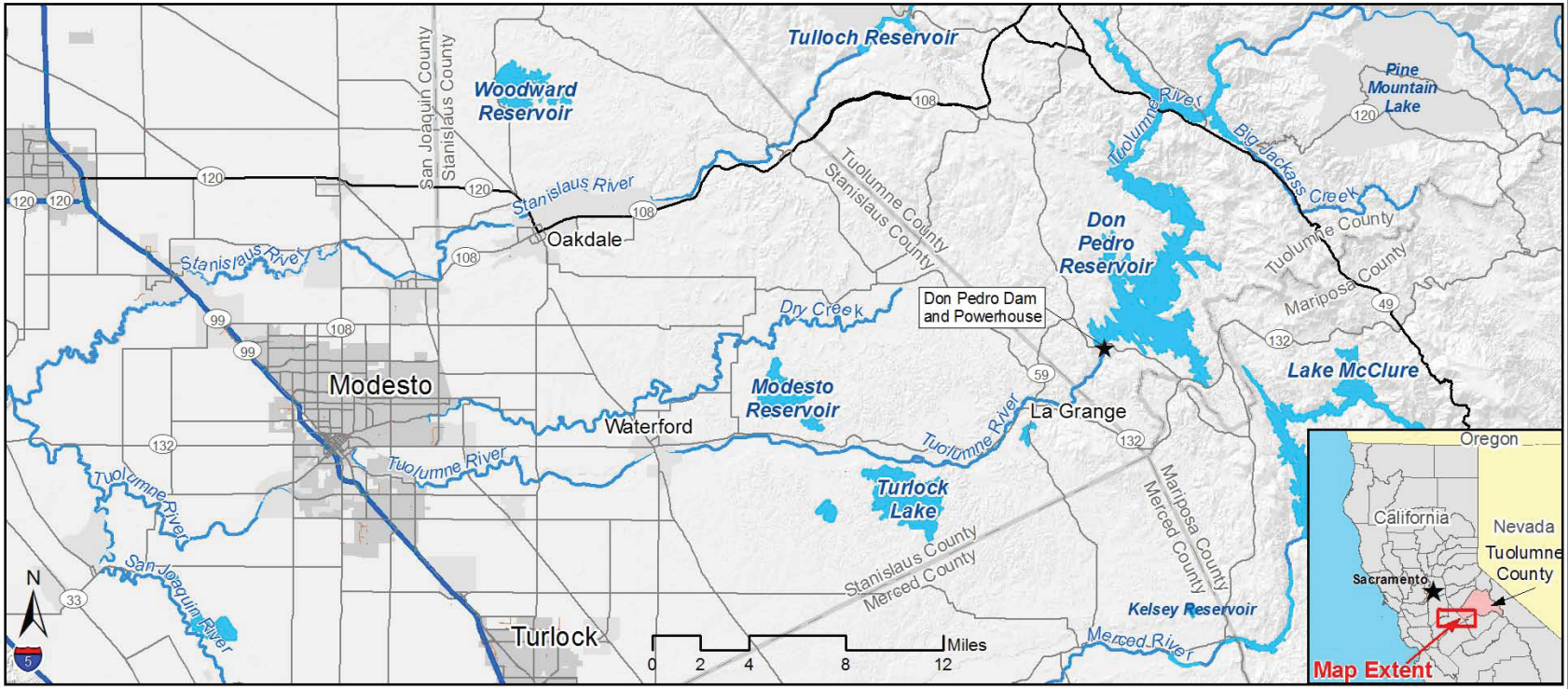


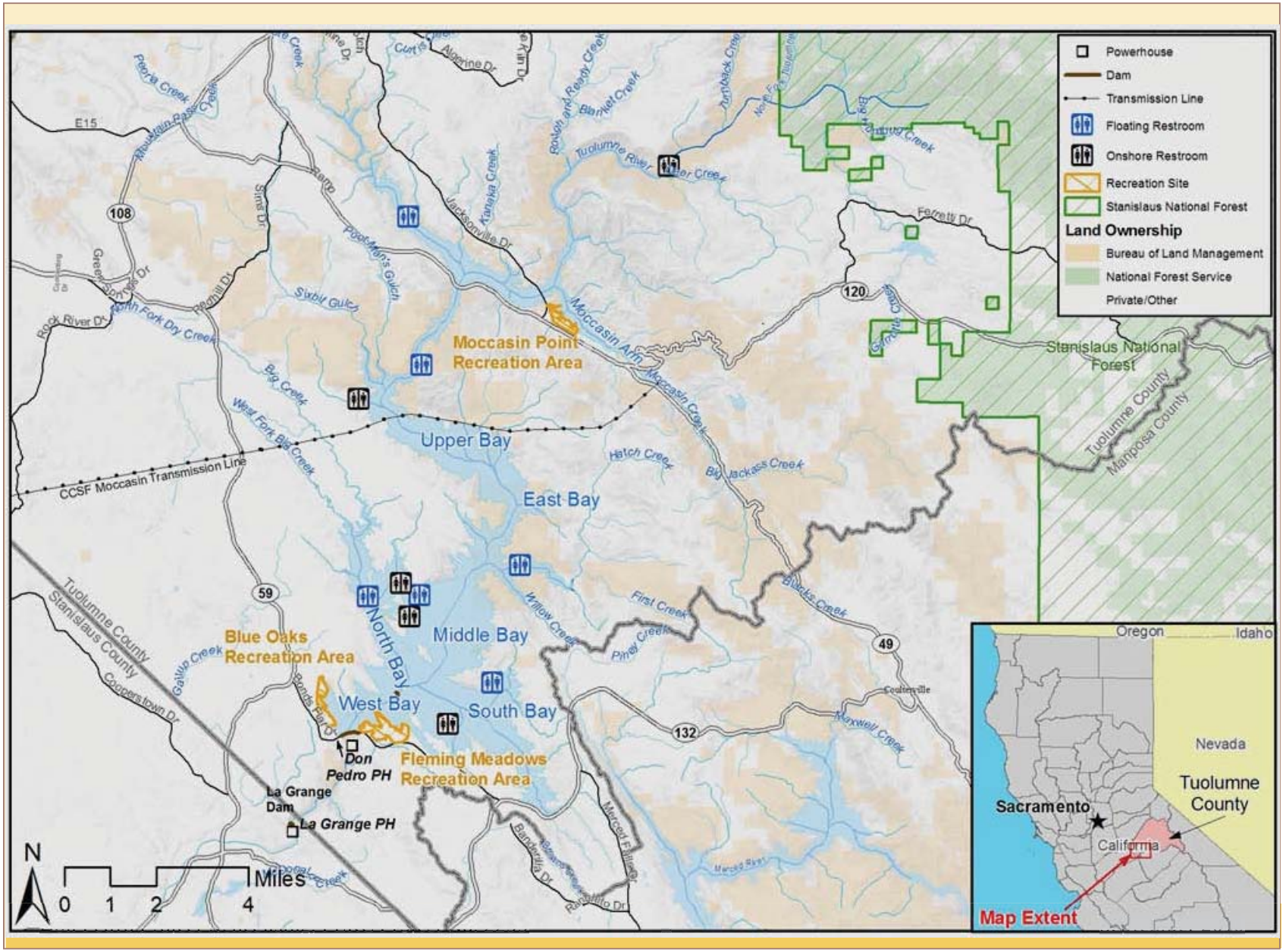
FERC
PROJECT
No. 2299



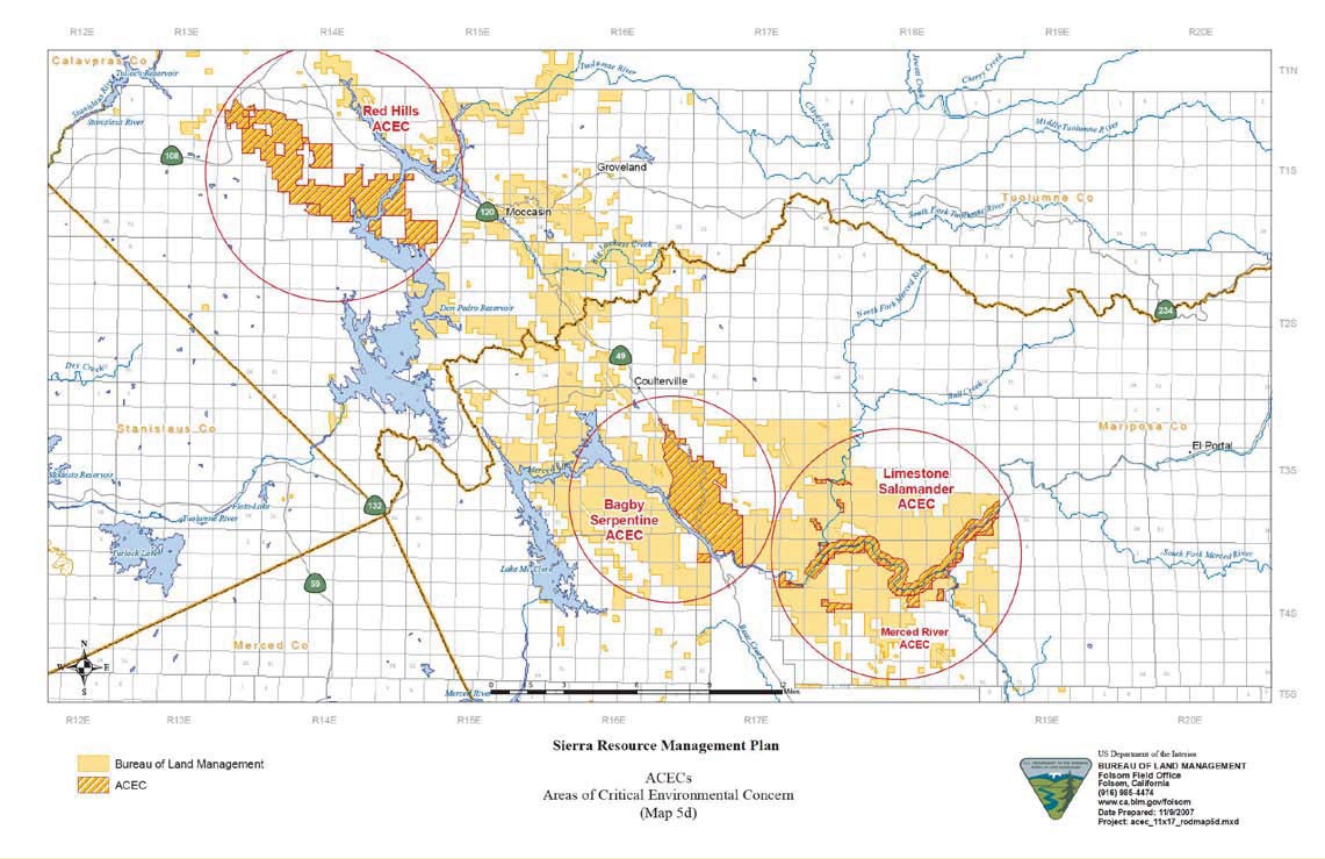
Don Pedro Project Location

- Located on the Tuolumne River 40 miles east of Modesto
  - Don Pedro Dam is located at River Mile 54.8

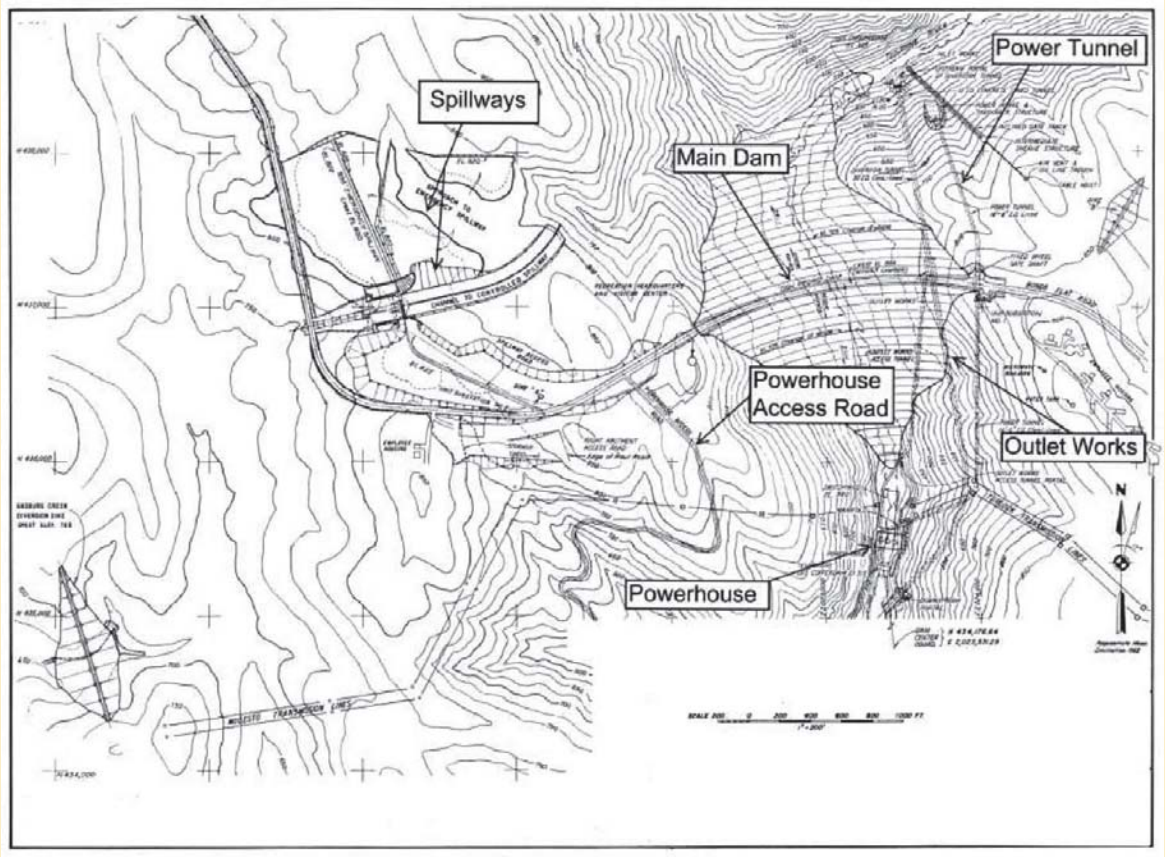



Powerhouse
Dam
Transmission Line
Floating Restroom
Onshore Restroom
Recreation Site
Stanislaus National Forest
Land Ownership
Bureau of Land Management
National Forest Service
Private/Other
Moccasin Point Recreation Area
Upper Bay
East Bay
Middle Bay
North Bay
West Bay
South Bay
Blue Oaks Recreation Area
Fleming Meadows Recreation Area
Don Pedro PH
La Grange Dam
La Grange PH
CCSF Moccasin Transmission Line
Stanislaus National Forest
Tuolumne County
Mariposa County
Stanislaus County
Oregon
Idaho
Nevada
Sacramento
California
Map Extent
N
0 1 2 4 Miles

Don Pedro Tour



Don Pedro Tour



Don Pedro Tour



Don Pedro Tour



Don Pedro Tour



Don Pedro Tour



Don Pedro Tour



Don Pedro Tour



Don Pedro Tour



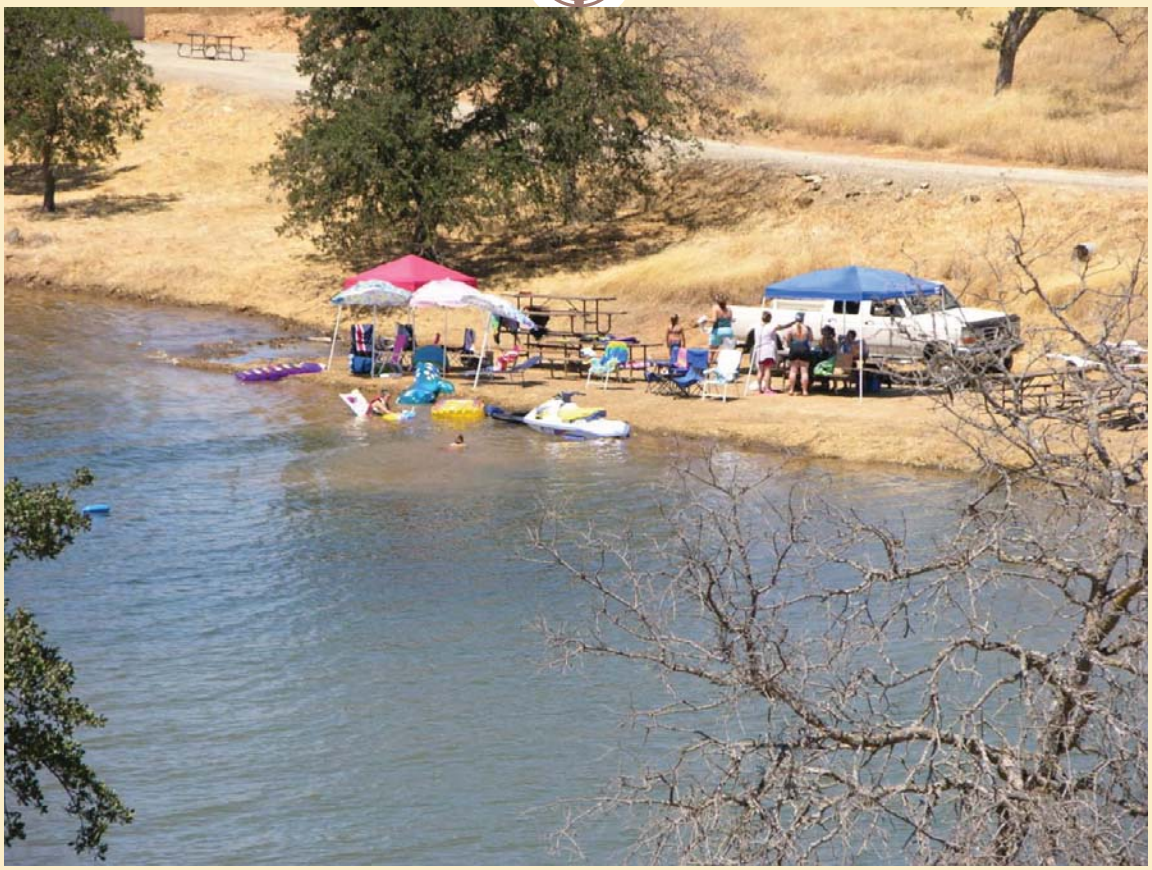
Don Pedro Tour: Hetch Hetchy Aqueduct



Don Pedro Tour



Don Pedro Tour



Don Pedro Tour: Ward's Ferry Bridge



Don Pedro Tour



Don Pedro Tour: Whitewater Take Out



Don Pedro Tour



Don Pedro Tour



Don Pedro Tour



Don Pedro Tour



Don Pedro Tour



Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

Don Pedro Tour



Don Pedro Tour



Don Pedro Tour



Don Pedro Tour



Don Pedro Tour



Don Pedro Relicensing
Process Plan and Schedule
As Outlined in the PAD filed February 10, 2011

18 CFR §	Lead	Activity	Time Frame	Date
§5.5	TID/MID	File NOI		2/10/2011
§5.6	TID/MID	File PAD		
§5.7	FERC	Initial Tribal Consultation Meeting (if necessary)	Within 30 days of filing PAD/NOI (up to day 30)	3/14/2011
§5.8	FERC	FERC Notices NOI/PAD and Issues Scoping Document 1 (SD1)	Within 60 days of filing PAD/NOI (up to day 60)	4/11/2011
(a)	FERC	FERC Issues Notice of Commencement of Proceeding and SD1	Within 60 days of filing PAD/NOI (up to day 60)	
(b)(2)	FERC	FERC Request to Initiate Informal Section 7 ESA Consultation	Within 60 days of filing PAD/NOI (up to day 60)	
(b)(3)(viii)	FERC/ Relicensing Participants	Public Scoping Meeting and Site Visit	Within 30 days of NOI/PAD Notice and issuance of SD1	5/18/2011[1] 5/19/2011[1]
§5.9	Relicensing Participants/ FERC staff	File Comments on PAD, SD1, and submit Study Requests	Within 60 days of NOI/PAD Notice and issuance of SD1	6/10/2011
§5.10	FERC	FERC Issues Scoping Document 2 (SD2) (if necessary)	Within 45 days of deadline for filing comments on SD1	7/25/2011
§5.11	TID/MID	File Proposed Study Plan (PSP) Document	Within 45 days of deadline for filing comments on SD1	7/25/2011
(e)	TID/MID/ Relicensing Participants	Initial Study Plan Meeting	Within 30 days of filing PSP	8/24/2011
§5.12	Relicensing Participants	File Comments on Proposed Study Plans	Within 90 days after PSP is filed	10/24/2011
§5.13(a)	TID/MID	File Revised Study Plan (RSP) Document	Within 30 days following the deadline for filing comments on PSP	11/23/2011
(b)	Relicensing Participants	File Comments on Revised Study Plan	Within 15 days following RSP	12/8/2011
(c)	FERC	FERC Issues Study Plan Determination	Within 30 days following filing of RSP	12/23/2011
§5.14(a)	Mandatory Conditioning Entities	File Notice to Pursue Dispute Resolution Process	Within 20 days of FERC Determination	1/12/2012
(d)	FERC	Convene Dispute Resolution Panel	Within 20 days of Notice of Dispute	2/1/2012
(i)	TID/MID	File comments on Notice of Dispute	Within 25 days of Notice of Dispute	2/7/2012
(k)	Dispute Resolution Panel	Deliver to FERC Director findings on Dispute[2]	Within 50 days of Notice of Dispute	3/3/2012
(l)	FERC Director	Written determination regarding Dispute	Within 70 days of Notice of Dispute	3/23/2012
§5.15	TID/MID	Conduct Field Studies		Jan-Oct 2012
(c)(1)	TID/MID	File Initial Study Report (ISR)	Based on Study Plan Determination	1/4/2013[3]
(c)(2)	TID/MID	Initial Study Report Meeting	Within 15 days of ISR	1/19/2013
(c)(3)	TID/MID	File Meeting Summary	Within 15 days of Study Report Meeting	2/3/2013
(c)(4)	Relicensing Participants/ FERC	File Disagreements/Disputes/ Modifications to Study; Propose new studies (if necessary)	Within 30 days of filing Meeting Summary	3/5/2013
(c)(5)	TID/MID	File Responses to comments	Within 30 days of comments	4/4/2013
(c)(6)	FERC	Dispute Resolution (if necessary)	Within 30 days of filing responses to disputes	5/4/2013
§5.15	TID/MID	Conduct Second Season Field Studies		Feb-Oct 2013
§5.15(c)(1) and §5.15(a)	TID/MID	File Draft License Application (DLA) and Updated Study Report (USR)	Not later than 150 days before final application is filed	11/27/2013
§5.15 (c)(2)	TID/MID	Updated Study Report Meeting	Within 15 days of USR	12/12/2013
(c)(3)	TID/MID/ Relicensing Participants	File Updated Study Report Meeting Summary	Within 15 days of Study Report Meeting	12/27/2013
(c)(4)	Relicensing Participants/ FERC	File Meeting Summary Disputes	Within 30 days of filing Meeting Summary	1/27/2014
§5.16(3)	Relicensing Participants/ FERC	Comments on Draft License Application, Additional Information Requests (AIRs) (if necessary)	Within 90 days of filing DLA	02/25/2014
§5.15(c)(5)	TID/MID	File Responses to Disputes (if necessary)	Within 30 days of disputes	2/26/2014
(c)(6)	FERC	Dispute Resolution (if necessary)	Within 30 days of filing responses to disputes	3/28/2013
§(5.17)	TID/MID	Final License Application (FLA) Filed		4/30/2014

Don Pedro Relicensing: Project Tracking List

Don Pedro Project TRACKING LIST

List last updated {Date} by {Name}
Items closed prior to or at the last Relicensing Participants' Meeting are shaded grey and will be move to the Closed Tracking List worksheet.
Red Text indicates added material since last review of Project Tracking List.

Item No.	Source	Item	Date Required	Responsible Party	Action Taken/Status	Date Closed

Don Pedro Project (FERC No. 2299)

PROCESS PLAN & SCHEDULE

(As Outlined in the PAD filed February 10, 2011)

18 CFR §	Lead	Activity	Time Frame	Date
§5.5	TID/MID	File NOI		2/10/2011
§5.6	TID/MID	File PAD		
§5.7	FERC	Initial Tribal Consultation Meeting (if necessary)	Within 30 days of filing PAD/NOI (up to day 30)	3/14/2011
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(b)(2)	FERC	FERC Request to Initiate Informal Section 7 ESA Consultation	Within 60 days of filing PAD/NOI (up to day 60)	
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§5.10	FERC	FERC Issues Scoping Document 2 (SD2) (if necessary)	Within 45 days of deadline for filing comments on SD1	7/25/2011
§5.11	TID/MID	File Proposed Study Plan (PSP) Document	Within 45 days of deadline for filing comments on SD1	7/25/2011
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§5.14(a)	Mandatory Conditioning Entities	File Notice to Pursue Dispute Resolution Process	Within 20 days of FERC Determination	1/12/2012
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(c)(4)	Relicensing Participants/ FERC	File Disagreements/Disputes/ Modifications to Study; Propose new studies (if necessary)	Within 30 days of filing Meeting Summary	3/5/2013
(c)(5)	TID/MID	File Responses to comments	Within 30 days of comments	4/4/2013
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(c)(3)	TID/MID/ Relicensing Participants	File Updated Study Report Meeting Summary	Within 15 days of Study Report Meeting	12/27/2013
(c)(4)	Relicensing Participants/ FERC	File Meeting Summary Disputes	Within 30 days of filing Meeting Summary	1/27/2014
§5.16(3)	Relicensing Participants/ FERC	Comments on Draft License Application, Additional Information Requests (AIRs) (if necessary)	Within 90 days of filing DLA	02/25/2014
§5.15(c)(5)	TID/MID	File Responses to Disputes (if necessary)	Within 30 days of disputes	2/26/2014
(c)(6)	FERC	Dispute Resolution (if necessary)	Within 30 days of filing responses to disputes	3/28/2013
§(5.17)	TID/MID	Final License Application (FLA) Filed		4/30/2014

Don Pedro Relicensing
Organizational Meeting
Participants List

HDR|DTA Sacramento Office – February 28, 2011

Participant	*Representing*	*In Person*	*Via Conf Call*
Alves, Jim	City of Modesto		x
Boucher, Allison	Tuolumne River Conservancy (TRC)		x
Bowes, Steve	National Park Service (NPS)		x
Brewer, Doug	Tetra Tech	x	
Brochini, Tony	Southern Sierra Miwuk Nation		x
Buckley, John	CSERC	x	
Catlett, Kelly	Friends of the River (FOR)	x	
Charles, Cindy	Golden West Women's Flyfishers (GWWF) / Northern California Federation of Fly Fishers (NoCCFFF)	x	
Day, P	Morrison & Foerster	x	
Devine, John	HDR|DTA	x	
Dias, Greg	Modesto Irrigation District	x	
Drekmeier, Peter	Tuolumne River Trust (TRT)	x	
Eicher, Jim	Bureau of Land Management (BLM)	x	
Fuller, Reba	Tuolumne Band of Me-Wuk Indians	x	
Furman, Donn	San Francisco Public Utilities Commission (SFPUC)		x
Giglio, Debbie	US Fish & Wildlife Service (USFWS)		x
Godwin, Art	Modesto Irrigation District (MID)	x	
Hatch, Jenny	CalTrout	x	
Hayat, Zahra	Morrison & Foerster	x	
Heyne, Tim	California Dept Fish & Game (CDFG)	x	
Hughes, Bob	California Dept Fish & Game (CDGF)	x	
Jackson, Zac	US Fish & Wildlife Service (USFWS)		x
Johnson, Brian	CalTrout		x
Kanz, Russ	State Water Resources Control Board (SWRCB)	x	
Koepele, Patrick	Tuolumne River Trust (TRT)	x	
Levin, Ellen	San Francisco Public Utilities (SFPUC)	x	
Loy, Carin	HDR|DTA	x	
Malkin, Devin	HDR|DTA	x	
Manji, Annie	California Dept Fish & Game (CDFG)	x	
Marshall, Mike	Restore Hetch Hetchy	x	
Means, Julie	California Dept Fish & Game (CDFG)		x (*)
Nees, Bob	Turlock Irrigation District (TID)	x	
O'Brien, Jennifer	California Dept Fish & Game (CDFG)		x
Pitts, Sheila	HDR|DTA	x	
Raeder, Jessie	Tuolumne River Trust (TRT)	x	
Risse, Danielle	HDR|DTA	x	
Roseman, Jesse	Citizen	x	
Roos-Collins, Richard	Natural Heritage Institute (NHI)	x	
Shutes, Chris	California Sportsfishing Protection Alliance (CSPA)	x	
Snider, Bill	HDR	x	
Stork, Ron	Friends of the River (FOR)	x	

Participant	*Representing*	*In Person*	*Via Conf Call*
Verkuil, Collette	Morrison & Foerster / Tuolumne River Trust	x	
Walters, Eric	Morrison & Foerster	x	
Wilson, Bryan	Morrison & Foerster	x	

- On conference line until noon.

Don Pedro Progress Tracking List

Items closed are shaded in gray.
Red Text indicates items added since the last update of the Progress Tracking List (PTL).
(RP = Relicensing Partipant)

Item No.	*Souce of Item*	*Item*	*Date Requested*	*Date Due*	*Responsible Party*	*Action Taken/Status*	*Date Closed*
1	RP	Poll of RPs for meeting availability and resource area interests.	2/28/2011	3/11/2011	Districts	Created Doodle Poll questionaire and sent it to RPs via email on 3/2/2011. Responses due 03/07/2011.	
2	CSPA; CDFG; and TRT	Use of an independent facilitator.	2/28/2011	3/11/2011	Districts	Request has been documented. Email response provided by the Districts on 03/07/2011.	
3	Several RPs	Alternating the meeting locations for future meetings.	2/28/2011	3/11/2011	Districts	Districts to consider having alternating meeting locations, possibly Modesto and Sacramento.	
4	Several RPs	Use of web conferencing as part of future meetings.	2/28/2011	3/11/2011	Districts	Request for web conferencing as part of the meeting to be considered by the Districts.	
5	NGOs	RPs not to have to pay for PAD reproduction costs.	2/28/2011	3/11/2011	Districts	Districts to consider request for RPs not to have to pay for PAD reproduction costs.	
6	Several RPs	Procedure for managing study plan revisions on the Don Pedro website.	2/28/2011	3/18/2011	Districts	Process for sharing study plan revisions on the Don Pedro website to be described to RPs.	
7	Several RPs	Exhibit G or other Project Boundary Maps for tailwater and Gasburg Creek areas.	2/28/2011	3/11/2011	Districts	Project Boundary Maps to be uploaded to the Don Pedro website.	

8	Districts	RP review of Relicensing Participants Contact List in PAD (Appendix B) to identify additional parties interested in the relicensing.	2/28/2011	3/18/2011	RPs	RPs to advise Districts of additional interested parties and their contact information, if known.	
9	NHI	"Discussion of Cummulative Impacts" to be an agenda item for the April 19-20 meeting.	2/28/2011	04/19-20/2011	Districts	"Discussion of Cummulative Impacts" to be added to the agenda for the April 19-20 RP meeting.	
10	RPs	Uploading of Meeting Slides to the Don Pedro website.	2/28/2011	3/11/2011	Districts	Slides used at the Feb 28 RP meeting to be uploaded to the Don Pedro website.	

From: Staples, Rose on behalf of Devine, John
Sent: Tuesday, March 15, 2011 8:21 PM
To: Alves, Jim - City of Modesto;
Aud, John - SCERD; Beuttler, John - CSPA; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Brewer, Doug - TetraTech; Buckley, John - CSERC; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Findley, Timothy - Hanson Bridgett; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - NHI; Giglio, Deborah - USFWS; Gorman, Elaine - SC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Roos-Collins, Richard - NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Taylor, Mary Jane - CDFG; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Wesselman, Eric - TRT; Wheeler, Douglas - RHH; Wilson, Bryan - MF; Wood, Dave - FR; Workman, Michelle - USFWS; Zipser, Wayne - SCFB
Subject: Follow-Up on Items from the February 28 Don Pedro Relicensing Participants Meeting
Attachments: DonPedro_Relicensing_April 1 Meeting_AGENDA_Posted110315.pdf

Relicensing Participants,

There were a number of items requiring follow-up from our meeting on February 28, 2011. These were identified on the Progress Tracking List (PTL) which can be located on the website under MEETINGS/Meetings Calendar\Click on February 28 Meeting Announcement. Please let us provide this update to these items.

Item [1]: We have completed the doodle poll for meetings. Seventeen (17) of the 86 people polled responded. To all those who responded, I thank you. Based on the results of the poll, we developed the meeting schedule below. Please recall that these dates are specifically intended to fit with the Don Pedro Relicensing Process Plan and Schedule contained in Section 2 of the PAD and included in the dates below.

Friday, April 1 -- Meeting to present Project Operations overview and update on ongoing studies (IFIM, river temperature modeling, recent O. mykiss study overview) (Agenda attached to this email).

Monday, April 11 -- Anticipated date for FERC to issue its SD1.

Tuesday, April 19 --- Cultural Resources Group (CR) and Recreation Resources Group (RR)
Wednesday, April 20 --- Aquatic and Water Resources Group (AWR) and Terrestrial Resources Group (TR)

Tuesday, May 10 and Wednesday, May 11 – FERC has just informed us that it is targeting these dates for the Site Visit and Public Scoping Meetings.

Wednesday, May 18 --- CR and RR Groups
Thursday, May 19 --- AWR and TR Groups

Friday, June 10 --- Deadline for Participants to request studies and comment on the PAD.

Tuesday, June 21 --- AWR and TR Groups
Wednesday, June 22 --- CR and RR Groups

Monday, July 25 --- Deadline for Districts' Proposed Study Plans to be filed with FERC; Participants to be notified of the filing via an email advisory.

Tuesday, August 23 --- AWR and TR Groups
Wednesday, August 24 --- CR and RR Groups

Wednesday, September 14 --- CR and RR Groups
Thursday, September 15 --- AWR and TR Groups

Tuesday, October 4 --- AWR and TR Groups
Wednesday, October 5 – CR and RR Groups

Monday, October 24 --- Deadline for Participants to comment on Proposed Study Plans.

Thursday, November 3 --- AWR and TR Groups
Friday, November 4 --- CR and RR Groups

Wednesday, November 23 --- Deadline for Districts' to file its Revised Study Plan with FERC; Participants to be notified of the filing via an email advisory.

Friday, December 23 --- FERC issues its Study Plan Determination.

Item [2]: Use of an Independent Facilitator -- the Districts responded to this

request on March 7, 2011.

Item [3]: Alternating Meeting Locations – The Districts originally proposed that all meetings be held in the general offices of Modesto Irrigation District (MID). At the Feb 28 meeting, several parties asked that the meeting locations be Sacramento, or be alternated between Sacramento and Modesto, or even possibly the Bay Area. The Districts reevaluated the meeting location. The Districts continue to believe that, on balance, Modesto is a good location. Several agency folks involved are located in Fresno (CDFG), La Grange (CDFG) and Stockton (USFWS), and some Tribal participants have voiced a preference for Modesto. There is very little difference between Sacramento and Modesto for people coming from the Bay Area; only a small number of Participants come from the Bay Area and people from the Project area itself are closer to Modesto. Therefore, on balance, Modesto continues to be a good location. MID has a very good phone system for call-ins, although the Districts strongly encourage in-person attendance at meetings.

Item [4]: Use of Interactive Web Conferencing --- The Districts originally were not in favor of providing interactive web conferencing in order to emphasize the preference for in-person attendance. Some participants asked the Districts to reconsider this. The Districts concern with web conferencing was primarily its potential to be a disincentive to in-person attendance. Secondarily, we were also concerned about being able to consistently deliver on this request. The Districts reevaluated this request. The Districts are willing to provide web interactive conferencing when it fits the meetings purposes (e.g. there are presentations). However, web conferencing will not be available for the April 1 meeting. We are currently assessing the best way to provide this service.

Item [5]: PAD reproduction costs --- Several NGOs voiced their disagreement with the Districts' decision to require reimbursement for paper copies of documents and asked the Districts to reconsider this decision. As a matter of policy, the Districts are committed to using less paper throughout their entire operations. Further, the cost of paper copies can amount to considerable dollars over the course of a relicensing (PAD, PSP, RSP, DLA, FLA, post-FLA filings). The environmental cost of the paper copies, including the shipping thereof, can be significant as well. The Districts have agreed to provide CDs without charge. All documents will be available on the Website; Participants can choose to print only those portions of any document that it has the need for. The Districts believe that minimizing the amount of paper produced in relicensing is a responsible approach.

Item [7]: Upload Project Boundary Map of Area below Don Pedro Dam --- This has been uploaded to the Website and can be found under MEETINGS/Meetings Calendar/Click on February 28 Meeting Announcement.

Item [10]: Upload 2/28/10 Meeting Slides to the Website --- This has been done and the slides can be found at MEETINGS/Meetings Calendar/Click on February 28,

as well.

If you are unable to access and/or download the documents referenced in Items 7 and 10 above, please contact Rose Staples at rose.staples@hdrinc.com.

John Devine
HDR|DTA
John.Devine@hdrinc.com

Don Pedro Relicensing Meeting

April 1, 2011

Location: MID Offices
Time: 9:00 AM to 1:00 PM
Meeting Purpose: Present Project Operations Overview and Update on On-Going Studies (IFIM, River Temperature Modeling, and Recent O. Mykiss Study Overview)

Agenda

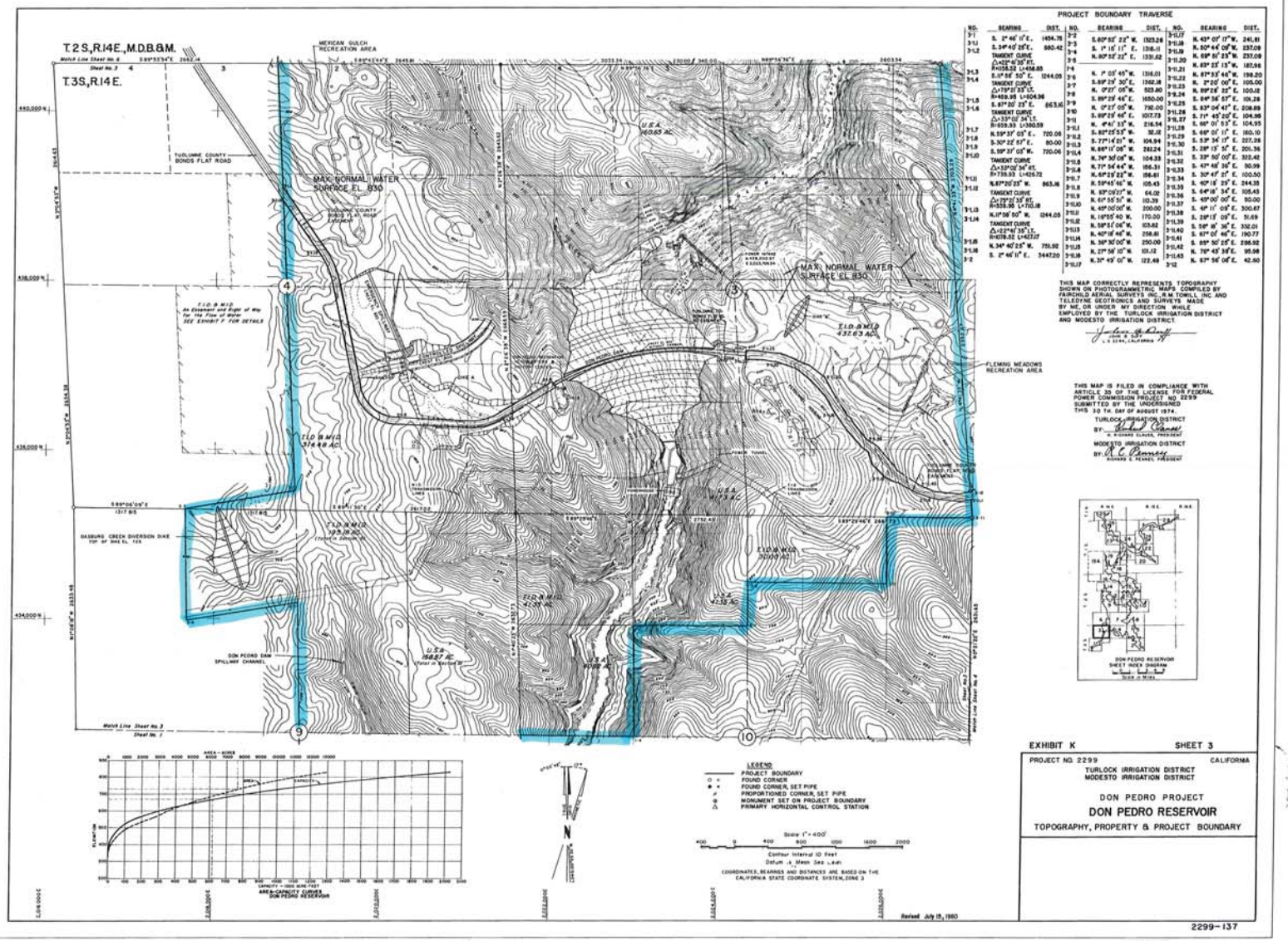
9:00 a.m.	9:15 a.m.	Introductions & Purpose of Meeting

Description of Project Operations

9:15 a.m.	9:45 a.m.	Overview of Hetch Hetchy Water & Power System Operations
9:45 a.m.	10:45 a.m.	Don Pedro Project Operations
10:45 a.m.	11:15 a.m.	Overview of La Grange Dam Operations

Update on On-Going Studies

11:15 a.m.	11:30 a.m.	Background
11:30 a.m.	12:00 p.m.	IFIM
12:00 p.m.	12:30 p.m.	Lower Tuolumne Temperature Model
12:30 p.m.	12:45 p.m.	O. Mykiss Assessment
12:45 p.m.	1:00 p.m.	Closing



NO.	BEARING	DIST.
3-1	S. 2° 46' 11" E.	1494.78
3-1.1	S. 34° 40' 28" E.	980.42
3-1.2	TANGENT CURVE Δ=22° 41' 35" RT. R=1258.52 L=498.85	
3-1.3	S. 11° 56' 50" E.	1244.05
3-1.4	TANGENT CURVE Δ=73° 27' 55" LT. R=459.95 L=604.96	
3-1.5	S. 87° 20' 25" E.	863.16
3-1.6	TANGENT CURVE Δ=33° 02' 34" LT. R=859.93 L=1380.59	
3-1.7	N. 59° 37' 05" E.	720.06
3-1.8	S. 30° 22' 57" E.	80.00
3-1.9	S. 59° 37' 05" W.	720.06
3-1.10	TANGENT CURVE Δ=33° 02' 34" RT. R=739.93 L=1425.72	
3-1.11	N. 87° 20' 25" W.	863.16
3-1.12	TANGENT CURVE Δ=29° 21' 35" RT. R=559.95 L=715.18	
3-1.13	N. 11° 58' 50" W.	1244.05
3-1.14	TANGENT CURVE Δ=22° 41' 35" LT. R=678.52 L=427.27	
3-1.15	N. 34° 40' 25" W.	751.92
3-1.16	S. 2° 46' 11" E.	3447.20
3-2		

NO.	BEARING	DIST.
3-2		
3-3	S. 60° 55' 22" W.	1323.26
3-4	S. 1° 15' 11" E.	1308.11
3-5	N. 80° 55' 22" E.	1331.62
3-6		
3-6	N. 1° 05' 49" W.	1316.01
3-7	S. 89° 29' 30" E.	1362.28
3-8	N. 0° 27' 05" E.	523.80
3-9	S. 89° 29' 46" E.	1050.00
3-10	N. 0° 27' 05" E.	792.00
3-11	S. 89° 29' 46" E.	1017.73
3-11.1	N. 4° 41' 33" W.	216.54
3-11.2	S. 82° 25' 53" W.	32.28
3-11.3	S. 77° 14' 01" W.	104.94
3-11.4	N. 86° 11' 09" W.	282.24
3-11.5	N. 74° 30' 08" W.	104.33
3-11.6	N. 71° 54' 44" W.	186.31
3-11.7	N. 69° 13' 23" W.	156.61
3-11.8	N. 59° 45' 16" W.	105.43
3-11.9	N. 63° 09' 21" W.	64.08
3-11.10	N. 61° 55' 51" W.	103.39
3-11.11	N. 49° 00' 00" W.	200.00
3-11.12	N. 18° 55' 40" W.	170.00
3-11.13	N. 58° 51' 06" W.	103.82
3-11.14	N. 40° 18' 46" W.	258.86
3-11.15	N. 39° 30' 00" W.	200.00
3-11.16	N. 27° 56' 10" W.	101.12
3-11.17	N. 31° 49' 01" W.	122.48
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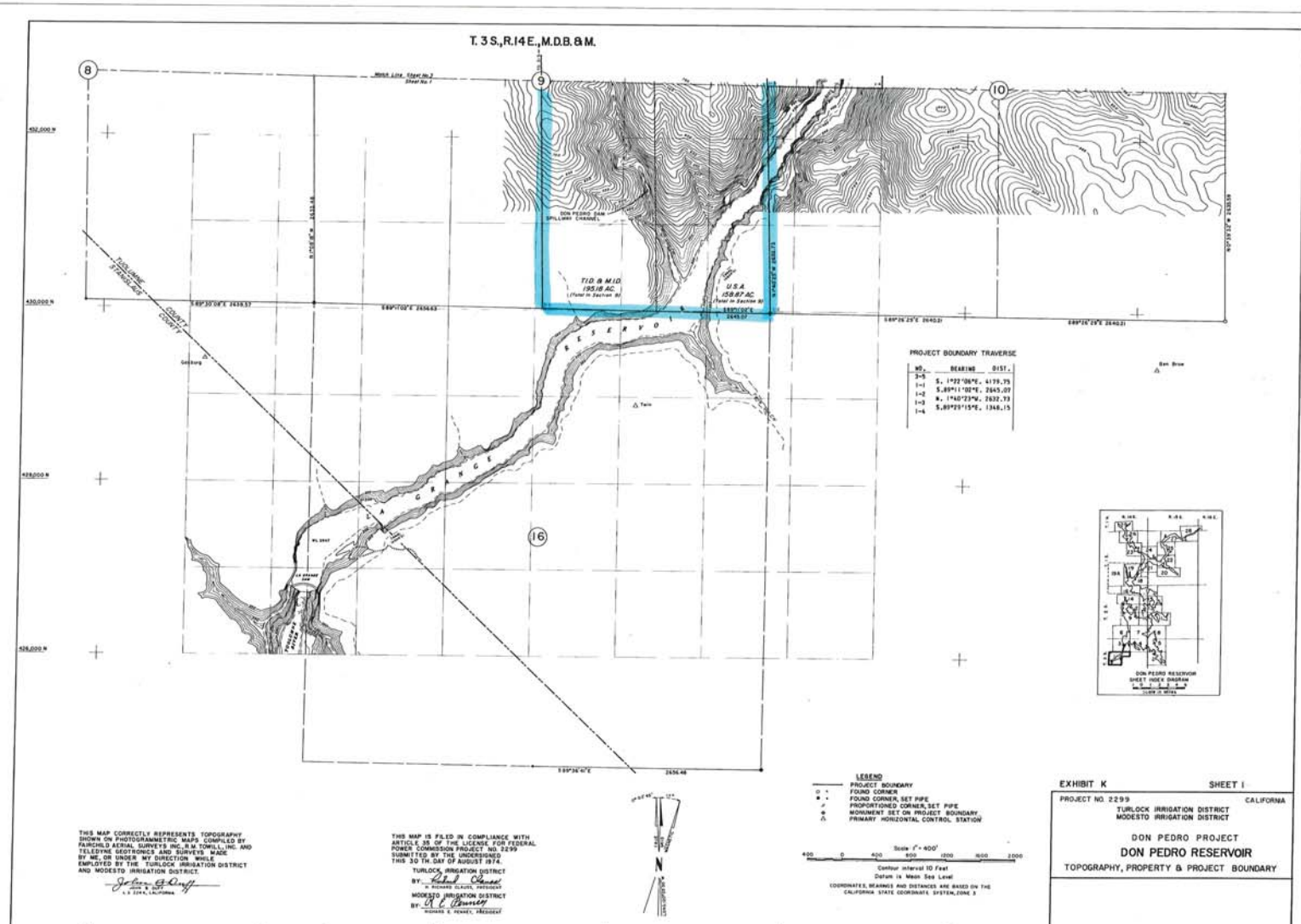
3-11.43		
3-12		

NO.	BEARING	DIST.
3-12		
3-13	N. 40° 07' 17" W.	241.81
3-14	S. 50° 44' 08" W.	237.09
3-15	N. 59° 52' 23" W.	237.09
3-16	N. 69° 23' 13" W.	187.96
3-17	N. 87° 33' 46" W.	198.20
3-18	N. 2° 20' 00" E.	105.00
3-19	N. 89° 28' 22" E.	100.12
3-20	S. 89° 36' 57" E.	101.28
3-21	S. 83° 04' 47" E.	208.89
3-22	S. 71° 45' 20" E.	104.98
3-23	S. 60° 01' 53" E.	104.95
3-24	S. 49° 01' 11" E.	160.10
3-25	S. 53° 34' 17" E.	227.26
3-26	S. 39° 13' 15" E.	201.36
3-27	S. 33° 50' 00" E.	323.42
3-28	S. 47° 46' 35" E.	50.99
3-29	S. 32° 47' 17" E.	100.50
3-30	S. 40° 15' 29" E.	244.35
3-31	S. 54° 18' 34" E.	105.43
3-32	S. 49° 00' 00" E.	50.00
3-33	S. 49° 11' 09" E.	300.67
3-34	S. 29° 13' 09" E.	51.69
3-35	S. 59° 18' 36" E.	332.01
3-36	S. 69° 05' 46" E.	190.77
3-37	S. 69° 50' 25" E.	288.52
3-38	N. 78° 43' 38" E.	95.98
3-39	N. 63° 56' 08" E.	42.50

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G



Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

From: jjbarnes@blm.gov
Sent: Wednesday, March 16, 2011 4:13 PM
To: Staples, Rose
Subject:Fw: Follow-Up on Items from the February 28 Don Pedro Relicensing Participants Meeting
Attachments: DonPedro_Relicensing_April 1 Meeting_AGENDA_Posted110315.pdf

Do you know if more detailed maps of the Project lands, including ownership, are available?

I noticed the maps in the PAD vol. 1 3-5 but was hoping for more detailed maps.

Thanks. James Barnes BLM Mother Lode Field Office. 916-941-3140

From: Staples, Rose
Sent: Friday, March 25, 2011 7:34 PM
To: Alves, Jim - City of Modesto;
Aud, John - SCERD; Beuttler, John - CSPA; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Brewer, Doug - TetraTech; Buckley, John - CSERC; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Findley, Timothy - Hanson Bridgett; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - NHI; Giglio, Deborah - USFWS; Gorman, Elaine - SC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Roos-Collins, Richard - NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Taylor, Mary Jane - CDFG; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Wesselman, Eric - TRT; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Wood, Dave - FR; Workman, Michelle - USFWS; Zipser, Wayne - SCFB
Subject: Logistics for April 1 2011 Don Pedro Relicensing Participants Meeting in Modesto
Attachments: DonPedro_Relicensing_April 1 Meeting_AGENDA_Posted110315.pdf

NEXT WEEK'S DON PEDRO RELICENSING PARTICIPANTS MEETING

Meeting Details
Date/Time: Friday, April 1st from 9:00 a.m. to 1:00 p.m.
Location: MID Offices in Modesto
Purpose: Present Project Operations Overview and Update on On-Going Studies

MID Office Location
The Modesto Irrigation District's (MID) offices are located at 1231 11th Street in Modesto; the office building has their name on the face of the building.

Please enter through the front door on 11th Street and go to the Receptionist area, where you should see the sign-in area for the meeting. There you will receive a security badge and then be guided to the Multi-Purpose Room on the 2nd Floor. If you email me that you plan to be at the meeting, I can save you some time by having the security badge prepared in advance.

Call-In Number for the Meeting
Call-In Number 866-994-6437Conference Code 5424697994
Please advise me if you intend to call in to the meeting.

If you have any questions about the meeting logistics, please email me at rose.staples@hdrinc.com or call 207-239-3857. Thank you.

Rose Staples CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742Email
rose.staples@hdrinc.com

Don Pedro Relicensing Meeting

April 1, 2011

Location: MID Offices
Time: 9:00 AM to 1:00 PM
Meeting Purpose: Present Project Operations Overview and Update on On-Going Studies (IFIM, River Temperature Modeling, and Recent O. Mykiss Study Overview)

Agenda

9:00 a.m.	9:15 a.m.	Introductions & Purpose of Meeting

Description of Project Operations

9:15 a.m.	9:45 a.m.	Overview of Hetch Hetchy Water & Power System Operations
9:45 a.m.	10:45 a.m.	Don Pedro Project Operations
10:45 a.m.	11:15 a.m.	Overview of La Grange Dam Operations

Update on On-Going Studies

11:15 a.m.	11:30 a.m.	Background
11:30 a.m.	12:00 p.m.	IFIM
12:00 p.m.	12:30 p.m.	Lower Tuolumne Temperature Model
12:30 p.m.	12:45 p.m.	O. Mykiss Assessment
12:45 p.m.	1:00 p.m.	Closing

From: Staples, Rose
Sent: Wednesday, March 30, 2011 6:18 PM
To: Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Beuttler, John - CSPA; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Cowan, Jeffrey; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Elaine - SC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Wesselman, Eric - TRT; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Wood, Dave - FR; Workman, Michelle - USFWS; Zipser, Wayne - SCFB
Subject:Don Pedro Relicensing Participants Meeting Material - Call-In No - PowerPoint Presentation DRAFT Uploaded to Website

Don Pedro Relicensing Participants Meeting
Friday, April 1, 2011 from 9:00 a.m. to 1:00 p.m.
MID Offices at 1231 11th Street, Modesto, CA

For those unable to attend the meeting in person, a call-in number has been posted on the www.donpedro-relicensing.com website, along with a draft of the PowerPoint presentation being made at the meeting. Additional and/or updated slides may be added at the meeting; if so, an updated copy of the presentation will be uploaded to the website post-meeting.

The draft PowerPoint document, as well as the meeting agenda, is attached to the meeting calendar for April 1, 2011. To access this location, please click on the MEETINGS tab on the home page of the website.

If you have any questions about the meeting logistics or are unable to find and/or download the documents from the website, please email me at rose.staples@hdrinc.com or call 207-239-3857. Thank you.

Rose Staples CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com

Don Pedro Relicensing Meeting

April 1, 2011

Location: MID Offices
Time: 9:00 AM to 1:00 PM
Meeting Purpose: Present Project Operations Overview and Update on On-Going Studies (IFIM, River Temperature Modeling, and Recent O. Mykiss Study Overview)

Agenda

9:00 a.m.	9:15 a.m.	Introductions & Purpose of Meeting

Description of Project Operations

9:15 a.m.	9:45 a.m.	Overview of Hetch Hetchy Water & Power System Operations
9:45 a.m.	10:45 a.m.	Don Pedro Project Operations
10:45 a.m.	11:15 a.m.	Overview of La Grange Dam Operations

Update on On-Going Studies

11:15 a.m.	11:30 a.m.	Background
11:30 a.m.	12:00 p.m.	IFIM
12:00 p.m.	12:30 p.m.	Lower Tuolumne Temperature Model
12:30 p.m.	12:45 p.m.	O. Mykiss Assessment
12:45 p.m.	1:00 p.m.	Closing

From: Staples, Rose
Sent: Thursday, March 31, 2011 5:42 PM
To: Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Bethel-Fink, Elaine - NFMR; Beuttler, John - CSPA; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Dixie, Yakima K - CVMT; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - NHI; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - SC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Wesselman, Eric - TRT; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Wood, Dave - FR; Workman, Michelle - USFWS; Zipser, Wayne - SCFB
Subject:Updated Don Pedro Meeting PowerPoint Presentation Uploaded to Website

www.donpedro-relicensing.com
MEETINGS
Meetings Calendar
April 1, 2011

The PowerPoint Presentation (to be used at tomorrow's Relicensing Participants Meeting), which was posted to the website yesterday, has been updated with additional slides and uploaded to the relicensing website. If you have any difficulties locating the PowerPoint document or downloading the

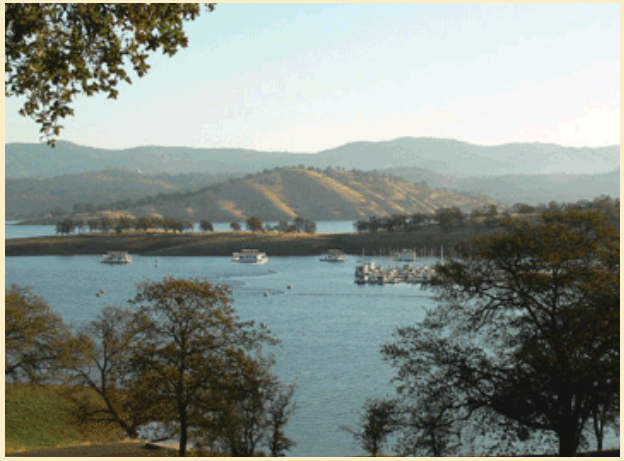
file, please let me know.

Thank you.

Rose Staples CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com

Don Pedro Project Relicensing

MODESTO IRRIGATION DISTRICT | TURLOCK IRRIGATION DISTRICT





FERC
PROJECT
No. 2299



PURPOSE & SCOPE

April 1, 2011

Relicensing Participants Meeting

- Describe Don Pedro operations to develop common understanding of key factors affecting Project operations
- Focus on inflows and outflows from Don Pedro
- Explain annual and seasonal factors

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

HISTORICAL CONTEXT

- Raker Act
- 4th Agreement between Districts and CCSF
- ACOE Flood Control Manual
- 1995 Settlement Agreement

RAKER ACT

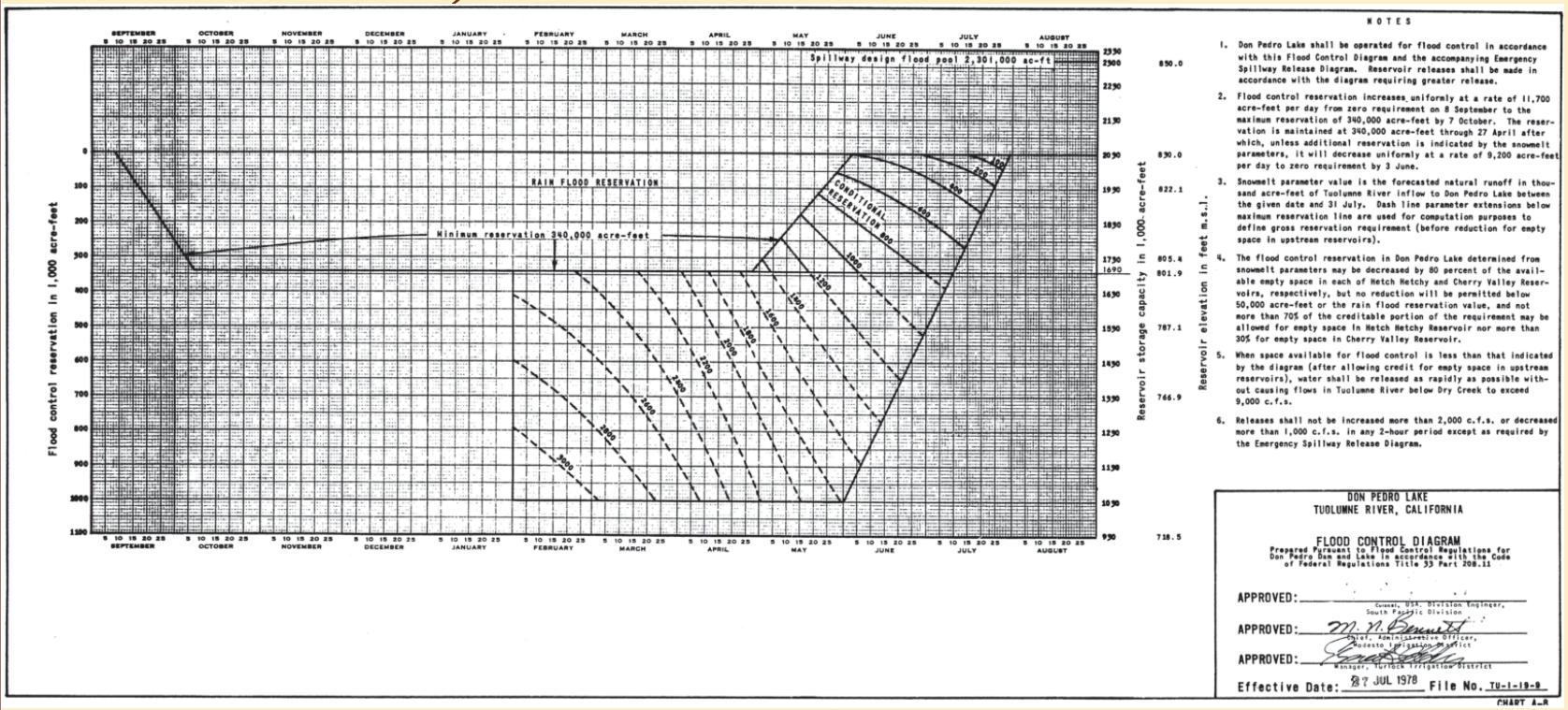
- In 1913 Congress grants CCSF rights of way over public lands necessary for the construction of water supply and power production facilities
- Congress requires CCSF to recognize the Districts' water rights
- Districts to receive no less than 2,350 cfs year-round and 4,000 cfs for 60 days starting April 15 of each year, or natural flow measured at La Grange, whichever is less
- Per the 4th Agreement, Districts also receive 66 cfs year-round to meet the La Grange Ditch water right

4TH AGREEMENT

- In 1964, Districts and CCSF enter into 4th Agreement to construct New Don Pedro
- Increases water storage and hydropower for CCSF, MID, TID
- Relieves CCSF of flood control responsibilities at Hetch Hetchy Project facilities
- Watershed flood control responsibility shifted to Don Pedro
- ACOE participates financially
- Flood control reservation is 340,000 AF
- CCSF water bank is 570,000 AF (plus one-half of flood space encroachment during non-flood season)

ACOE FLOOD CONTROL MANUAL

- Flood Control Rule Curve (Figure 3.6.3-1 Don Pedro PAD)



NOTES

1. Don Pedro Lake shall be operated for flood control in accordance with this Flood Control Diagram and the accompanying Emergency Spillway Release Diagram. Reservoir releases shall be made in accordance with the diagram requiring greater release.
2. Flood control reservation increases uniformly at a rate of 11,700 acre-feet per day from zero requirement on 8 September to the maximum reservation of 340,000 acre-feet by 7 October. The reservation is maintained at 340,000 acre-feet through 27 April after which, unless additional reservation is indicated by the snowmelt parameters, it will decrease uniformly at a rate of 9,200 acre-feet per day to zero requirement by 3 June.
3. Snowmelt parameter value is the forecasted natural runoff in thousand acre-feet of Tuolumne River inflow to Don Pedro Lake between the given date and 31 July. Dash line parameter extensions below maximum reservation line are used for computation purposes to define gross reservation requirement (before reduction for empty space in upstream reservoirs).
4. The flood control reservation in Don Pedro Lake determined from snowmelt parameters may be decreased by 80 percent of the available empty space in each of Hetch Hetchy and Cherry Valley Reservoirs, respectively, but no reduction will be permitted below 50,000 acre-feet or the rain flood reservation value, and not more than 70% of the creditable portion of the requirement may be allowed for empty space in Hetch Hetchy Reservoir nor more than 30% for empty space in Cherry Valley Reservoir.
5. When space available for flood control is less than that indicated by the diagram (after allowing credit for empty space in upstream reservoirs), water shall be released as rapidly as possible without causing flows in Tuolumne River below Dry Creek to exceed 9,000 c.f.s.
6. Releases shall not be increased more than 2,000 c.f.s. or decreased more than 1,000 c.f.s. in any 2-hour period except as required by the Emergency Spillway Release Diagram.

DON PEDRO LAKE
TUOLUMNE RIVER, CALIFORNIA

FLOOD CONTROL DIAGRAM
Prepared Pursuant to Flood Control Regulations for Don Pedro Dam and Lake in accordance with the Code of Federal Regulations Title 33 Part 208.11

APPROVED: _____
Colonel, USA, Division Engineer, South Pacific Division

APPROVED: M. M. Bennett
Chief, Administrative Officer, Modesto Irrigation District

APPROVED: _____
Manager, Turlock Irrigation District

Effective Date: 27 JUL 1978 File No. TU-1-19-9

CHART A-R

1995 SETTLEMENT AGREEMENT

- Provides for substantial increase in flows over original license for Lower Tuolumne fishery
- Establishes 10 distinct release schedules depending on Tuolumne hydrology
- Hydrology defined in accordance with 60-20-20 San Joaquin Index
- Hydrologic year is October 1 to September 30
- Fishery release "year" is April 15 through April 14
- Initial decision of year type is made in early April

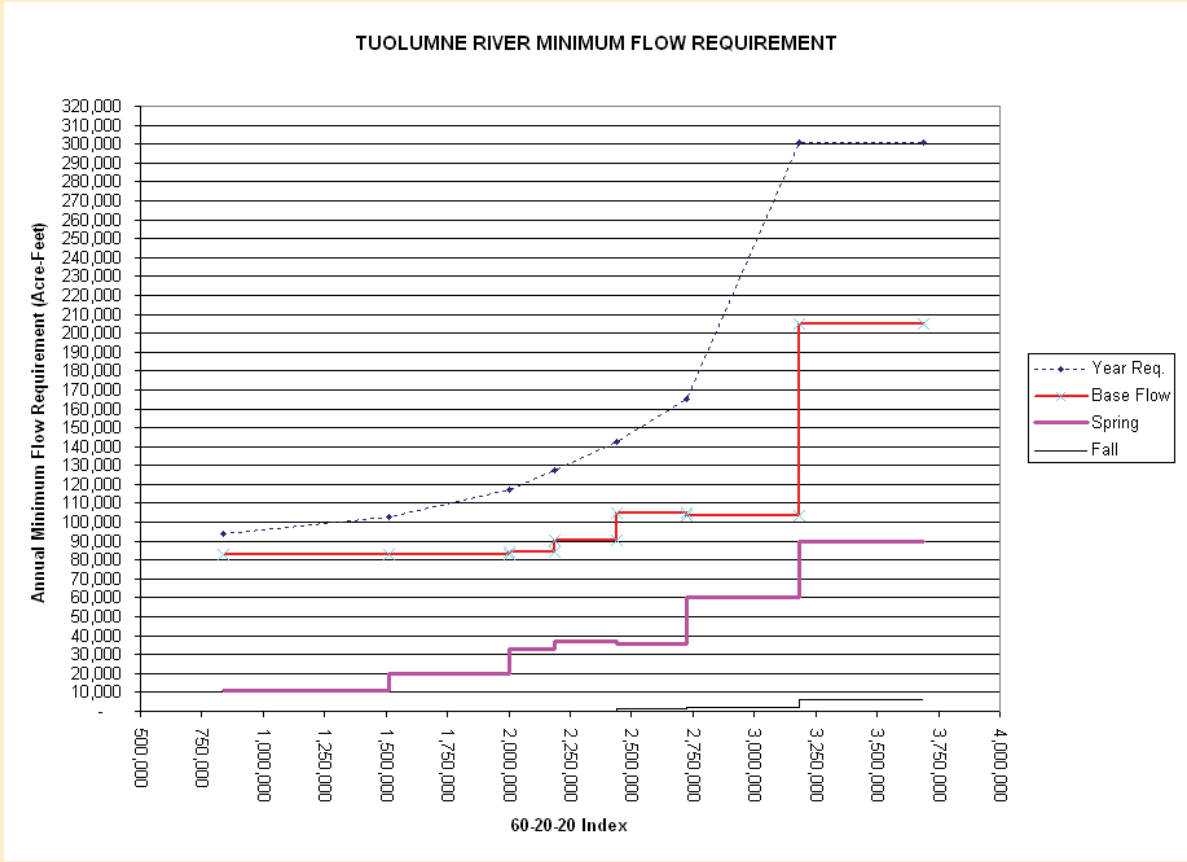
YEAR TYPES

- **Schedule of flow releases at La Grange Dam to the lower Tuolumne River by water year type contained in FERC's 1996 order (Table 3.6.7-2 from the PAD):**

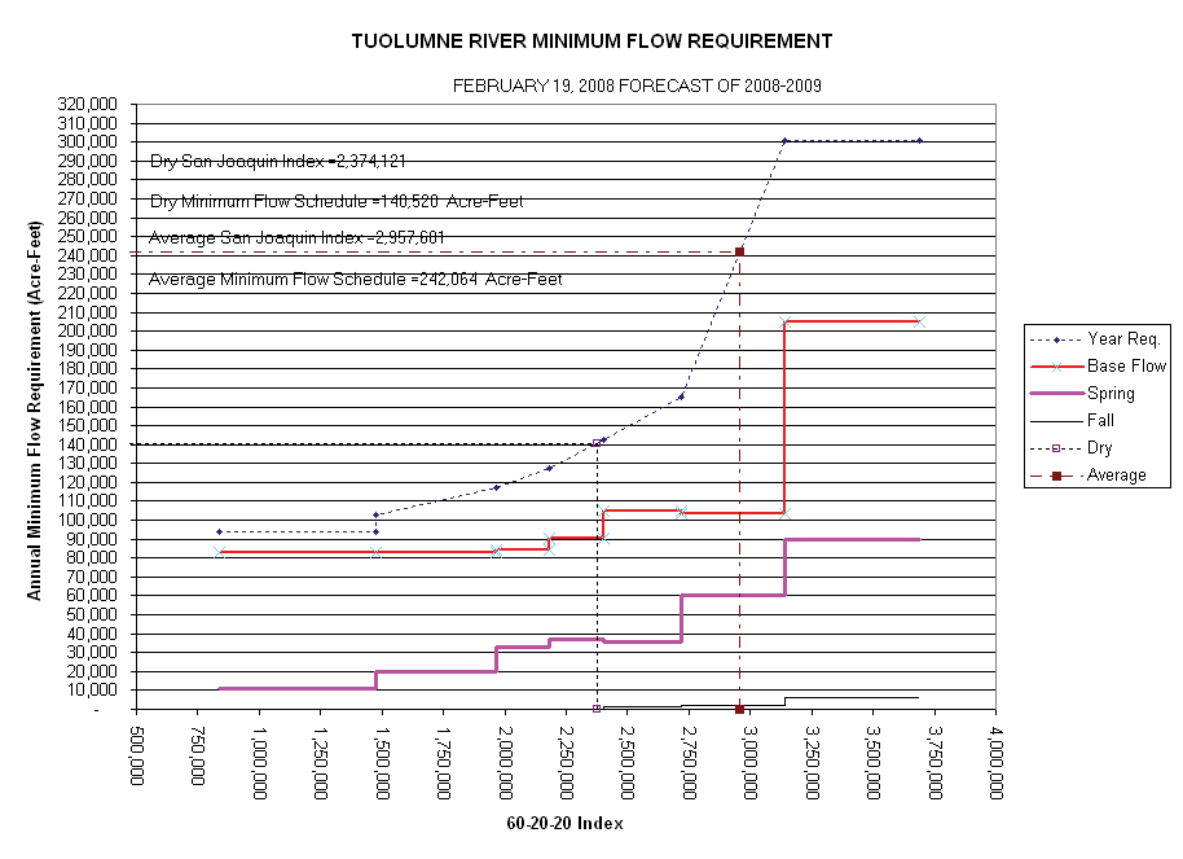
	Units	# of Days	CRITICAL WATER YEAR AND BELOW	MEDIAN CRITICAL WATER YEAR	INTERMEDIATE C-D WATER YEAR	MEDIAN DRY	INTERMEDIATE D-BN	MEDIAN BELOW NORMAL	INTERMEDIATE BN-AN	MEDIAN ABOVE NORMAL	INTERMEDIATE AN-W	MEDIAN WET/ MAXIMUM
Occurrence	%		6.4%	8.0%	6.1%	10.8%	9.1%	10.3%	15.5%	5.1%	15.4%	13.3%
October 1-15	cfs	15	100	100	150	150	180	200	300	300	300	300
	ac-ft		2,975	2,975	4,463	4,463	5,355	5,950	8,926	8,926	8,926	8,926
Attraction Pulse	ac-ft		none	none	none	none	1,676	1,736	5,950	5,950	5,950	5,950
October 16-May 31	cfs	228	150	150	150	150	180	175	300	300	300	300
	ac-ft		67,835	67,835	67,835	67,835	81,402	79,140	135,669	135,669	135,669	135,669
Outmigration Pulse Flow	ac-ft		11,091	20,091	32,619	37,060	35,920	60,027	89,882	89,882	89,882	89,882
June 1-Sept 30	cfs	122	50	50	50	75	75	75	250	250	250	250
	ac-ft		12,099	12,099	12,099	18,149	18,149	18,149	60,496	60,496	60,496	60,496
Volume (total)	ac-ft	365	94,000	103,000	117,016	127,507	142,502	165,002	300,923	300,923	300,923	300,923

Between a Median Critical Water Year and an Intermediate Below Normal-Above Normal Water Year, the precise volume of flow to be released by the Districts each fish flow year is to be determined using accepted methods of interpolation between index values.

YEAR TYPES


TUOLUMNE RIVER MINIMUM FLOW REQUIREMENT
Annual Minimum Flow Requirement (Acre-Feet)
320,000
310,000
300,000
290,000
280,000
270,000
260,000
250,000
240,000
230,000
220,000
210,000
200,000
190,000
180,000
170,000
160,000
150,000
140,000
130,000
120,000
110,000
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
-
500,000
750,000
1,000,000
1,250,000
1,500,000
1,750,000
2,000,000
2,250,000
2,500,000
2,750,000
3,000,000
3,250,000
3,500,000
3,750,000
4,000,000
60-20-20 Index
Year Req.
Base Flow
Spring
Fall

YEAR TYPES-Example Feb. 2008



Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

ANNUAL OPERATIONS

- "Water First" policy
- Primary factor for reservoir management is water supply, not power

SEPTEMBER 8 – OCTOBER 7

- Flood Control Rule Curve – reservoir no higher than 801.9 feet by October 7
- Irrigation deliveries from Don Pedro are normally sufficient to bring reservoir elevation to at least 801.9 feet
- For example, July to October inflow of 60,000 AF; irrigation, M&I, and fishery flows 500,000 ; evap of about 50,000 AF ; net outflow of 360 TAF

OCTOBER 7 – NOVEMBER 30

- Flood management season – maintain water levels below 801.9 feet
- Pulse flow to attract upstream migrants depending on water year type (occurs approximately 70% of the years)
- 45-Day Period (typically October 17 through November 30):
  - Fluctuations controlled so as not to exceed 10 inches daily
  - For 2 hours per day, less than 18-inch increase
- Stable flows is a goal for this period; therefore may leave some buffer between actual reservoir elevation and 801.9 feet
- Irrigation deliveries can extend into November
- M&I delivery requirements

DECEMBER 1 – MARCH 31

- Flood management season – maintain water levels below 801.9 feet
- Monitoring snowpack, weather patterns, and projecting runoff on a daily and sub-daily basis
- Consider need for carryover storage and effects of CCSF water bank
- Maintain flows at the Modesto gage below 9,000 cfs
- If encroachment occurs, elevate storage above 801.9 feet within 12 days if possible and within Corps-suggested release targets
- May "pre-release" flows based on inflow forecasts
- M&I deliveries
- Irrigation deliveries begin as early as February (infrequently there are January deliveries) depending on winter conditions
- Fill Turlock Lake and Modesto Reservoir

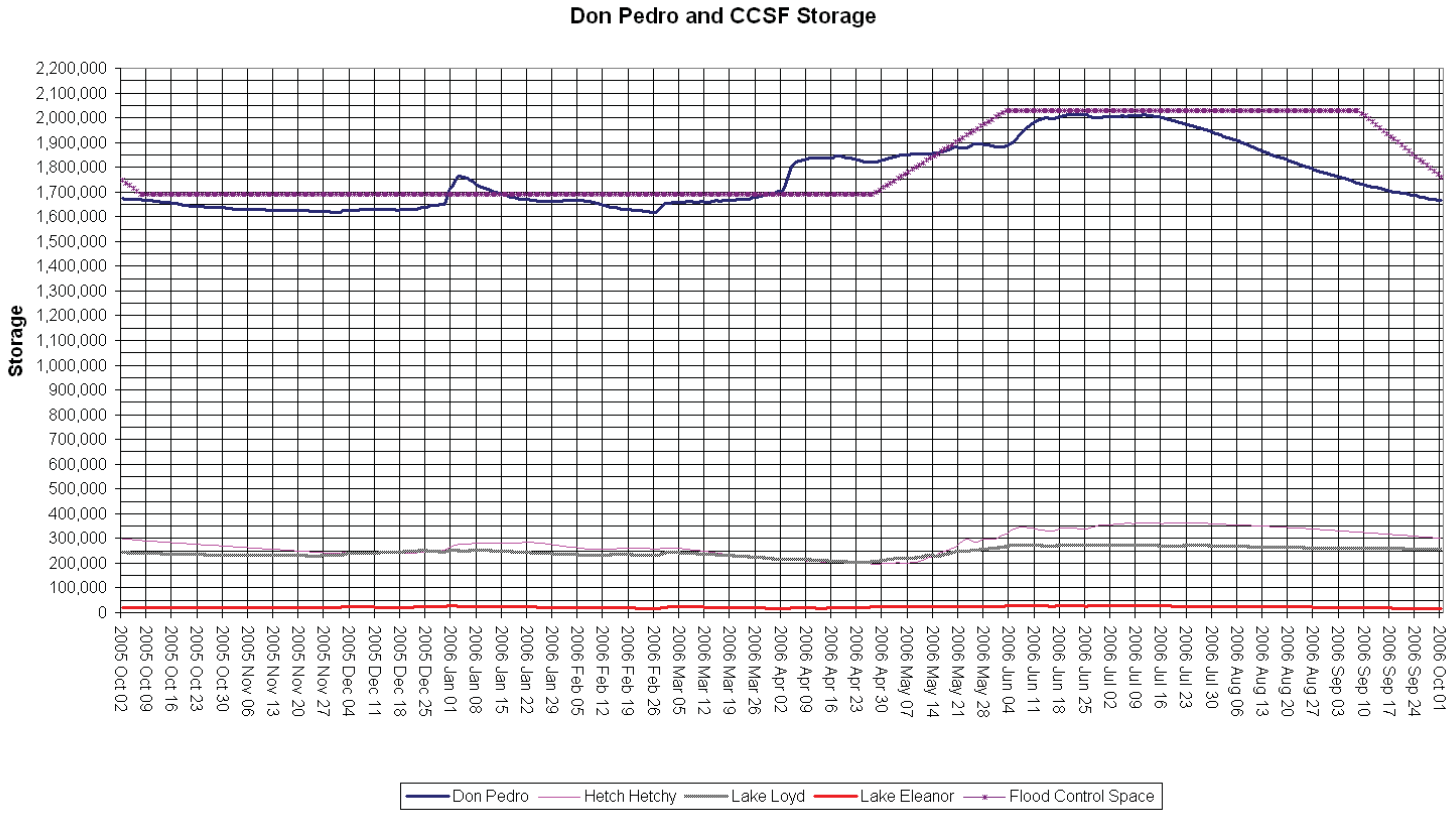
APRIL – JUNE

- Flood management season and reservoir filling above 801.9 feet starting on April 27, if water is available and there is no snowmelt parameters in effect
- Monitoring snowpack, weather patterns, and projecting runoff on a daily and sub-daily basis
- Pulse flow for outmigrants (all years; varies from 11,000 AF to 90,000 AF)
- Irrigation deliveries
- M&I deliveries
- Calculate water year type circa April 10 for upcoming fishery year flows (April 15 thru April 14); defines both pulse flows and continuous flows

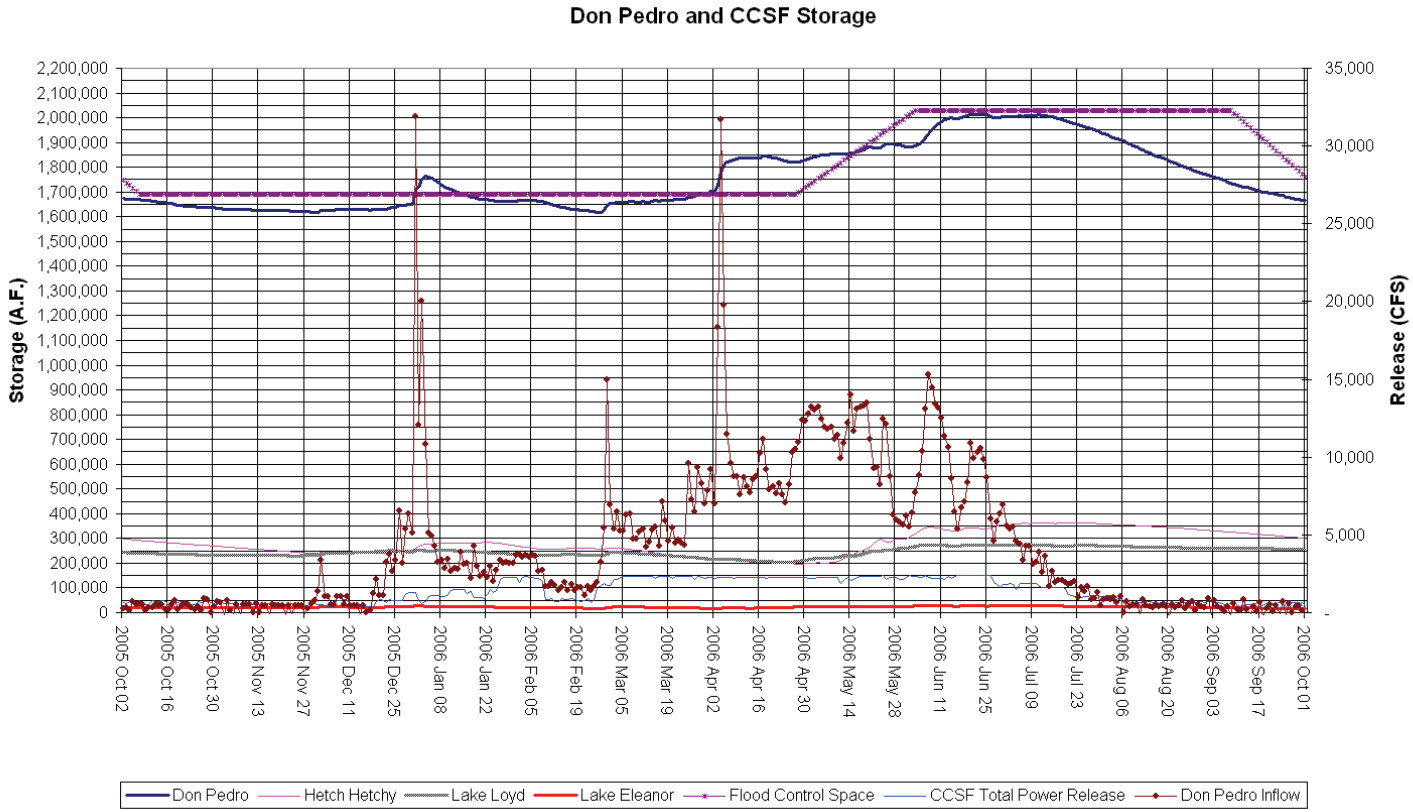
JULY 1 (+/-) – SEPTEMBER 8

- Post-flood season - reservoir level can be as high as 830 feet
- Irrigation deliveries peak
- M&I delivery requirements

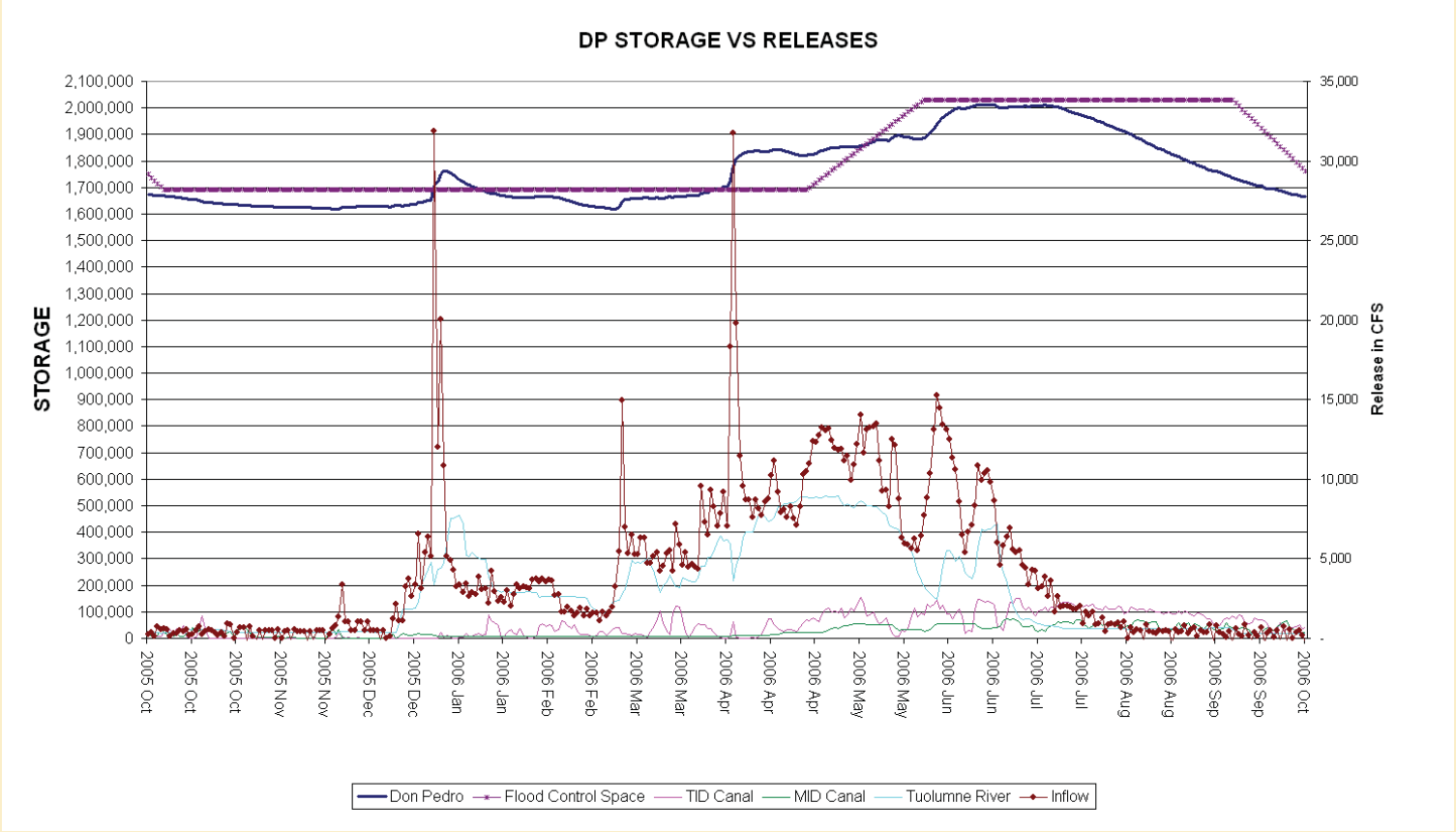
Tuolumne River Storage- 2006 WY



Inflow Into Don Pedro- 2006



Releases During a Wet Year-2006



LA GRANGE DAM

- Constructed in 1893 to divert irrigation water to TID and MID
- Normal water surface elevation of about 295 feet
- TID canal capacity = 3,000 cfs; currently limited to 2,500 cfs for canal safety reasons
- MID canal capacity = 2,000 cfs
- TID canal restricts flow fluctuations to 18 MW/hr or 500 cfs/hr
- Turlock Lake actual capacity 36,000 AF; normally operated between 28 TAF and 32 TAF
- Modesto Reservoir capacity 28,000 AF
- Turlock Lake and Modesto Reservoir operations balance demand ("calls") for irrigation deliveries with timing of supply; canal operations require ability to fluctuate the reservoir to a degree

LA GRANGE OPERATIONS

- Structure allows the Districts to divert water from the Tuolumne River into the TID and MID canals
- Reservoir storage less than about 100 AF, so reservoir fluctuations are minimal
- Canal flows controlled by gates at the entrances to each canal

From: Staples, Rose on behalf of Devine, John
Sent: Friday, April 08, 2011 8:07 PM
To: Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Canaday, Jim - DFG; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Dixie, Yakima K - CVMT; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - NHI; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - SC; Gutierrez, Monica - NOAA-NMFS; Hannaford, Margaret - CCSF; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ronald M ; Zipser, Wayne - SCFB
Subject: Don Pedro April 19-20 RWG Meetings AGENDAs
Attachments: DonPedro Relicensing_April 19-20 RWG Meetings AGENDAs_110408.pdf

Please find attached agendas for our upcoming meetings on April 19 and 20 in Modesto. These dates reflect the feedback received on availability from the doodle poll conducted on March 2, 2011. The Districts thought it would be of value to relicensing participants to have a thorough review of all the studies that have been undertaken over the past 40 years, and especially since the 1995 Settlement

Agreement. While the PAD provides an overview of these site-specific investigations, the number and depth of these studies precluded an in-depth coverage of all the material, especially as related to water and aquatic resource studies. The April meetings, therefore, would be used to provide a more thorough coverage. We can also use the meetings to discuss the Preliminary Assessment of Project Effects prepared by the Districts. Finally, it is also another opportunity for relicensing participants to identify and summarize any other site-specific studies related to the Don Pedro relicensing.

The full agendas are attached, and we look forward to seeing you all on April 19 and 20.

John Devine
HDR|DTA
970 Baxter Boulevard #301 | Portland ME | 04103
Office: 207-775-4495 | (Direct: 207-239-3860 | Fax: 207-775-1742
Email john.devine@hdrinc.com

Don Pedro Relicensing RWG Meetings

April 19-20, 2011

MID Offices – Modesto CA

Tuesday, April 19 – Recreation Work Group

9:00 a.m.- 9:15 a.m.	Introductions
9:15 a.m.-10:00 a.m.	Overview of Existing Information and Prior Studies
10:00 a.m.-10:15 a.m.	Comments on Districts' Preliminary Assessment of Project Effects
10:15 a.m.-10:30 a.m.	Review of PAD Study Plans
10:30 a.m.-11:30 a.m.	Relicensing Participants' Assessment of Data Gaps and Additional Study Needs
11:30 a.m.-Noon	Path Forward and Action Items

Tuesday, April 19 – Cultural Work Group

1:00 p.m.- 1:15 p.m.	Introductions
1:15 p.m.- 2:00 p.m.	Overview of Existing Information and Prior Studies
2:00 p.m.- 2:15 p.m.	Comments on Districts' Preliminary Assessment of Project Effects
2:15 p.m.- 3:00 p.m.	Review of PAD Study Plans
3:00 p.m.- 4:00 p.m.	Relicensing Participants' Assessment of Data Gaps and Additional Study Needs
4:00 p.m.- 4:30 p.m.	Path Forward and Action Items

Don Pedro Relicensing RWG Meetings

April 19-20, 2011

MID Offices – Modesto CA

Wednesday, April 20 – Aquatic, Water & Terrestrial Work Group

9:00 a.m. - 9:15 a.m.	Introductions
9:15 a.m.-11:15 a.m.	Overview of Existing Information and Prior Studies (a) Water Quality Data and Studies (b) Fisheries and Aquatic Resources (Reservoir and lower Tuolumne River) (c) Terrestrial Resource
11:15 a.m.-12:00 p.m.	Comments on Districts' Preliminary Assessment of Project Effects
12:00 p.m.- 1:15 p.m.	Lunch (on your own)
1:15 p.m.- 2:00 p.m.	Review of PAD Study Plans
2:00 p.m.- 4:00 p.m.	Relicensing Participants' Assessment of Data Gaps and Additional Study Needs (a) Water Quality Data and Studies (b) Fisheries and Aquatic Resources (Reservoir and lower Tuolumne River) (c) Terrestrial Resource
4:00 p.m.- 4:30 p.m.	Path Forward and Action Items

From: Staples, Rose
Sent: Friday, April 08, 2011 9:17 PM
To: Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Dixie, Yakima K - CVMT; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - SC; Gutierrez, Monica - NOAA-NMFS; Hannaford, Margaret - CCSF; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Zipser, Wayne - SCFB
Subject: April 1 Don Pedro Relicensing Meeting Participation Confirmation; Recent Website Postings; FERC Scoping Document Issued

FERC Scoping Document 1 and Notice of Commencement of Proceedings Posting on Website

FERC has released its **Scoping Document 1** today, along with the **Notice of Commencement of Proceedings**. Both documents have been uploaded to www.donpedro-relicensing.com. Upon accessing the website, click on the DOCUMENTS tab. It is also available on FERC's E-Library at www.ferc.gov. **The**

Notice of Commencement of Proceedings also includes details on the May 10th FERC Site Visit and the May 11th Scoping Meetings (Turlock 9:00 a.m.; Modesto 7:00 p.m.)

April 19-20 RWG Meetings Agendas

The agendas for the upcoming April 19-20th Resource Work Group Meetings, being held at the MID Offices in Modesto, have been forwarded to you today via an email from John Devine. They are also posted on the website, in the INTRODUCTION Announcement Section and on the MEETINGS calendar.

Recent Website Postings

The three PowerPoint presentations made at the April 1 Relicensing Participants Meeting have been uploaded to the www.donpedro-relicensing.com website. Click on MEETINGS, Meetings Calendar, and then on the April 1st meeting date. You should then have access to the documents attached to the meeting announcement.

April 1 Relicensing Participants Meeting Participation Confirmation

Before I upload to the website the list of participants in the April 1 Don Pedro Relicensing meeting, I wanted to confirm that I have all of you listed. The following information is a combination of the sign-in list and those who sent me e-mails before, during and/or after the meeting concluded. Thank you.

In Person

Alves, Jim (City of Modesto)
Bond, Jack (_____)
Boucher, Allison (TRC)
Buckley, John (CSERC)
Canaday, Jim (DFG) – ***need email address***
Charles, Cindy (GWWF)
Costa, Jan (Chicken Ranch)
Cranston, Peggy (BLM) – ***need email address***
Creeman, Rebecca (CSERC)
Day, P (Morrison & Foerster)
Drekmeier, Peter (TRT)
Findley, Timothy (Hanson Bridgett)
Fuller, Reba (Tuolumne Band of Me-Wuk Indians)
Hannaford, Margaret (CCSF)
Hayat, Zahra (Morrison & Foerster)
Horn, Jeff (BLM)
Hughes, Bob (DFG)
Jackman, Jerry (_____)
Kanz, Russ (SWRCB)
Lyons, Bill (Mages Ranch)
Manji, Annie (DFG)
Marston, Dean (_____)
Martin, Michael (MFFC)
Morris, Lee (TRC)
O'Brien, Jennifer (DFG)
Ott, Chris (Ott Farms)
Passalaquot, Mike (ERCD) *please confirm spelling as I was not sure; thank you*
Raeder, Jessie (TRT)

Reyes, Martin (EORCD) *or is it ERCD?*
Roseman, Jesse
Shutes, Chris (CSPA)
Wheeler, Dan (_____)
Wheeler, Dave (_____)
Yoshiyama, Ronald (_____) – ***need email address***

By Phone
Bowes, Stephen (NPS)
Hatch, Jenny (CalTrout)
Johannis, Mary (BOR)
Koepele, Patrick (TRT)
Roos-Collins, Richard (NHI)
Sandkulla, Nicola (BAWSCA)
Schutte, Allison (Hanson Bridgett for BAWSCA)

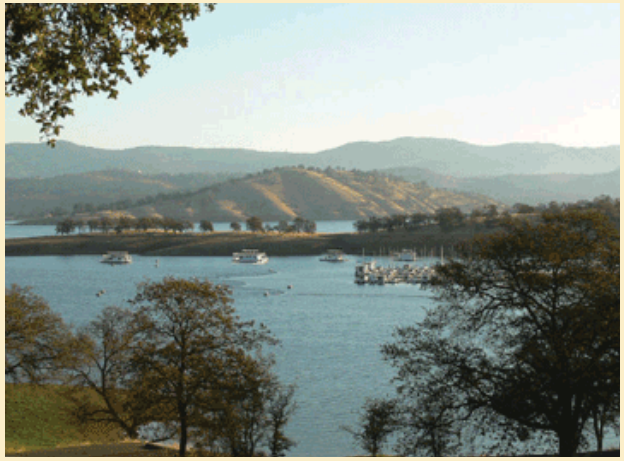
Had Advised Prior to the Meeting They Would be Calling In; Please Confirm:
Heyne, Tim (DFG)
Means, Julie (DFG)

Thank you

Rose Staples CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com

Don Pedro Project Relicensing

MODESTO IRRIGATION DISTRICT | TURLOCK IRRIGATION DISTRICT





FERC
PROJECT
NO. 2299



PURPOSE & SCOPE

April 1, 2011

Relicensing Participants Meeting

- Describe Don Pedro operations to develop common understanding of key factors affecting Project operations
- Focus on inflows and outflows from Don Pedro
- Explain annual and seasonal factors

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

HISTORICAL CONTEXT

- Raker Act
- 4th Agreement between Districts and CCSF
- ACOE Flood Control Manual
- 1995 Settlement Agreement

RAKER ACT

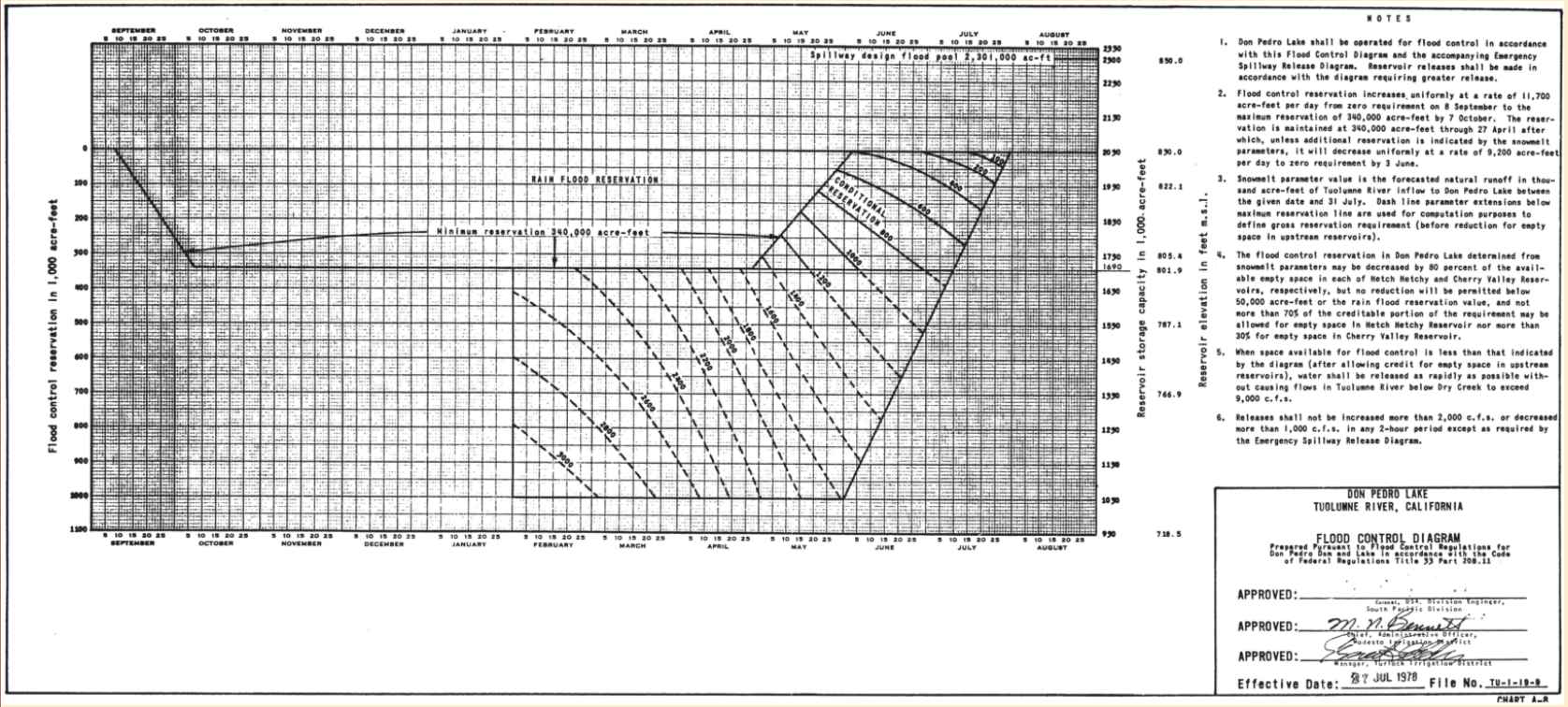
- In 1913 Congress grants CCSF rights of way over public lands necessary for the construction of water supply and power production facilities
- Congress requires CCSF to recognize the Districts' water rights
- Districts to receive no less than 2,350 cfs year-round and 4,000 cfs for 60 days starting April 15 of each year, or natural flow measured at La Grange, whichever is less
- Per the 4th Agreement, Districts also receive 66 cfs year-round to meet the La Grange Ditch water right

4TH AGREEMENT

- In 1964, Districts and CCSF enter into 4th Agreement to construct New Don Pedro
- Increases water storage and hydropower for CCSF, MID, TID
- Relieves CCSF of flood control responsibilities at Hetch Hetchy Project facilities
- Watershed flood control responsibility shifted to Don Pedro
- ACOE participates financially
- Flood control reservation is 340,000 AF
- CCSF water bank is 570,000 AF (plus one-half of flood space encroachment during non-flood season)

ACOE FLOOD CONTROL MANUAL

- Flood Control Rule Curve (Figure 3.6.3-1 Don Pedro PAD)



NOTES

1. Don Pedro Lake shall be operated for flood control in accordance with this Flood Control Diagram and the accompanying Emergency Spillway Release Diagram. Reservoir releases shall be made in accordance with the diagram requiring greater release.
2. Flood control reservation increases uniformly at a rate of 11,700 acre-feet per day from zero requirement on 8 September to the maximum reservation of 340,000 acre-feet by 7 October. The reservation is maintained at 340,000 acre-feet through 27 April after which, unless additional reservation is indicated by the snowmelt parameters, it will decrease uniformly at a rate of 9,200 acre-feet per day to zero requirement by 3 June.
3. Snowmelt parameter value is the forecasted natural runoff in thousand acre-feet of Tuolumne River inflow to Don Pedro Lake between the given date and 31 July. Dash line parameter extensions below maximum reservation line are used for computation purposes to define gross reservation requirement (before reduction for empty space in upstream reservoirs).
4. The flood control reservation in Don Pedro Lake determined from snowmelt parameters may be decreased by 80 percent of the available empty space in each of Hetch Hetchy and Cherry Valley Reservoirs, respectively, but no reduction will be permitted below 50,000 acre-feet or the rain flood reservation value, and not more than 70% of the creditable portion of the requirement may be allowed for empty space in Hetch Hetchy Reservoir nor more than 30% for empty space in Cherry Valley Reservoir.
5. When space available for flood control is less than that indicated by the diagram (after allowing credit for empty space in upstream reservoirs), water shall be released as rapidly as possible without causing flows in Tuolumne River below Dry Creek to exceed 9,000 c.f.s.
6. Releases shall not be increased more than 2,000 c.f.s. or decreased more than 1,000 c.f.s. in any 2-hour period except as required by the Emergency Spillway Release Diagram.

DON PEDRO LAKE
TUOLUMNE RIVER, CALIFORNIA

FLOOD CONTROL DIAGRAM
Prepared Pursuant to Flood Control Regulations for Don Pedro Dam and Lake in accordance with the Code of Federal Regulations Title 33 Part 208.11

APPROVED: _____
Colonel, USA, Division Engineer, South Pacific Division

APPROVED: M. M. Bennett
Chief, Administrative Officer, Modesto Irrigation District

APPROVED: _____
Manager, Turlock Irrigation District

Effective Date: 27 JUL 1978 File No. TU-1-19-9

CHART A-R

1995 SETTLEMENT AGREEMENT

- Provides for substantial increase in flows over original license for Lower Tuolumne fishery
- Establishes 10 distinct release schedules depending on Tuolumne hydrology
- Hydrology defined in accordance with 60-20-20 San Joaquin Index
- Hydrologic year is October 1 to September 30
- Fishery release "year" is April 15 through April 14
- Initial decision of year type is made in early April

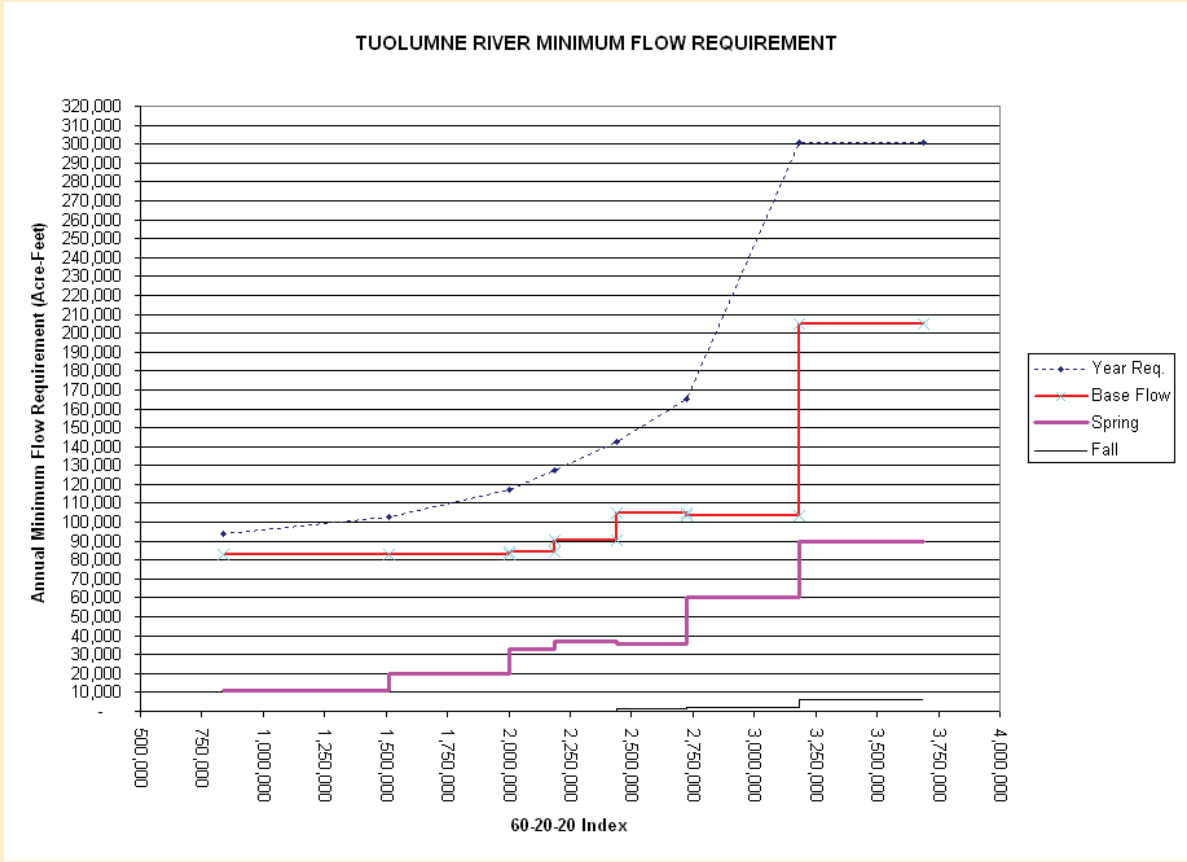
YEAR TYPES

- **Schedule of flow releases at La Grange Dam to the lower Tuolumne River by water year type contained in FERC's 1996 order (Table 3.6.7-2 from the PAD):**

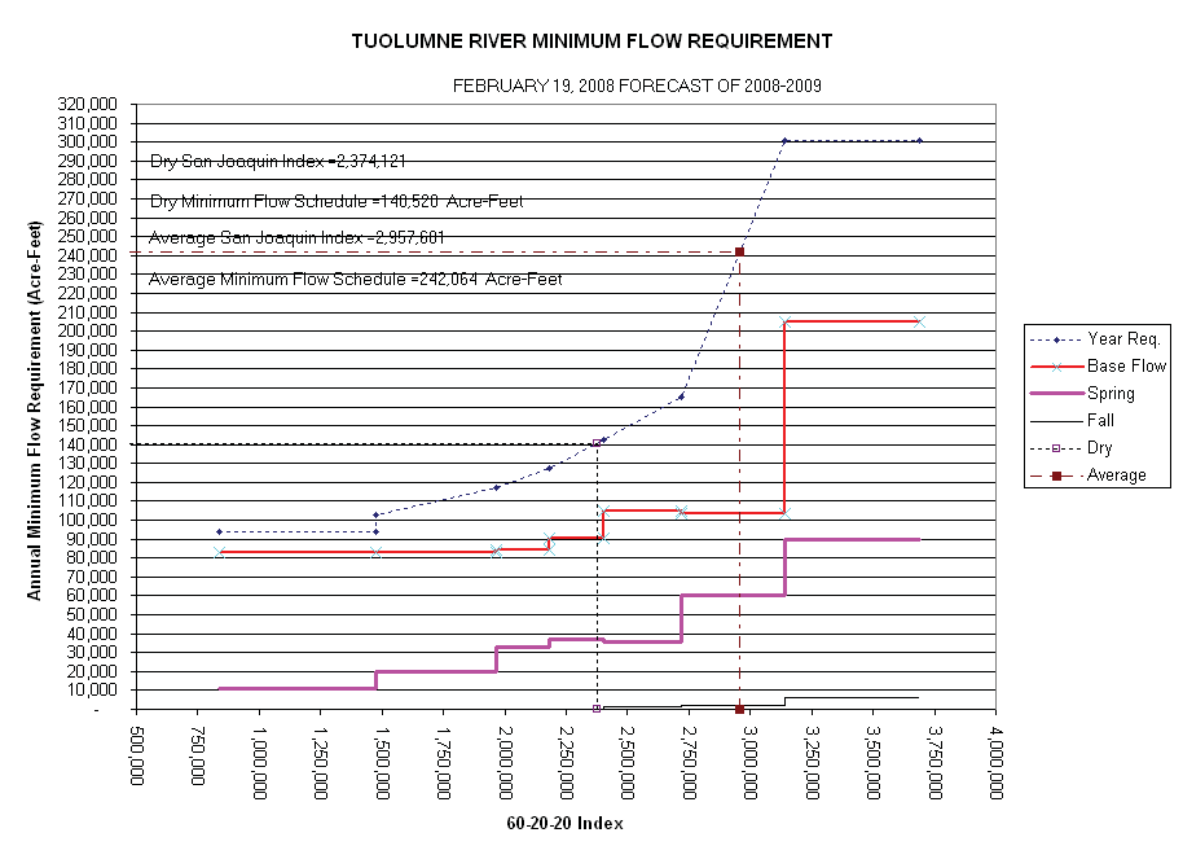
	Units	# of Days	CRITICAL WATER YEAR AND BELOW	MEDIAN CRITICAL WATER YEAR	INTERMEDIATE C-D WATER YEAR	MEDIAN DRY	INTERMEDIATE D-BN	MEDIAN BELOW NORMAL	INTERMEDIATE BN-AN	MEDIAN ABOVE NORMAL	INTERMEDIATE AN W	MEDIAN WET/ MAXIMUM
Occurrence	%		6.4%	8.0%	6.1%	10.8%	9.1%	10.3%	15.5%	5.1%	15.4%	13.3%
October 1-15	cfs	15	100	100	150	150	180	200	300	300	300	300
	ac-ft		2,975	2,975	4,463	4,463	5,355	5,950	8,926	8,926	8,926	8,926
Attraction Pulse	ac-ft		none	none	none	none	1,676	1,736	5,950	5,950	5,950	5,950
October 16-May 31	cfs	228	150	150	150	150	180	175	300	300	300	300
	ac-ft		67,835	67,835	67,835	67,835	81,402	79,140	135,669	135,669	135,669	135,669
Outmigration Pulse Flow	ac-ft		11,091	20,091	32,619	37,060	35,920	60,027	89,882	89,882	89,882	89,882
June 1-Sept 30	cfs	122	50	50	50	75	75	75	250	250	250	250
	ac-ft		12,099	12,099	12,099	18,149	18,149	18,149	60,496	60,496	60,496	60,496
Volume (total)	ac-ft	365	94,000	103,000	117,016	127,507	142,502	165,002	300,923	300,923	300,923	300,923

Between a Median Critical Water Year and an Intermediate Below Normal-Above Normal Water Year, the precise volume of flow to be released by the Districts each fish flow year is to be determined using accepted methods of interpolation between index values.

YEAR TYPES


TUOLUMNE RIVER MINIMUM FLOW REQUIREMENT
Annual Minimum Flow Requirement (Acre-Feet)
320,000
310,000
300,000
290,000
280,000
270,000
260,000
250,000
240,000
230,000
220,000
210,000
200,000
190,000
180,000
170,000
160,000
150,000
140,000
130,000
120,000
110,000
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
-
500,000
750,000
1,000,000
1,250,000
1,500,000
1,750,000
2,000,000
2,250,000
2,500,000
2,750,000
3,000,000
3,250,000
3,500,000
3,750,000
4,000,000
60-20-20 Index
Year Req.
Base Flow
Spring
Fall

YEAR TYPES-Example Feb. 2008



Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

ANNUAL OPERATIONS

- "Water First" policy
- Primary factor for reservoir management is water supply, not power

SEPTEMBER 8 – OCTOBER 7

- Flood Control Rule Curve – reservoir no higher than 801.9 feet by October 7
- Irrigation deliveries from Don Pedro are normally sufficient to bring reservoir elevation to at least 801.9 feet
- For example, July to October inflow of 60,000 AF; irrigation, M&I, and fishery flows 500,000 ; evap of about 50,000 AF ; net outflow of 360 TAF

OCTOBER 7 – NOVEMBER 30

- Flood management season – maintain water levels below 801.9 feet
- Pulse flow to attract upstream migrants depending on water year type (occurs approximately 70% of the years)
- 45-Day Period (typically October 17 through November 30):
  - Fluctuations controlled so as not to exceed 10 inches daily
  - For 2 hours per day, less than 18-inch increase
- Stable flows is a goal for this period; therefore may leave some buffer between actual reservoir elevation and 801.9 feet
- Irrigation deliveries can extend into November
- M&I delivery requirements

DECEMBER 1 – MARCH 31

- Flood management season – maintain water levels below 801.9 feet
- Monitoring snowpack, weather patterns, and projecting runoff on a daily and sub-daily basis
- Consider need for carryover storage and effects of CCSF water bank
- Maintain flows at the Modesto gage below 9,000 cfs
- If encroachment occurs, elevate storage above 801.9 feet within 12 days if possible and within Corps-suggested release targets
- May "pre-release" flows based on inflow forecasts
- M&I deliveries
- Irrigation deliveries begin as early as February (infrequently there are January deliveries) depending on winter conditions
- Fill Turlock Lake and Modesto Reservoir

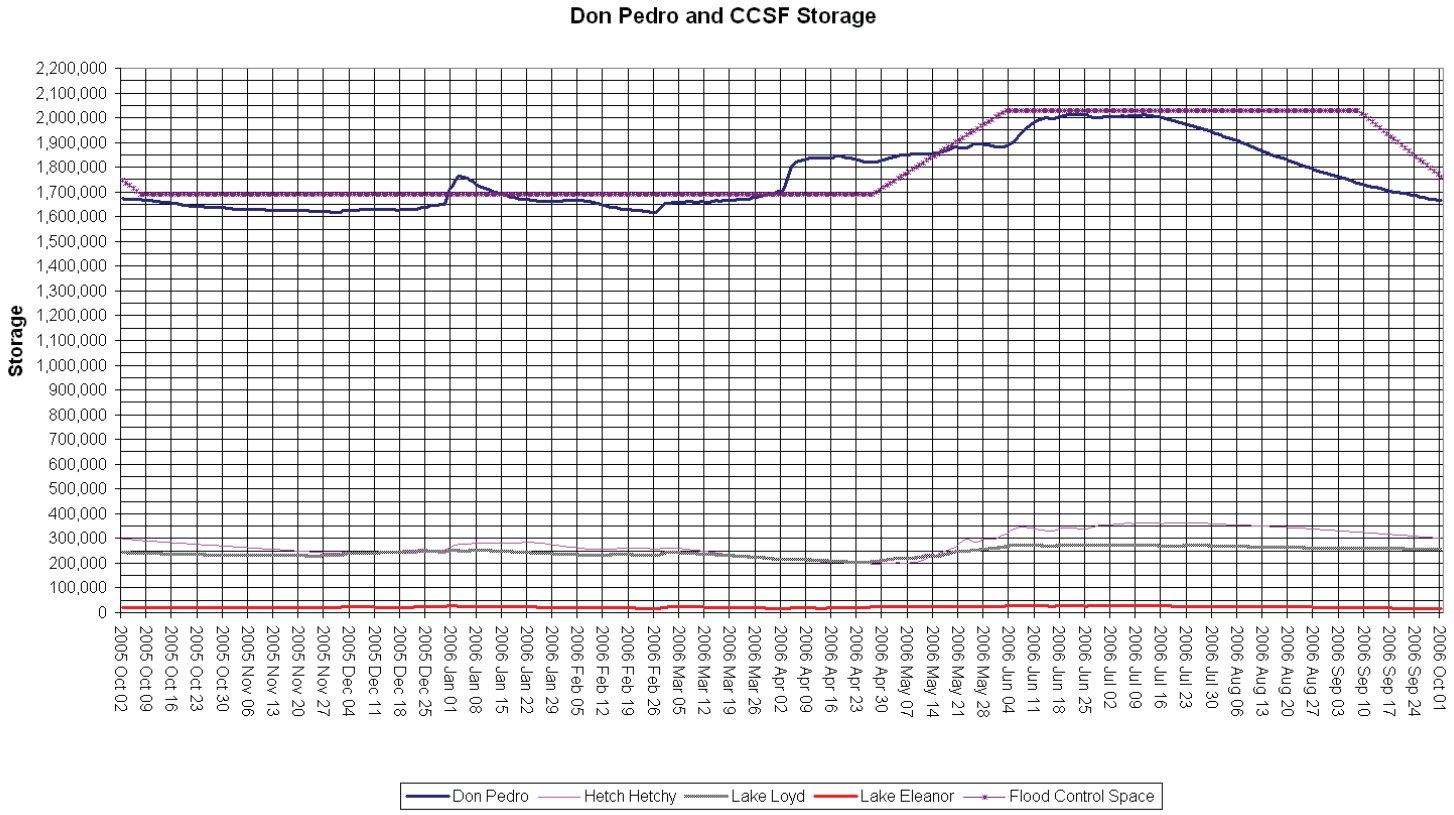
APRIL – JUNE

- Flood management season and reservoir filling above 801.9 feet starting on April 27, if water is available and there is no snowmelt parameters in effect
- Monitoring snowpack, weather patterns, and projecting runoff on a daily and sub-daily basis
- Pulse flow for outmigrants (all years; varies from 11,000 AF to 90,000 AF)
- Irrigation deliveries
- M&I deliveries
- Calculate water year type circa April 10 for upcoming fishery year flows (April 15 thru April 14); defines both pulse flows and continuous flows

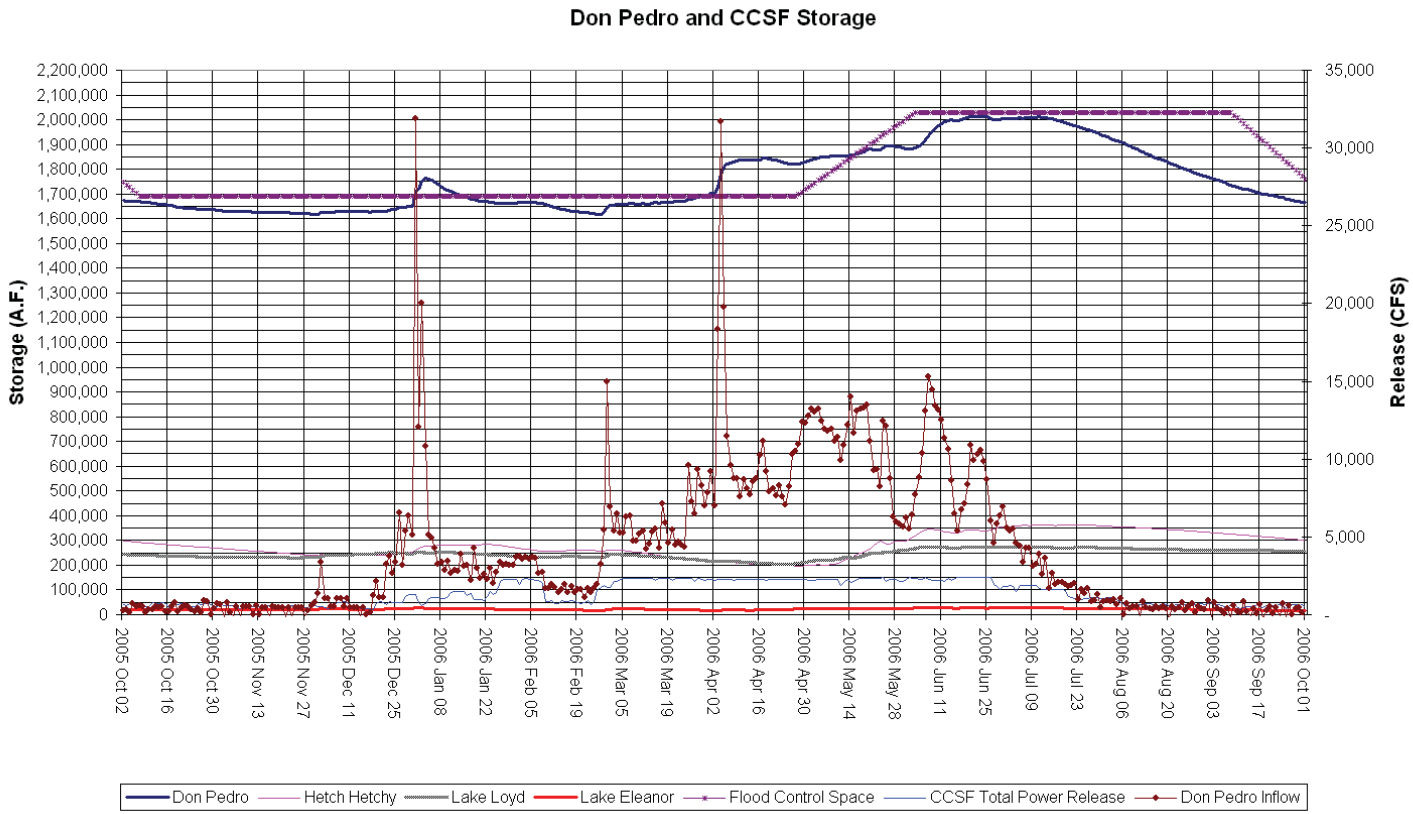
JULY 1 (+/-) – SEPTEMBER 8

- Post-flood season - reservoir level can be as high as 830 feet
- Irrigation deliveries peak
- M&I delivery requirements

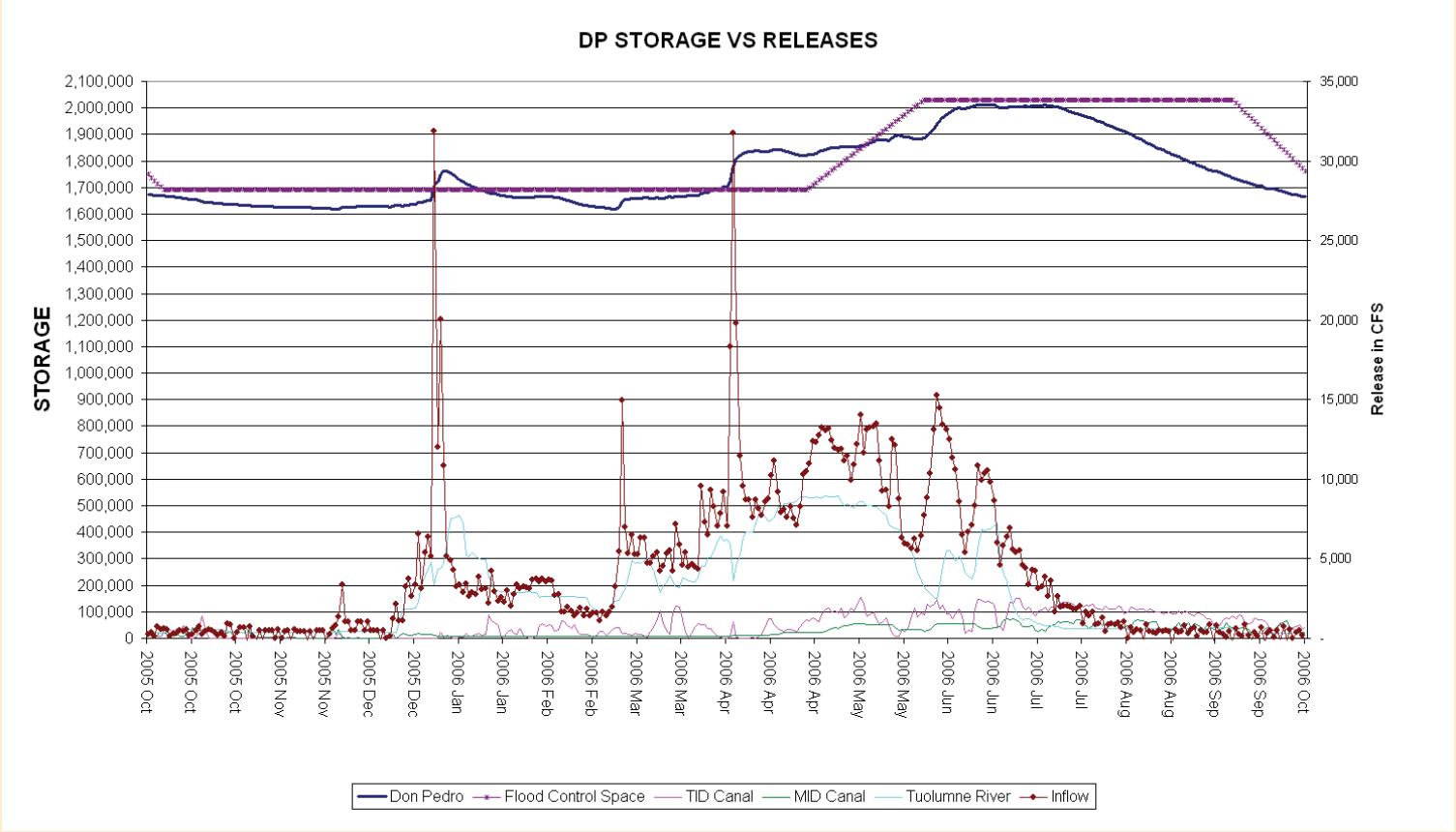
Tuolumne River Storage- 2006 WY



Inflow Into Don Pedro- 2006



Releases During a Wet Year-2006



LA GRANGE DAM

- Constructed in 1893 to divert irrigation water to TID and MID
- Normal water surface elevation of about 295 feet
- TID canal capacity = 3,000 cfs; currently limited to 2,500 cfs for canal safety reasons
- MID canal capacity = 2,000 cfs
- TID canal restricts flow fluctuations to 18 MW/hr or 500 cfs/hr
- Turlock Lake actual capacity 36,000 AF; normally operated between 28 TAF and 32 TAF
- Modesto Reservoir capacity 28,000 AF
- Turlock Lake and Modesto Reservoir operations balance demand ("calls") for irrigation deliveries with timing of supply; canal operations require ability to fluctuate the reservoir to a degree

LA GRANGE OPERATIONS

- Structure allows the Districts to divert water from the Tuolumne River into the TID and MID canals
- Reservoir storage less than about 100 AF, so reservoir fluctuations are minimal
- Canal flows controlled by gates at the entrances to each canal

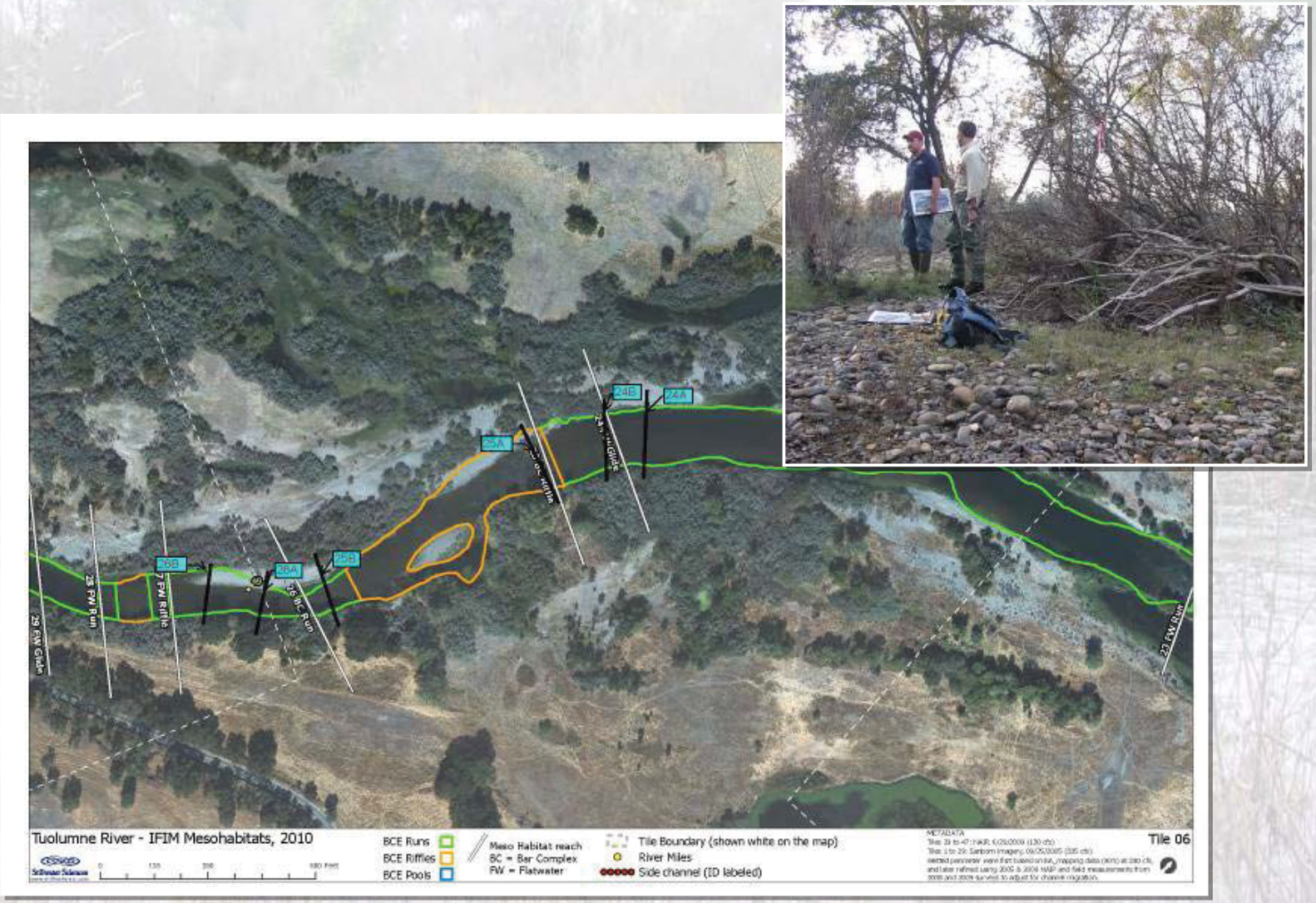
Background of on-going FERC studies for Chinook salmon and *O. mykiss*

- July 31, 1996 FERC Order
  - 2005 Ten Year Summary Report
  - 2006-2007 FERC Hearings
  - 2007 Study Plan (flow, restoration, fry survival, steelhead, predator control, water temperature)

- April 3, 2008 FERC Order
  - On-going Chinook salmon escapement surveys
  - ***O. mykiss* Monitoring (anadromy, population, estimates, tracking)**
  - 2008 Re-Hearing and 2009 ALJ Process

- May 2, 2010 FERC Order
  - **Instream Flow Studies**
  - **Water Temperature Modeling Study**

Tuolumne River Instream Flow Study



Tuolumne River Instream Flow Studies

Task or Activity	Work Schedule
Study Planning and Site Selection	Completed Aug and Oct 2010
Revised Mesohabitat Mapping	Completed September 16, 2010
Cross Section Placement	Completed November 18, 2010
HSC Consultation	In progress
Field Data Collection (Hydraulic)	June – August 2011*
Habitat Suitability Criteria Field Data Collection (Fry and Juveniles)	February – June 2011*
PHABSIM Data Analysis	July – December 2011
High Flow Stage Discharge Data Collection	January – June 2011
Pulse Flow Study Data Analysis and Modeling	September 2010 – June 2011
Draft Report for Resource Agency Review	***February 2012***
Final Report to Commission	April 28, 2012

* Pending flow conditions.

**HSC validation surveys for fry were not possible in 20111 due to high run-off levels. Juvenile observations in floodplain habitats are scheduled for April/May 2010; however, in-channel surveys may not be possible until 2012 due to high flows in 2011.

Overbank Flow Study

- Three primary study sites selected (RM 49R, RM 48L, RM 45R (Zanker/Bobcat)
- Six Pressure transducers installed
- 2D Hydraulic Modeling and species habitat suitability





Tuolumne River Water Temperature Modeling Study

Task or Activity	Work Schedule
Validate Existing Water Temperature Model	Completed August 10, 2010
Initial Scenario Development and Evaluation	Completed September 9, 2010
Model Simulations and Analysis	Completed October 25, 2010
Progress Report	Completed November 9, 2010
Agency Review Draft Report Preparation	Completed December 10, 2010
Agency Review Comment Period	Completed January 10, 2011
Final Report to Commission	Completed March 12, 2011
Instream Flow and Effective Habitat Evaluations*	***January – June 2011***

- Pending instream study completeion

Water Temperature Modeling Study

- Model Calibration/Validation
- Simulation of flows meeting seasonal temperature objectives in the lower Tuolumne River
- IFIM Effective Weighted Usable Area Ests.

O. Mykiss Assessment

- 2008-2009 Winter Spring Population Estimates
- 2008-2011 Summer Population estimates
- 2010-2011 Acoustic Tracking Study
- Anadromy study

Hetch Hetchy Water and Power

- Who is Hetch Hetchy Water and Power (HHWP)?
- HHWP is a division of the San Francisco Public Utilities Commission (SFPUC)
- SFPUC a Department of the City and County of San Francisco (CCSF or City)

SFPUC
WATER
WASTEWATER
POWER

1 April 2011

SFPUC Customers and Resources

- SFPUC provides water to about 2.4 million people
- Current water demand is about 265 mgd or 300,000 acre-feet
- System storage is about 1,460,000 acre-feet
  - Local Reservoirs: 227,000 acre-feet
  - Tuolumne Reservoirs: 660,000 acre-feet
  - City's Water Bank storage in Don Pedro Reservoir 570,000 acre-feet

SFPUC
WATER
WASTEWATER
POWER

1 April 2011

HHWP Reservoir Operations

- How is the HHWP reservoir system operated?
- How is the storage in Water Bank incorporated in HHWP Operations?

SFPUC
WATER
WASTEWATER
POWER

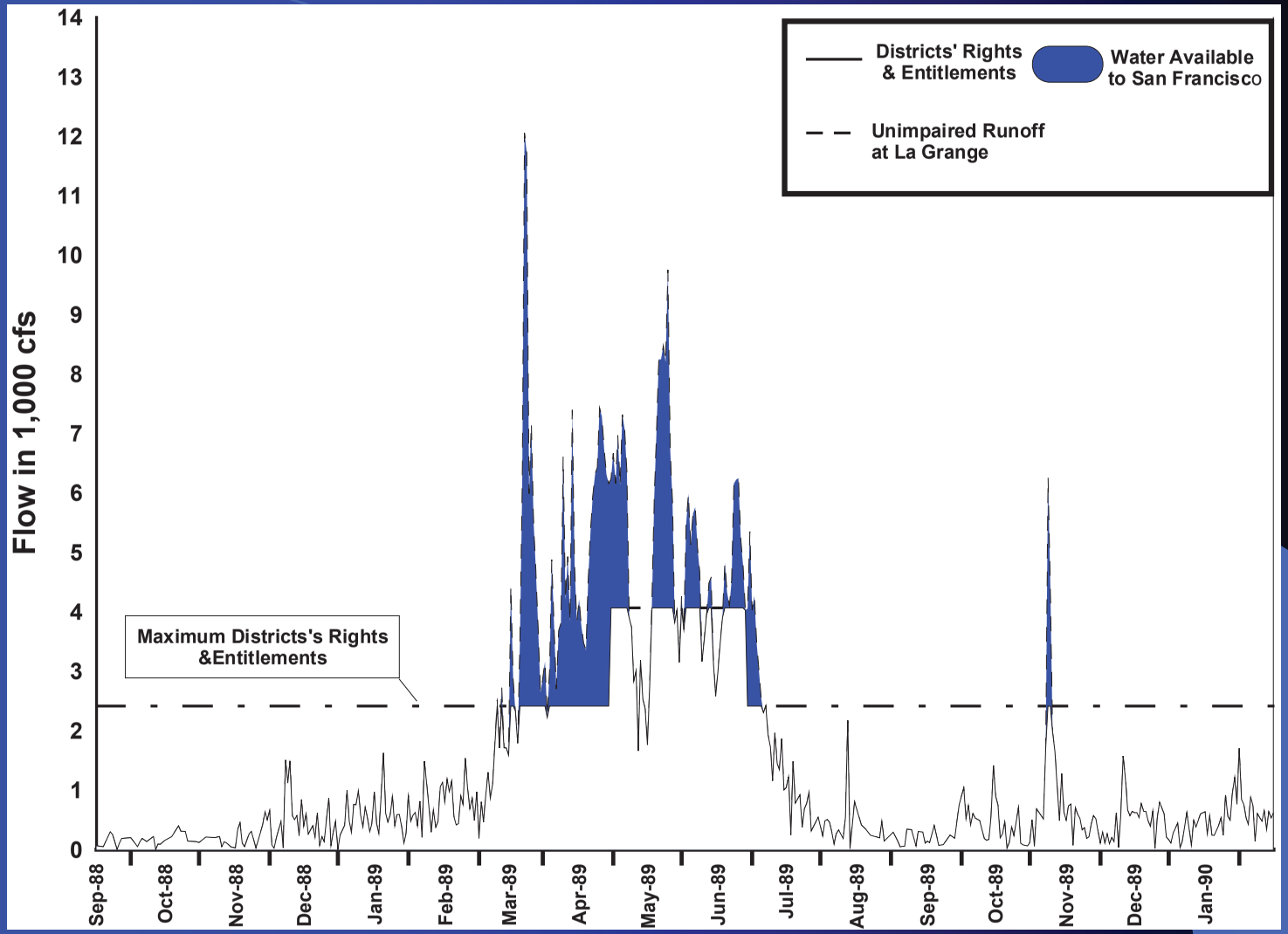
1 April 2011

Allocation of Tuolumne River Flows

- Raker Act is the document used to allocate flows on the Tuolumne River between the Districts and the City
- Based on natural flow at LaGrange

SFPUC
WATER
WASTEWATER
POWER

1 April 2011



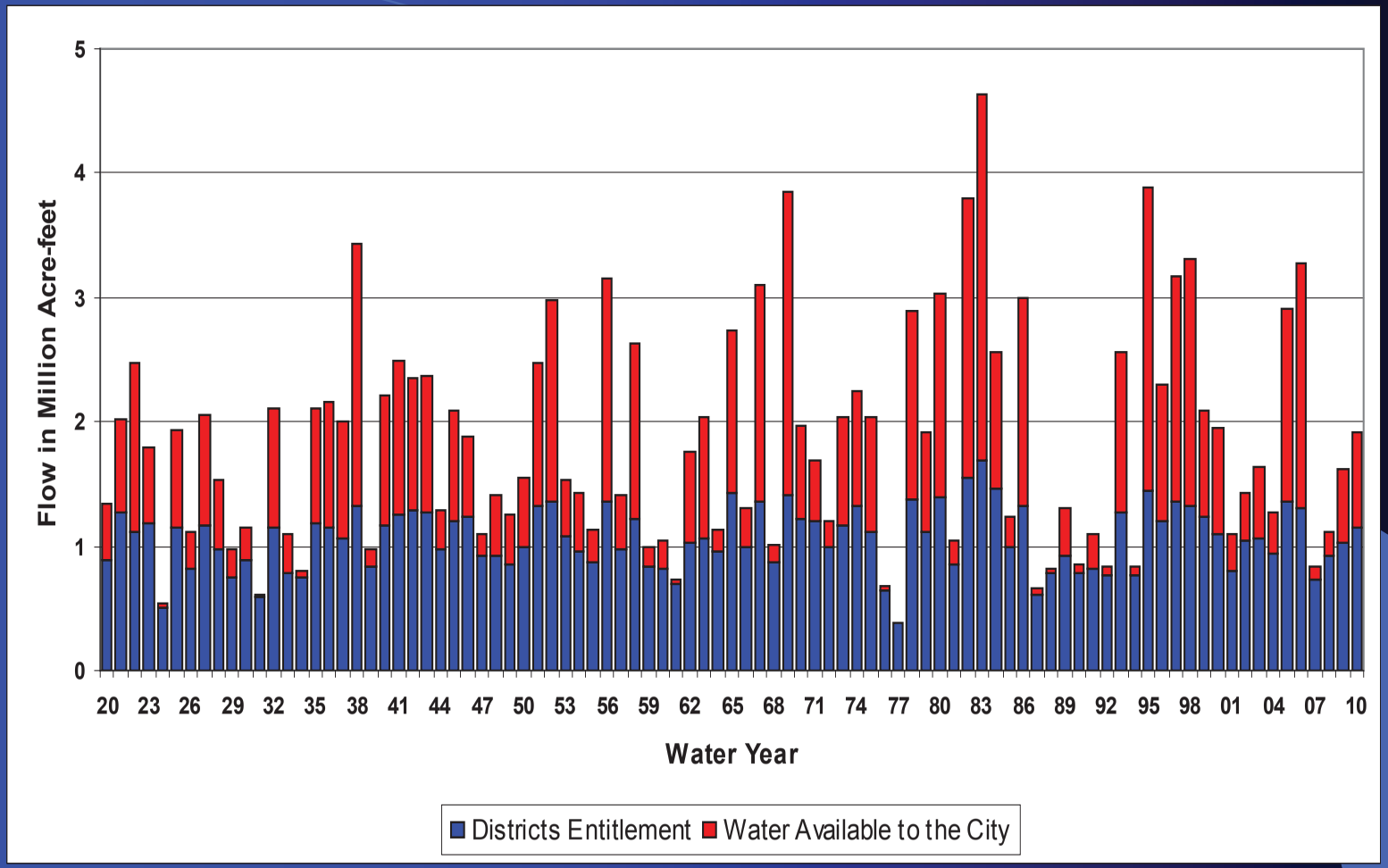
SFPUC
WATER
WASTEWATER
POWER

1 April 2011

Allocation of Tuolumne River Flows

- Average flow at La Grange is 1,800,000 acre-feet
  - 40% of the flow is allocated to the Districts
  - 60% to the City. Slightly over 1 million acre-feet per year.
- The SFPUC demand is about 265 mgd, which is about 300,000 acre-feet

1 April 2011



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1 April 2011

Allocation During Dry Sequences

- In 1987-92, the Districts received 85% of the allocation on the Tuolumne River
- The SFPUC 15%, averaging about 150,000 acre-feet per year which is about half of the SFPUC current demand.
- The SFPUC must rely on storage through droughts.

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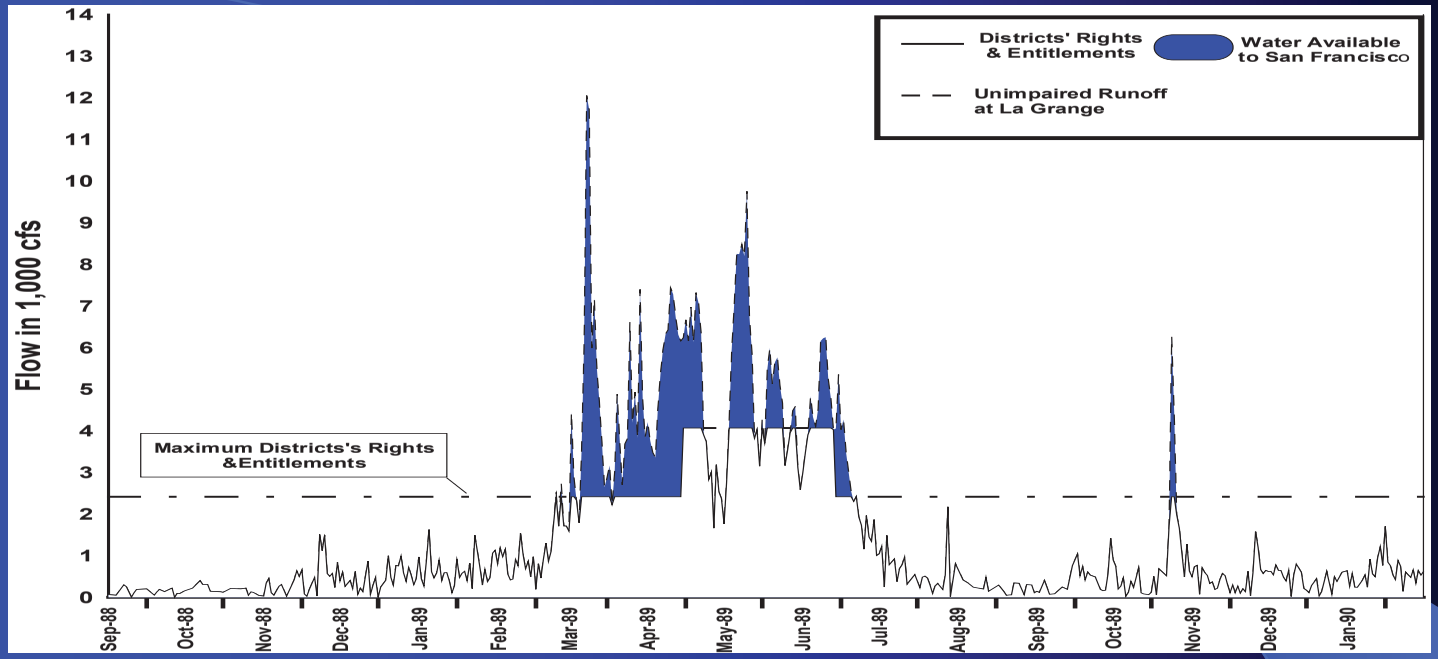
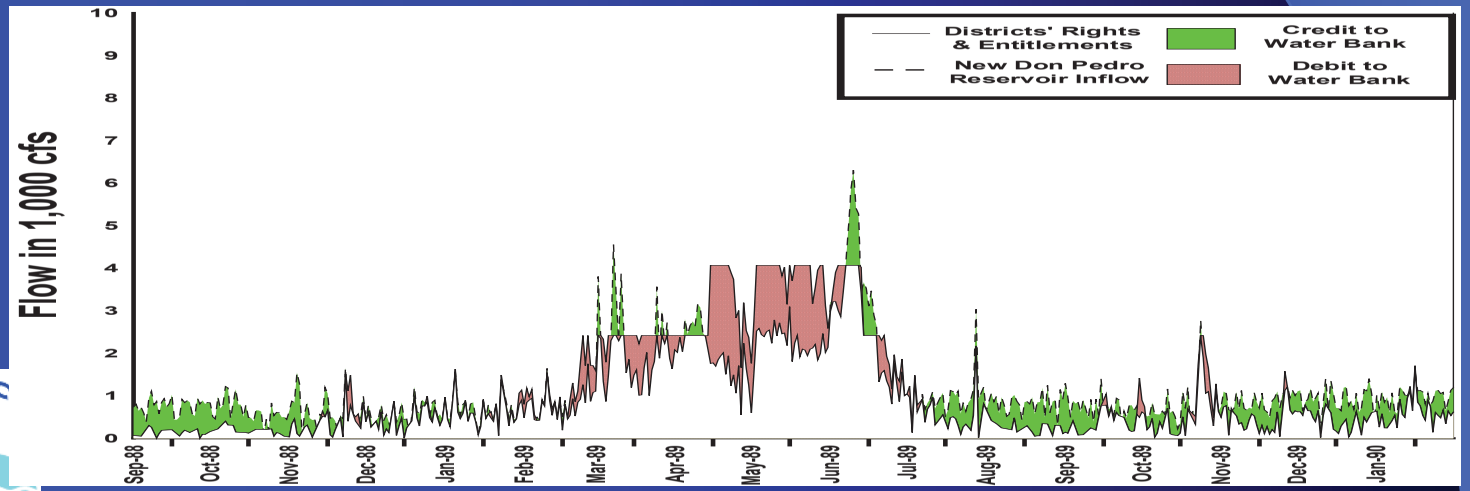
1 April 2011

Value of Water Bank

- SFPUC has about 1,500,000 acre-feet total storage between local storage, upcountry storage and the Water Bank.
- The SFPUC does not divert water directly from the Water Bank, however, the storage provides us with up to 25% of our water supply during multiple-year droughts.
- How does the SFPUC access that storage?

1 April 2011





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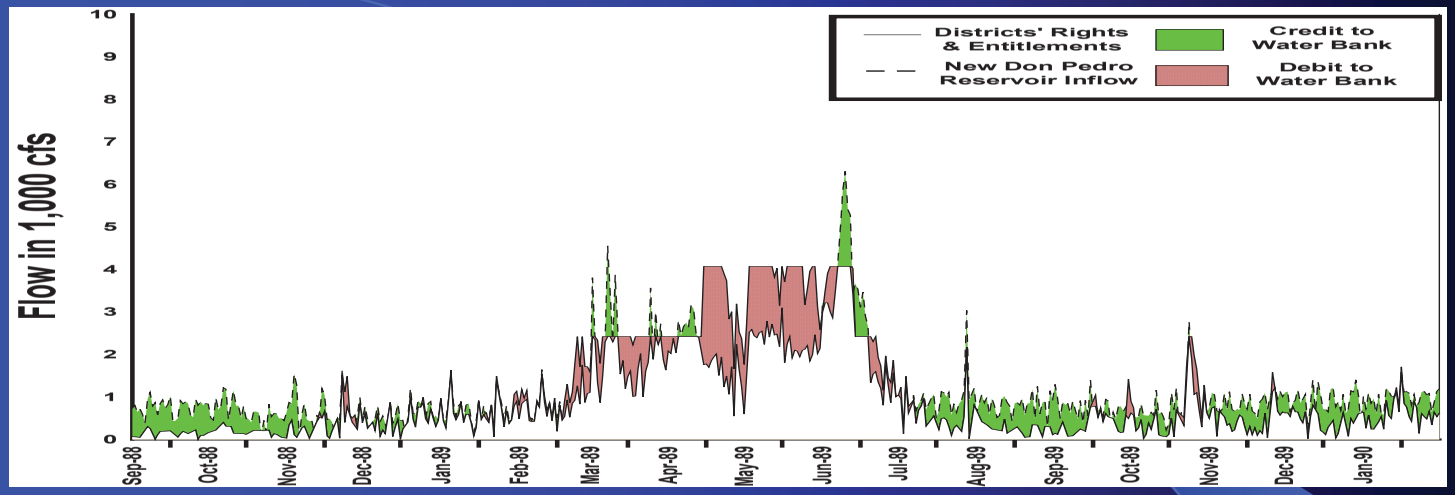
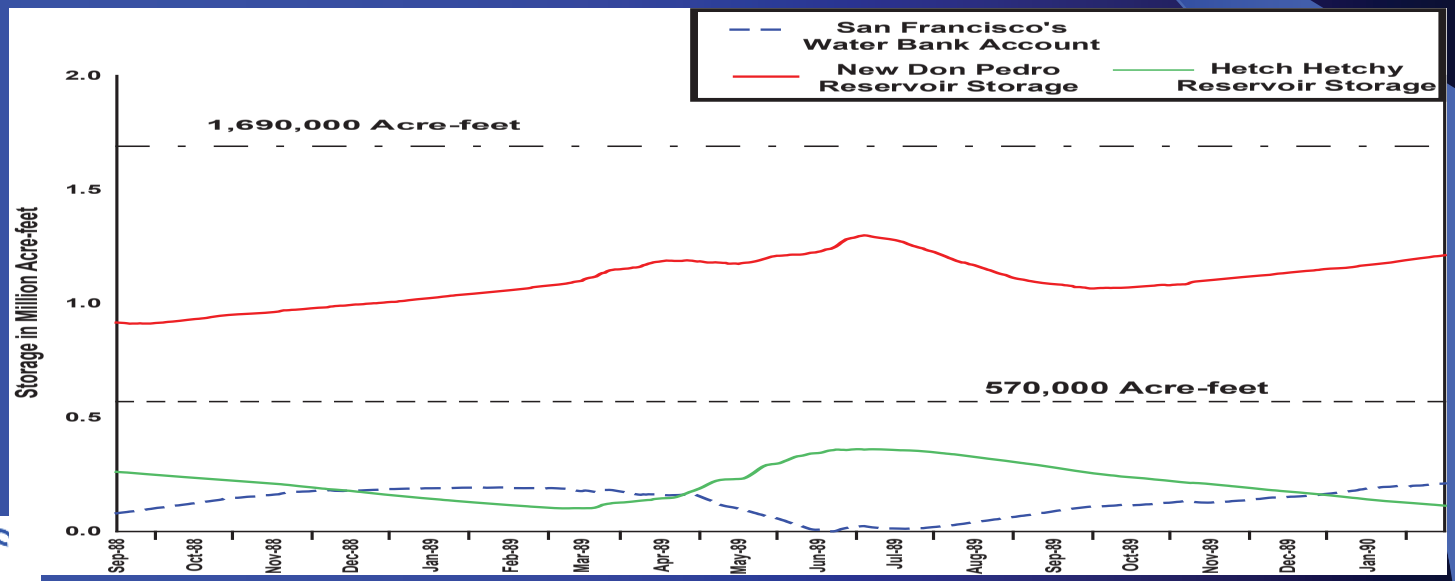
1 April 2011





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1 April 2011

Optimizing Water Supplies

- How is the HHWP reservoir system operated?
- We operate to optimize reservoir carryover storage to minimize the probability of water rationing for customers.

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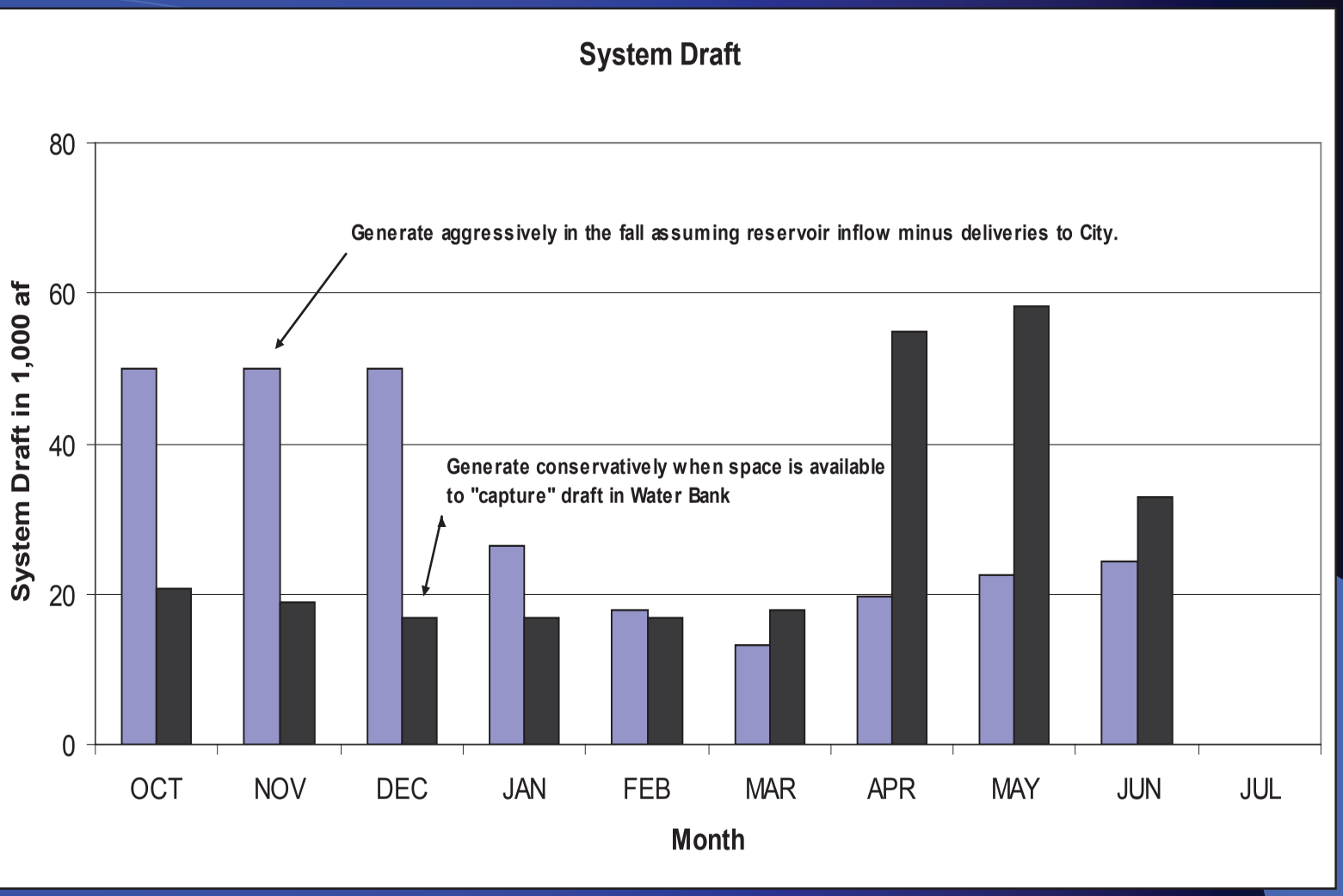

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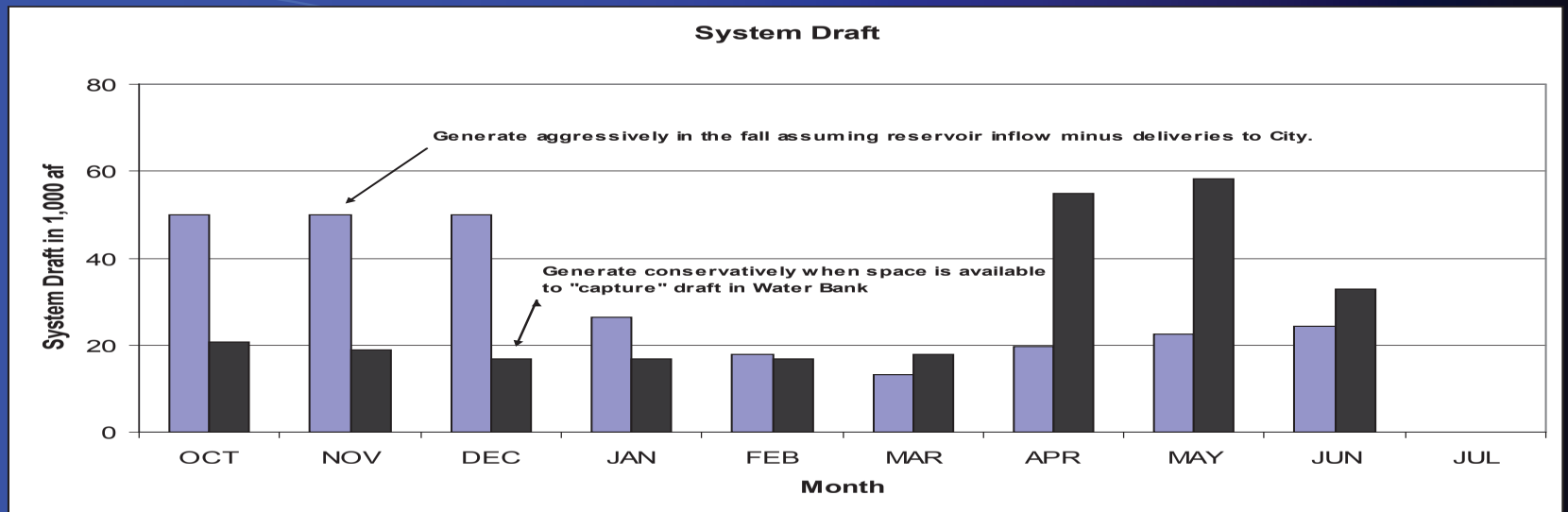

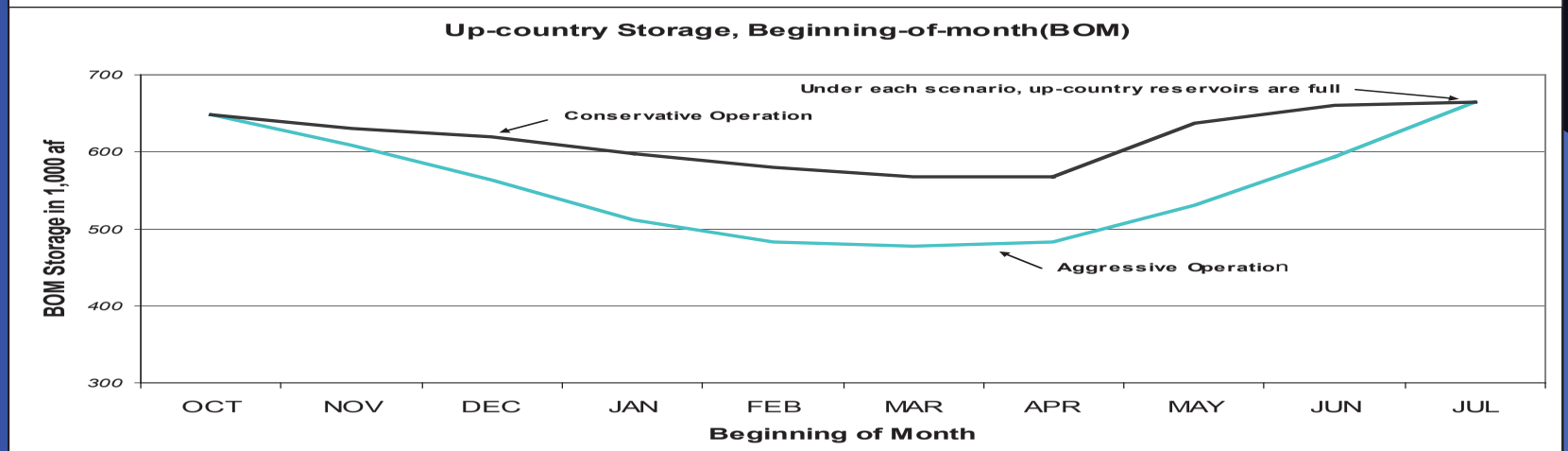

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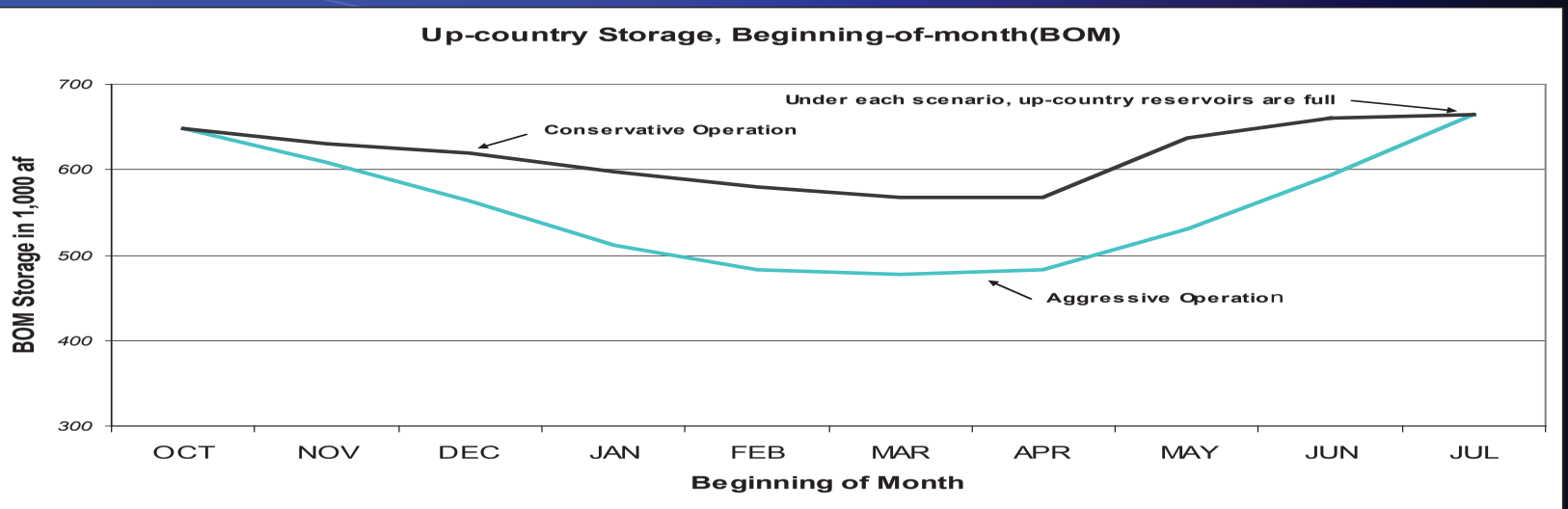

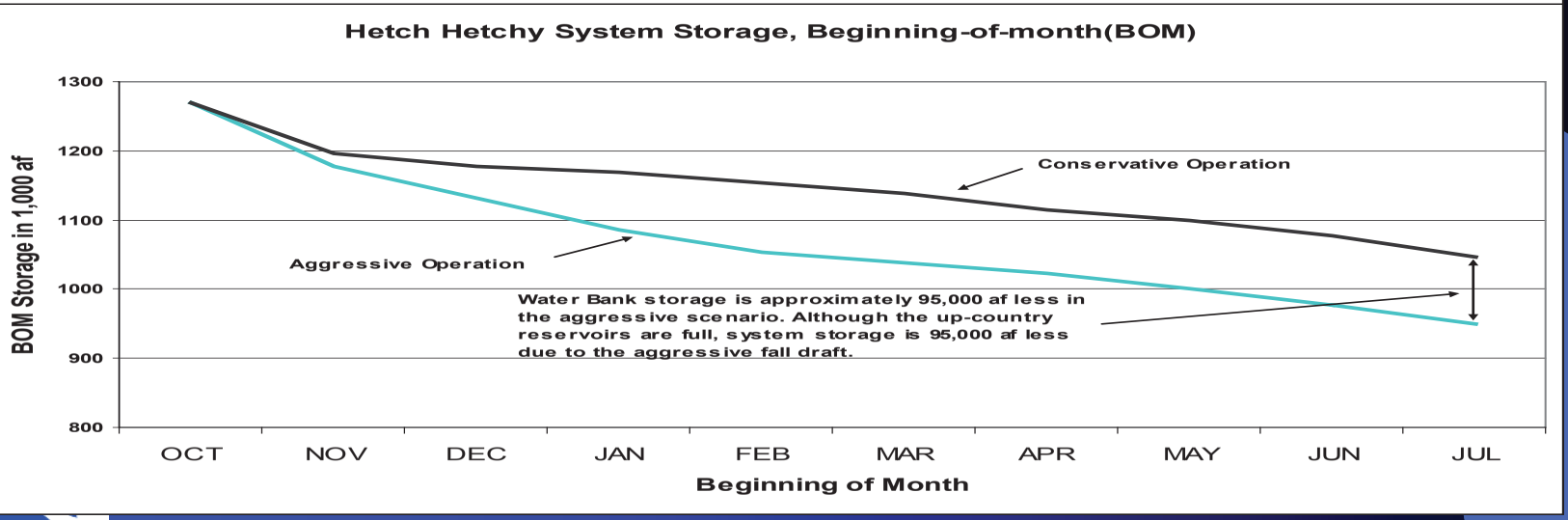

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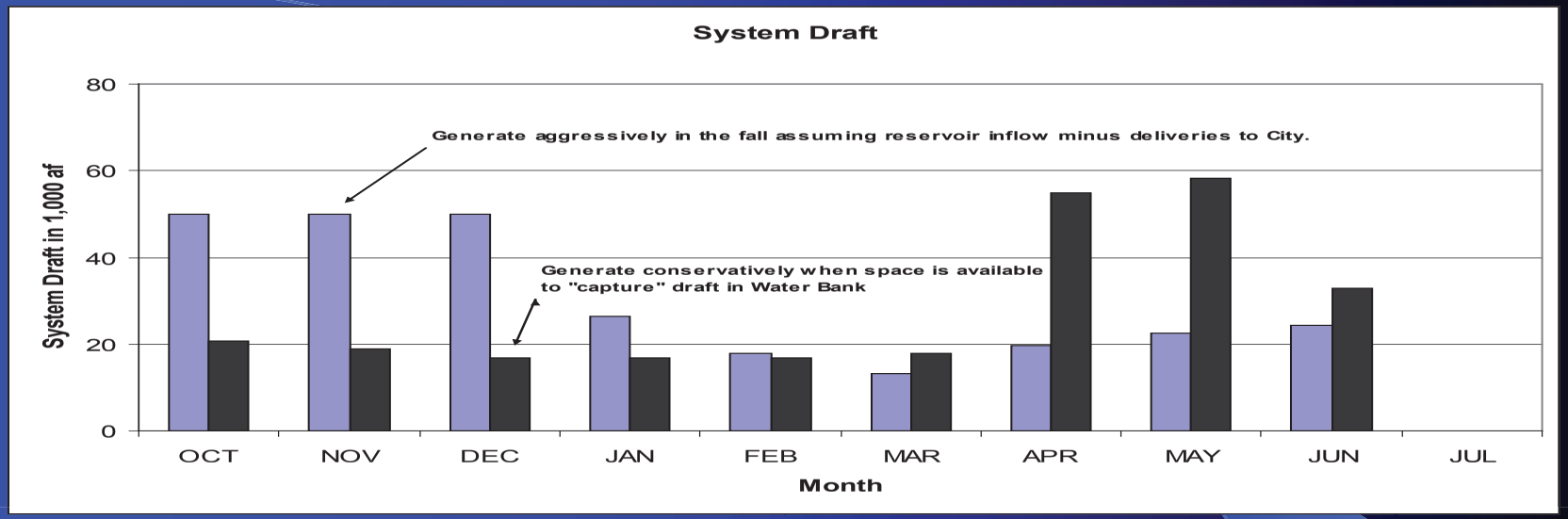
1 April 2011



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POWER

1 April 2011

From: Staples, Rose
Sent: Monday, April 11, 2011 9:26 PM
To: Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Dixie, Yakima K - CVMT; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - SC; Gutierrez, Monica - NOAA-NMFS; Hannaford, Margaret - CCSF; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Zipser, Wayne - SCFB
Subject:For Confirmation of Questions/Info Requests Made at April 1 Don Pedro Relicensing Meeting

Please find below the list of your questions/information requests made at the April 1 meeting in Modesto. We ask that you review these for accuracy and send me any changes by the end of the day Wednesday, April 13th. Thank you.

Recorded by CCSF:
[1] Is there a document(s) that describe the operations of the HHWP?
[2] What is the projected future water demand estimated by CCSF? Are new water storage resources being planned to meet the demand?
[3] Provide documentation on water bank accounting – background and method of accounting
[4] Explain how the Don Pedro FERC relicensing process can affect CCSF

Recorded by TID/MID:
[5] Provide a copy of this year's snow surveys used for forecasting
[6] Provide an historical account of the times and duration since project commencement that the reservoir has been into the flood conservation pool during the applicable period – frequency; number of occurrences; duration; and water year type
[7] Where and when is riparian water used and how is it separated from storage? Is riparian water the water used on lands that meet the definition of "riparian lands"?
[8] How long does the reservoir normally stay at the peak elevation it reaches in any year?
[9] Provide the unimpaired flows at La Grange and the historical flows at La Grange since the Project began operating
[10] Have the Districts filed for their pre-1914 appropriative rights in the appropriate counties?
[11] Provide pre-settlement, post-new Don Pedro flows and reservoir elevations similar to what is provided in the PAD for post-settlement
[12] What model will be used to develop the Project Operations Model?

Rose Staples CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com

From: Staples, Rose

Sent: Friday, April 15, 2011 7:34 PM

To: Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Dixie, Yakima K - CVMT; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - SC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Zipser, Wayne - SCFB

Subject: Don Pedro RWG Meeting Draft Documents to be Uploaded to Website Saturday April 16

A quick advisory that several documents will be uploaded to the www.donpedro-relicensing website tomorrow, April 16th, including draft PowerPoint presentations to be used during the Cultural and the Water/Aquatic/Terrestrial RWG meetings Tuesday and Wednesday. The draft Recreation RWG Meeting

PowerPoint will probably not be ready for uploading until Monday. Please access these documents through the MEETINGS tab; and then click on MEETINGS Calendar and click on the respective date of each meeting. You will find the draft documents attached to the meeting announcements.

On Saturday I will also be uploading the list of attendees at the April 1, 2011 Relicensing meeting—thank you all for your emails in confirmation of your participation; as well as a copy of the Progress Tracking List updated with notes on the actions taken in response to the February 28th questions/requests. An updated list of questions/requests from the April 1st meeting is still pending, as responses to my email seeking verification of the questions continue to be received.

The AGENDA for next week's RWG meetings has been posted on the website, with the April 19-20 meeting announcements. And the draft itinerary for FERC's May 10 site visit has been posted, both on the Announcement section of the INTRODUCTION tab as well as attached to the May 10th announcement on the calendar.

Rose Staples CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com

Don Pedro Relicensing RWG Meetings

April 19-20, 2011

MID Offices – Modesto CA

Tuesday, April 19 – Recreation Work Group

9:00 a.m.- 9:15 a.m.	Introductions
9:15 a.m.-10:00 a.m.	Overview of Existing Information and Prior Studies
10:00 a.m.-10:15 a.m.	Comments on Districts' Preliminary Assessment of Project Effects
10:15 a.m.-10:30 a.m.	Review of PAD Study Plans
10:30 a.m.-11:30 a.m.	Relicensing Participants' Assessment of Data Gaps and Additional Study Needs
11:30 a.m.-Noon	Path Forward and Action Items

Tuesday, April 19 – Cultural Work Group

1:00 p.m.- 1:15 p.m.	Introductions
1:15 p.m.- 2:00 p.m.	Overview of Existing Information and Prior Studies
2:00 p.m.- 2:15 p.m.	Comments on Districts' Preliminary Assessment of Project Effects
2:15 p.m.- 3:00 p.m.	Review of PAD Study Plans
3:00 p.m.- 4:00 p.m.	Relicensing Participants' Assessment of Data Gaps and Additional Study Needs
4:00 p.m.- 4:30 p.m.	Path Forward and Action Items

Don Pedro Relicensing RWG Meetings

April 19-20, 2011

MID Offices – Modesto CA

Wednesday, April 20 – Aquatic, Water & Terrestrial Work Group

9:00 a.m. - 9:15 a.m.	Introductions
9:15 a.m.-11:15 a.m.	Overview of Existing Information and Prior Studies (a) Water Quality Data and Studies (b) Fisheries and Aquatic Resources (Reservoir and lower Tuolumne River) (c) Terrestrial Resource
11:15 a.m.-12:00 p.m.	Comments on Districts' Preliminary Assessment of Project Effects
12:00 p.m.- 1:15 p.m.	Lunch (on your own)
1:15 p.m.- 2:00 p.m.	Review of PAD Study Plans
2:00 p.m.- 4:00 p.m.	Relicensing Participants' Assessment of Data Gaps and Additional Study Needs (a) Water Quality Data and Studies (b) Fisheries and Aquatic Resources (Reservoir and lower Tuolumne River) (c) Terrestrial Resource
4:00 p.m.- 4:30 p.m.	Path Forward and Action Items

From: Staples, Rose
Sent: Saturday, April 16, 2011 7:07 PM
To: Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Dixie, Yakima K - CVMT; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - SC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Zipser, Wayne - SCFB
Subject: Postings on Don Pedro Relicensing Website Today - Logistics for April 19-20 RWG Meetings

APRIL 16 POSTINGS ON DON PEDRO RELICENSING WEBSITE

The following documents have been posted on www.donpedro-relicensing.com for your viewing. These documents are accessible via the MEETINGS tab on the website's home

page. Then click on MEETINGS CALENDAR and go to the date of the meeting. Click on the date and you will find the documents attached to the meeting announcement.

(1) **Draft PowerPoint Presentations** (Recreation, Cultural, Water Quality/Temp, Aquatics, and Terrestrial). The Recreation and Cultural draft presentations are attached to the meeting announcement for April 19. The Water Quality/Temp, Aquatics, and Terrestrial draft presentations are attached to the meeting announcement for April 20.

(2) **Attendance list for the April 1, 2011 Relicensing Participants Meeting** (attached to the meeting announcement for April 1)

(3) **Updated Progress Tracking List for the February 28th Relicensing Participations Meeting questions/requests** (attached to the meeting announcement for February 28th)

APRIL 19 & APRIL 20 - DON PEDRO RELICENSING RWG MEETINGS
Tuesday, April 19: 9:00 a.m. to Noon for Recreation Work Group; 1:00 to 4:30 p.m. for Cultural Work Group
Wednesday, April 20: 9:00 a.m. to 4:30 p.m. for Aquatic, Water, and Terrestrial Work Group

Location: MID Offices, 1231 11th Street, Modesto (2nd Floor Multi-Purpose Room)
Purpose: Overview of Existing Information and Prior Studies / Review of PAD Draft Study Plans

If unable to attend in person:
Phone Conferencing
Call-In Number 866-994-6437
Conference Code 5424697994
Please advise me if you intend to call in to the meeting.

Web Conferencing
LIVE MEETING web conferencing may be available for the meeting (testing of the system will be finalized on April 18th). If you are interested in participating via web conferencing, please advise me in advance (by Monday, April 18th) at rose.staples@hdrinc.com.

Rose Staples CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
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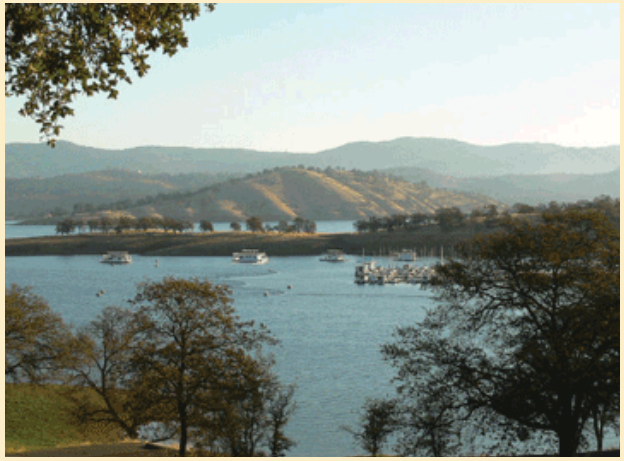
Don Pedro Project Relicensing

MODESTO IRRIGATION DISTRICT | TURLOCK IRRIGATION DISTRICT



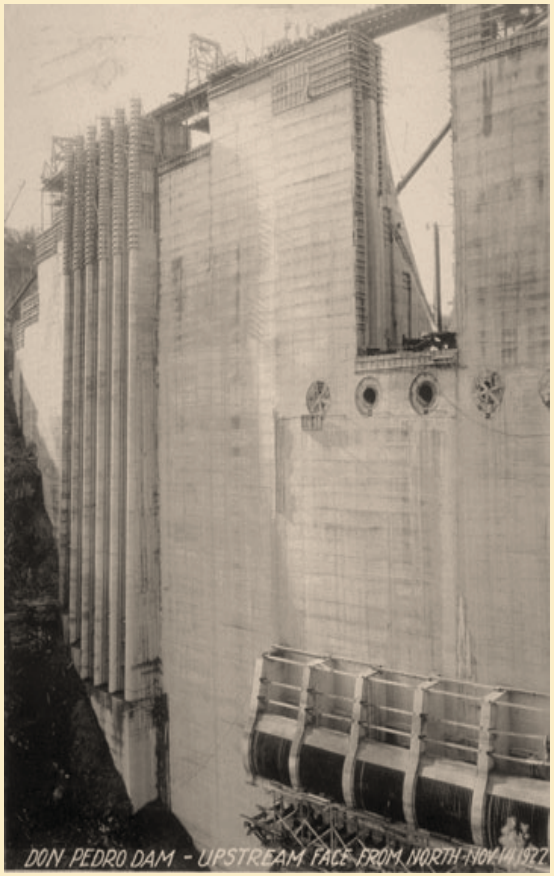


FERC
PROJECT
NO. 2299



Cultural Resources

- **An Overview of Existing Information and Prior Studies**
  - A records search at the Central California Information Center Identified:
    - 43 previous cultural resources investigations within 0.25- mile
    - 18 previous culture investigations within APE
    - 146 Previously recorded resources within 0.25-mile
    - 61 previously recorded resources within APE
    - Over 50 historic features identified from historic maps



Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

Cultural Resources

Previous Cultural Resources Investigations

The 43 previous cultural resources investigations date from the 1690s to 2009

Two of the previous investigations are the articles from *The Quarterly of the Tuolumne Historical Society*, and one is comprised of documentation of monuments and plaques of the E Clampus Vitus organization



Water fills between the original and new dam, c. 1971

Cultural Resources

Previous Recorded Cultural Investigations

Of the 146 resources within the 0.25-mile:

- 1 prehistoric/protohistoric
- 5 prehistoric/historic
- 6 unknown
- 57 prehistoric
- 77 historic

Of the 61 resources in the APE:

- 2 prehistoric/historic
- 6 unknown
- 21 historic
- 32 prehistoric

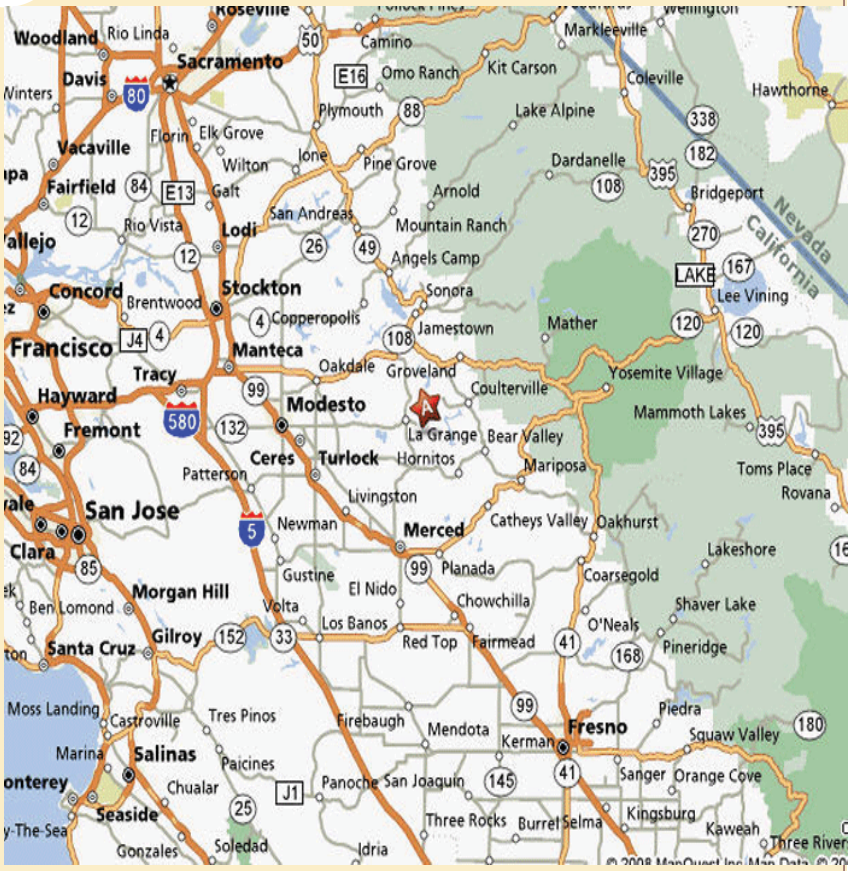


The prehistoric components typically include flaked stone with and without milling stations, with both short term and long term occupation sites represented. The historic components are predominantly represented by refuse scatters and/or remains of habitation structures/buildings.

Cultural Resources

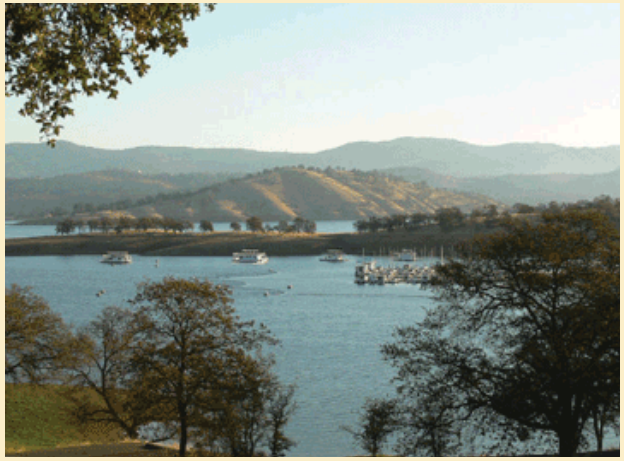
Potential Historic Resources from Historic Maps

Historic Period USGS topographic quadrangles and general land office (GLO) plats were reviewed to identify locations of potential historic-era sites and features within the project APE. This resulted in the identification of over 50 locations of unrecorded historic period sites or features may be present within the APE. These potential sites and features include roads and trails, the town site of Jacksonville, buildings, mines, ditches, the Hetch-Hetchy Railroad/Yosemite short line Railroad, the Hetch-Hetchy Aqueduct, and other features



Don Pedro Project Relicensing

MODESTO IRRIGATION DISTRICT | TURLOCK IRRIGATION DISTRICT





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NO. 2299



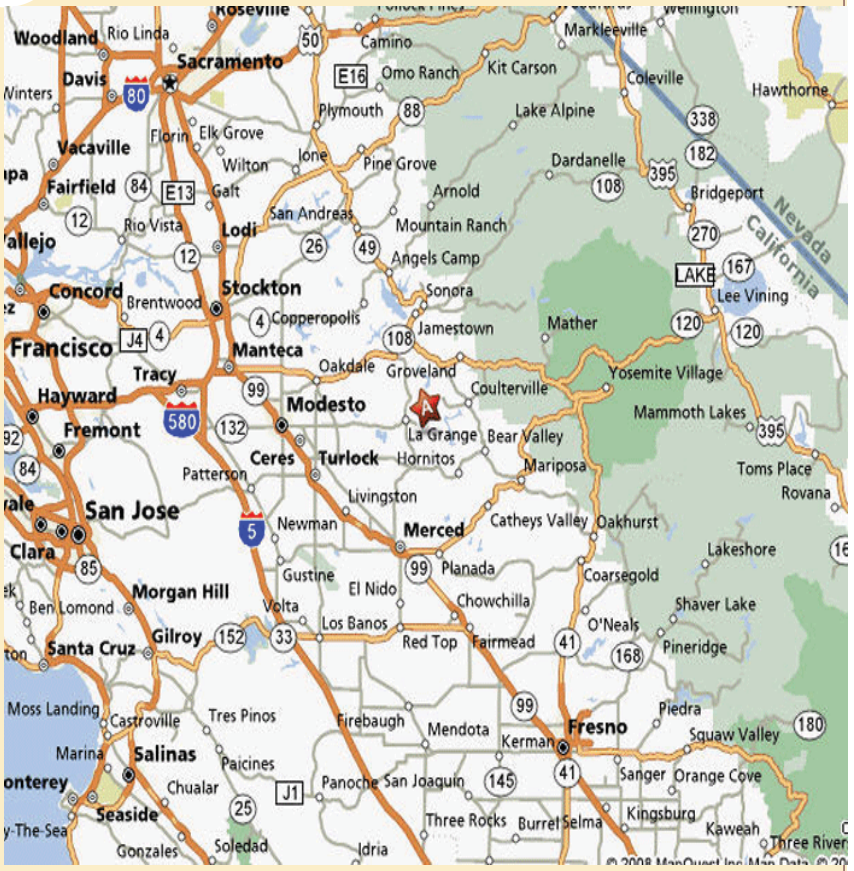
Land and Recreation Resources

24 mile-long reservoir, surface area of 12,960 acres; shoreline length of approximately 160 miles.

Districts own in fee title approximately 78 percent, remaining 22 percent are federal lands.

Over 90 percent of the Don Pedro shoreline is undeveloped and in its natural state.

Plentiful recreation opportunities at the Project and in the general vicinity of the Project.



Land and Recreation Resources

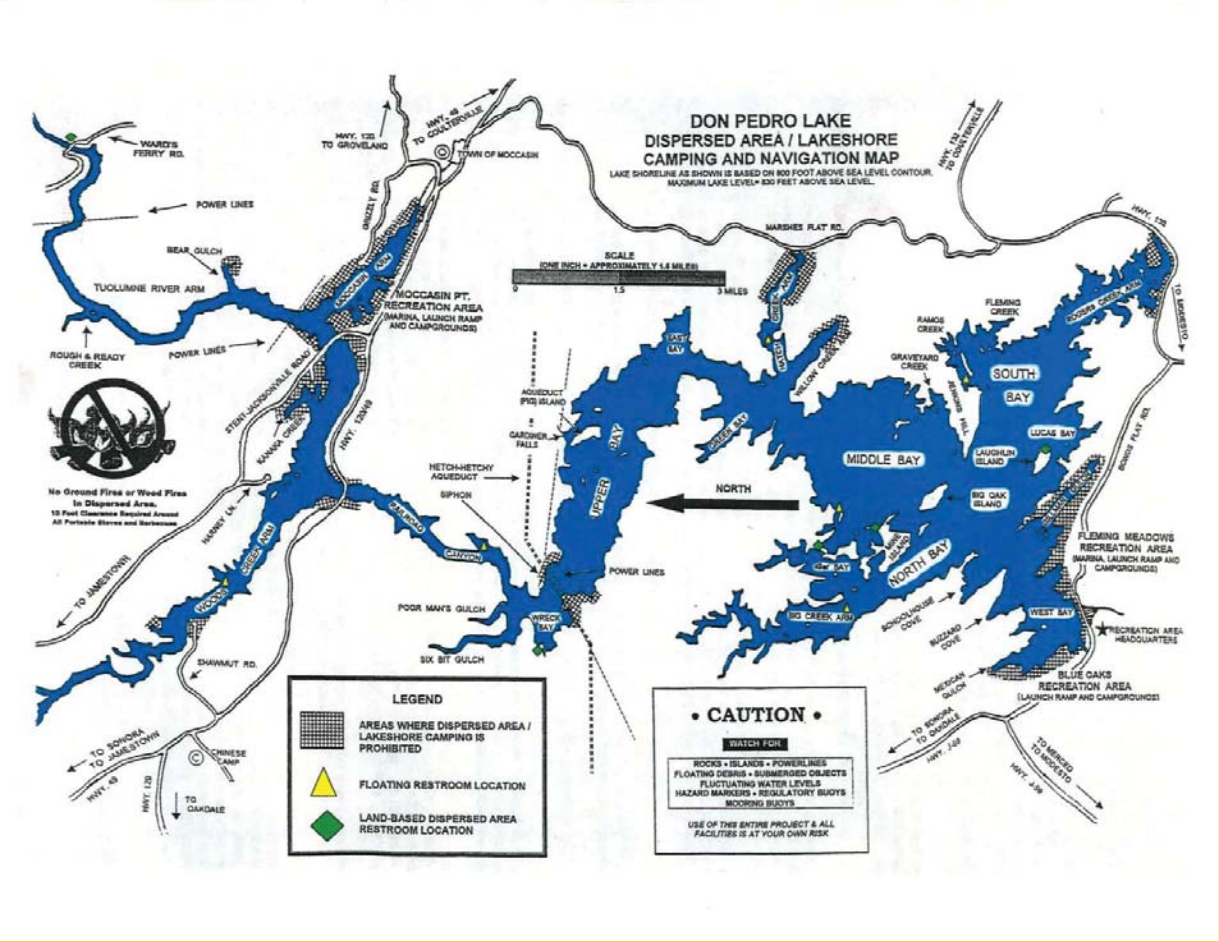
- BLM's Sierra Resource Management Plan goals include
  - ensure the continued availability of outdoor recreational opportunities while protecting other resources and uses
  - ensure adequate river flows for boating, fishing, swimming, etc
- Red Hills Area of Critical Environmental Concern (ACEC) managed by BLM, partially within the Project area
  - To protect the rare plant species; unusual serpentine soils; and habitat for unique flora, the Red Hills roach, and wintering bald eagles
  - 17.3 miles of hiking and biking trails

Land and Recreation Resources

- Don Pedro Recreation Agency (DPRA) Rules and Regulations
  - A detailed and extensive land use policy consisting of rules and regulations governing uses of Project lands and waters
  - Prohibits any placement of developed improvement along the Don Pedro shoreline and prohibits all vehicular access across Project lands
  - Results in over 90 percent of the Don Pedro shoreline in its natural state

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

Land and Recreation Resources



Recreation Resources

- Don Pedro Reservoir supports year-round fishing
- Other popular activities are water skiing and wake boarding, jet skiing, canoeing, flat water kayaking, windsurfing, sailing, and whitewater rafting and kayaking take-out, houseboating, picnicking, hiking, and camping.
- DPRA operates three major recreation areas with 559 campsites, 43 picnic sites, three boat launch facilities, two full-service marinas, a houseboat dock and repair yard, and one swimming lagoon.

Recreation Resources

- Summary of recreation facilities and other on-site amenities at Don Pedro Project developed recreation areas:

Amenities	Moccasin Point RA	Blue Oaks RA	Fleming Meadows RA
Project Recreation Facilities			
Camping Units - Total	68	195	263
With water and electric hookups	18	34	91
Picnic Areas -Total	2	1	2
Group Picnic Sites	1	1	1
Boat Launch Ramp	1	1	1
Fish Cleaning Stations	2	1	2
Comfort Stations - Total	6	9	12
With hot showers	1	4	5
Additional On-Site Recreation Amenities			
Concession Store	Yes	No	Yes
Swimming Lagoon	No	No	Yes
Volleyball / Softball Area	No	No	Yes
Marina	Yes	No	Yes
Amphitheatre	No	No	Yes
Houseboat Mooring	Yes	No	Yes
Boat Rentals	Yes	No	Yes
Houseboat Rentals	Yes	No	Yes
Boat Repair Yard	No	Yes	No
Gas and Oil	Yes	No	Yes
Sewage Dump Station	Yes	Yes	Yes

Source DPRA, 2010

Recreation Resources

- The DPRA collects visitor use data
- Annual use of the various recreation opportunities and sites operated and maintained at Don Pedro exceeds 400,000 visitor-days per year

Don Pedro Project Relicensing

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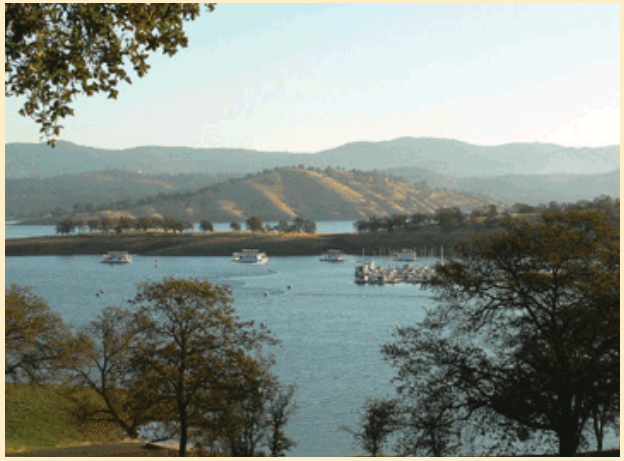



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PROJECT
NO. 2299



Botanical Resources

- **USFWS CalVeg analysis showed that the Project area has four vegetation types:** Water (22%) Blue Oak (31%) Annual Grasses and Forbs (20%) Chamise (10%)
- **Special-status plants defined as one of the following:**
  - Occurring in Project area
  - Found on CDFG's list of proposed or candidate species for listed under the CESA
  - Found on the CNPS inventory of rare and endangered plants
  - Listed as a BLM sensitive species
- **41 special-status plants known to occur or with the potential to occur in the Project area. Thirteen plants (32 percent) are listed as BLM-S**
- **Special-Status Plants Study to provide field verified information regarding population locations and Project effects, to be completed December 2012**
- **29 noxious weed species known to occur or have the potential to occur in the Project area**

Wildlife and Associated Habitats

- **California Wildlife Habitat Relationships (CWHR) analysis of wildlife habitat types in Project boundary:** Lacustrine (58.6%) Blue Oak Woodland (19.1%) Annual Grasslands (12.4%) Blue Oak-Foothill Pine (2.4%) Mixed Chaparral (1.5%)
- **32 Special-Status Wildlife Species**: 1 reptile, 19 birds, 12 mammals.
  - 7 species listed as BLM sensitive, 8 listed as BLM sensitive and CDFG species of concern, 15 listed as species of concern only
- **Special-Status Amphibians Study: Foothill Yellow-Legged Frog and Western Pond Turtle surveys, and potential habitat mapping** Scheduled completion March 2013
- **Special-Status Wildlife – Bats Study**: Long-eared Myotis, Fringed Myotis, Western Small-Footed Myotis, Western Red Bat, Spotted Bat, Townsend's Big-Eared Bat, Pallid Bat, and Western Mastiff Bat surveys of Roosts and Hibernacula. Scheduled completion February 2013

Wetlands and Riparian Areas

- **National Wetland Inventory (NWI) data for Project area:**
  - Palustrine emergent marsh (27.2%)
  - Palustrine Scrub-Shrub (1.4%)
  - Palustrine Unconsolidated Bottom (12.7%)
  - Palustrine Unconsolidated Shore (0.5%)
  - Riverine Unconsolidated Bottom (37.7%)
  - Riverine Unconsolidated Shore (2.1%)
  - Riverine Streambed (48.1%)
- **No NWI Palustrine Forested wetlands in Project area**
- **Current riparian vegetation in Lower Tuolumne River (downstream of La Grange Dam) consists of 22 series types (McBain & Trush 2000). Most common is Valley Oak, Narrow-Leaf Willow, Fremont Cottonwood and Black Willow**

ESA/CESA Listed Species

- 15 Federally listed species potentially occur in the Project Vicinity (4 Endangered, 11 Threatened) – USFWS, August 2010 list
- CESA species: 8 plants, 1 bird, 1 amphibian
- CESA species are listed as CESA Endangered, Threatened, Rare, or Fully Protected
- ESA-Listed Wildlife Study - Valley Elderberry Longhorn Beetle Study: Surveys of elderberry shrubs for beetle presence. Scheduled completion December 2012
- ESA-Listed Wildlife Study – California Tiger Salamander (Threatened) and California Red-Legged Frog (Threatened). Scheduled completion February 2013
- ESA-and CESA-Listed Plants Study – Field survey for presence of 10 plant species. Scheduled completion December 2012

Don Pedro Project Relicensing

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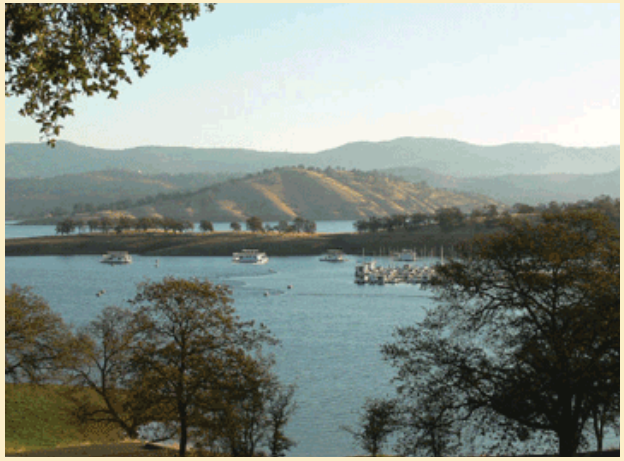



FERC
PROJECT
NO. 2299



Aquatic Resources

Resident Fish in Don Pedro Reservoir

- **Don Pedro Reservoir Fish Stocking (1971-Present)**
  - CDFG stocks hatchery-origin trout and salmon
  - Don Pedro Recreation Agency stocks Florida strain of black bass
  - Remaining fishery consists of introduced, non-native species from varying sources
- **Central Valley *O. mykiss* genetics (2005)**
  - 2002 analysis of rainbow trout samples for regional genetics studies by Nielsen et al (2005)
- **Fish contaminant assessments**
  - 2007-2008 SWAMP/SFEI report on sportfish contaminants
  - 2009 TID-MID Fish Mercury Study (rainbow trout, largemouth bass, spotted bass, and channel catfish)

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

Aquatic Resources

Resident Fish Below Don Pedro Dam

- **MID Canal Sampling (2004)**
  - Dip net sampling of rainbow trout during annual dewatering and inspection of MID Canal siphon
- **Summer flow surveys (1988-1994)**
  - Sampling of resident fishery from La Grange dam to confluence using a variety a gear types to assess impacts of low flow conditions on species composition and relative abundance
- **Predator species abundance (1988-1989)**
  - Mark-recapture methods used to estimate the population of predator species found in run-pool habitats

Aquatic Resources

Resident Fish Below Don Pedro Dam

- **Predation assessments**
  - 1988-1989 stomach content analyses indicated largemouth and smallmouth bass were the primary predators on Chinook salmon fry and juveniles
  - 1999-2003 baseline assessment of predator habitat use at SRPs 9 and SRP 10 using electrofishing
  - 2006 radio-tracking of habitat use at SRP 9 and in-channel locations and 2D modeling of predator habitat
- **Fish Mercury Study (2009)**
  - Tissue data in largemouth bass, spotted bass, and channel catfish

Aquatic Resources

Chinook salmon – spawning

- **Spawning gravel quantity**
  - Pre-1997 Flood: 1988-1989 spawning habitat mapping, utilization (redd mapping, superimposition), emergence, and egg loss modeling
  - Post-1997 Flood: 1999-2001 spawning habitat mapping, sediment supply and transport, gravel augmentation designs and planning
- **CDFG spawner surveys (1971-present)**
  - Interannual variations in escapement, timing of spawning activity, redd counts, locations, age composition
- **TID-MID counting weir (2009-present)**
  - Interannual variations in escapement, arrival timing
- **IFIM Modeling (1991, 1995, 2011)**

Aquatic Resources

Chinook salmon – egg incubation

- **Gravel quality (Pre 1997 Flood)**
  - 1988-1989 gravel studies: size distribution in riffles, as well as redds before and after spawning, rates of fine sediment intrusion, fry emergence trapping, survival to emergence modeling
  - 1991-1993 spawning gravel cleaning methodologies
  - 1993 CDWR spawning gravel assessment
- **Gravel quality (Post 1997 Flood)**
  - 1998-1999 TRTAC riverwide permeability study, method development, and survival to emergence modeling
  - 2001-2002 CALFED Fine sediment management program: Fine sediment sources, sand mapping, 1993 gravel cleaning re-evaluation, gravel cleaning methods, 2001 survival to emergence study

Aquatic Resources

Chinook salmon – Fry/Juvenile

- **Stranding surveys (1986-1992 and 2002-2004)**
  - Occurrence with flow, ramping rate, substrate and topography
- **Floodplain Habitat Use**
  - USFWS (2008) GIS Analysis
  - 2005-2007 Big Bend restoration project monitoring (TRT)
  - 2011 FERC Ordered high flow study
- **Seine/snorkel surveys (1986-present)**
  - Fry/juvenile distribution (spring/summer) and relative density
- **Rotary screw trapping (1995-present)**
  - Fry production and timing

Aquatic Resources

Chinook salmon – Fry/Juvenile (cont.)

- **Aquatic invertebrate studies**
  - 1986 Drift-net studies and stomach analyses of fry
  - 1988-2008 Hess sampling at Riffle 4A
  - 2001-2008 CSBP/CMAP (RBP longitudinal kick-net sampling)
- **IFIM Modeling (1991, 1995, 2011)**

Aquatic Resources

Chinook salmon – Smolt/Outmigrants

- **Coded-Wire-Tag (CWT) evaluations (1986-2002)**
  - Paired release survival experiments as a function of flow
- **Rotary screw trapping (RST)**
  - 1995-present smolt production estimates
  - 1998-2000 Multiple-mark-recapture estimates

Aquatic Resources

Chinook salmon – Adult

- **Population Models**
  - 1987-1991 EACH Model: San Joaquin basin tributary populations as a function of flow
  - 1995 Stock-Recruit Model: Multi-stage stock production model as a function of flow, Delta exports, and harvest
  - Agency Population Models (CDFG, FERC-ORNL)
- **San Joaquin River basin genetics**
  - Lindley et al (2007) viable salmonid population criteria development
  - Mesick (2009) Tuolumne River extinction risk analysis

Aquatic Resources

O. mykiss – Fry/juvenile

- **Seine/snorkel surveys (1986-present)**
  - Incidental seine capture of fry beginning in March of most years
  - Juvenile distribution by snorkel observation (summer)
- **Rotary screw trapping (1995-present)**
  - Incidental capture of fry
- **FERC Ordered Population Estimates (2008-2011)**
  - Habitat mapping and snorkel counts in Spring and Summer
- **IFIM Modeling (1991, 1995, 2011)**

Aquatic Resources

O. mykiss – Smolt/Outmigrants

- **Rotary screw trapping (1995-present)**
  - Incidental capture of smolt-sized *O. mykiss*

Aquatic Resources

O. mykiss – Adult

- **Rotary screw trapping (1995-present)**
  - Incidental capture of adult-sized *O. mykiss*
- **TID-MID counting weir (2009-present)**
  - Incidental detection of adult-sized *O. mykiss* passage
- **FERC Ordered Population Estimates (2008-2011)**
  - Habitat mapping and snorkel counts in Spring and Summer
- **FERC Ordered Tracking Study (2010-2011)**
  - Mobile and fixed station acoustic tracking of adult *O. mykiss*
- **IFIM Modeling (1991, 1995, 2011)**

Aquatic Resources

O. Mykiss – Adult (cont.)

- **Anadromy studies**
  - Zimmerman et al (2009) analysis of Tuolumne River samples
  - FERC Ordered anadromy study (*No Section 10 permit*)
- **Central Valley *O. mykiss* genetics**
  - 2000-2001 analysis of *O. mykiss* samples for regional genetics studies by Nielsen et al (2005)

Aquatic Resources

Habitat Restoration

- **TRTAC Habitat Restoration Plan (2000)**
  - Process based plan that links:
    - **Physical inputs** (e.g., flow, sediment) and processes (e.g., sediment transport, erosion, deposition),
    - **Habitat structure** (e.g., shallow-gradient riffles, sorted and clean spawning gravels), and
    - **Biological responses** (e.g., spawning use, increased incubation success, lower density-dependent mortality, etc.)
  - Identified 10 High Priority restoration projects

Aquatic Resources

Habitat Restoration (Cont.)

- **Restoration Project Implementation**
  - **Channel and Riparian Restoration**: Gravel Mining Reach (GMR) Phase I - 7-11 Segment (completed 2003); GMR Phases II and III (design only); GMR Phase IV (no funding identified)
  - **Predator Isolation**: Special Run Pool (SRP) 9 (completed 2001); SRP 10 Hydraulic (modeling and design only)
  - **Sediment Management:** RM 43 Gravel augmentation (completed 2005), Coarse Sediment Management Plan and Design Manual (2006), Gasburg Creek sediment basin (completed 2007), Riffle Cleaning (no methodology adopted)

Aquatic Resources

Habitat Restoration (Cont.)

- **Restoration Project Implementation (Cont.)**
  - 1999-2003 CDWR/CDFG La Grange gravel additions for spawning enhancement
  - 2000 Grayson River Ranch floodplain reconstruction and riparian planting
  - 2006 Bobcat Flat riffle reconstruction, floodplain reconstruction and riparian planting
  - 2006 Big Bend Floodplain Restoration

Aquatic Resources

Habitat Restoration (Cont.)

- **Restoration Project Assessments**
  - 1998-1999 Pre-Project Monitoring (GMR Phase I, SRP 9/10)
  - 2001 CALFED Adaptive Management Forum Report
  - 2006 Bobcat Flat/RM 43 Post-Project Monitoring
  - 2006 SRP 9 and 7-11 Reach Post-Project Monitoring
  - 2007 CDWR/CDFG La Grange gravel augmentation post-project monitoring
  - 2008 Big Bend post-project monitoring

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

Don Pedro Project Relicensing

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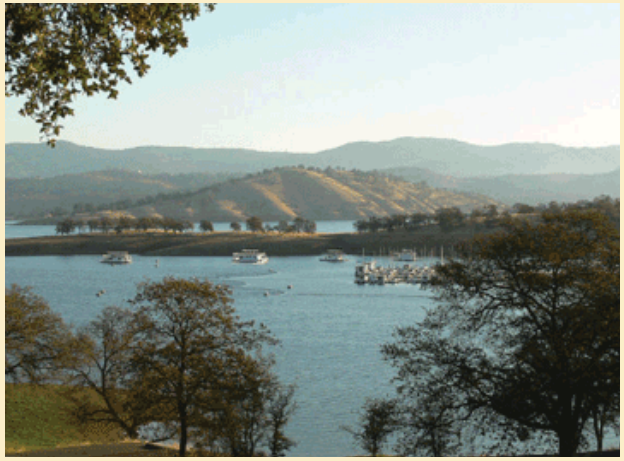



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PROJECT
NO. 2299



Water Quality

- **The Districts found more than 29 sources of published water quality data from the following sources**
  - CDWR data
  - City of Modesto storm water compliance water quality sampling on Dry Creek and the lower Tuolumne River
  - City and County of San Francisco reports
  - CVRWQCB reports prepared for the Surface Water Ambient Monitoring Program (SWAMP)
  - Environmental Defense Fund's *Paradise Regained: Solutions for Restoring Yosemite's*
  - EPA Storage and Retrieval (STORET) data and reports
  - East San Joaquin Water Quality Coalition data collection on Dry Creek
  - *Hetch-Hetchy Valley*, Appendix B
  - MID & TID water quality monitoring data within Don Pedro Reservoir and in the lower Tuolumne River
  - MID & TID fish tissue data collection
  - National Park Service (NPS) report on Yosemite National Park
  - TID 's Regional Surface Water Supply Project proposed intake surface water on the lower Tuolumne River
  - U.S. Geological Survey Water Resources (USGS) Data Reports and data collected for the National Water Quality Assessment (NAWQA) Program

Water Quality

- **Water quality data were predominantly collected in the 1990's and 2000's:**
  - Constituents studied include general chemistry, bacteria, toxicity, pesticides (carbarnates, organochorines, and organophosphates), herbicides, metals, and nutrients
  - Within the granitic terrain of the upper watershed, surface water exhibits low primary productivity, low turbidity, and low nutrient loads
  - Water diverted from the Tuolumne River serves the CCSF, Don Pedro Recreation Area, and City of Modesto needs for drinking water
  - Alkalinity, specific conductance, and hardness values remain low as water flows down the watershed
  - Don Pedro Reservoir is mesotrophic
  - Don Pedro stratifies from approximately May through November
  - Turbidity measured in the lower Tuolumne River is generally low, ranging from less than one to about 10 NTU, except during periods with high storm runoff

Water Quality

- The lower Tuolumne River is on the 303(d) list for bacteria, pesticides, and toxicity
- PCBs have been found in fish tissue collected in the Tuolumne River at Shiloh (RM 3.4)

- **The 2006 303(d) list identifies Don Pedro Reservoir as impaired for mercury and the lower Tuolumne River (Don Pedro Reservoir to San Joaquin River) as impaired for Diazinon, Group A Pesticides, and unknown toxicity**

- **The EPA is expected to add mercury, chlorpyrifos, and temperature to the 303(d) list later this year**

Water Temperature

- **Water temperature monitoring data are available for the following general areas:**
  - Upstream of Don Pedro Reservoir: Seven stream temperature loggers were installed in Cherry Creek, South Fork Tuolumne River and Mainstream Tuolumne River from approximately 2005 – 2008. Temperatures ranged from 0 C to 24 C
  - Don Pedro Reservoir: Monthly reservoir profiles have been collected by CDFG from 2004 – 2010 at six locations throughout the reservoir. Thermal stratification is well established by May and extends into November
  - Downstream of Don Pedro Reservoir: Thirty five stream temperature loggers were installed in the Tuolumne River below LaGrange Dam as early as 1977 at some locations through 2008. Temperatures ranged from 4 C to 29 C
- **The Districts and CDFG continue to monitor water temperature at stream locations and CDFG takes monthly reservoir profiles in Don Pedro Reservoir**
- **The Districts recently completed a water temperature model for the lower Tuolumne River and plan to complete a 3D water temperature model of Don Pedro Reservoir**

Don Pedro Relicensing
Organizational Meeting Participants List
HDR|DTA MID Offices, Modesto CA – April 1, 2011

Participant	*Representing*	*In Person*	*Via Conf Call*
Jim Alves	City of Modesto	×	
Jack Bond		×	
Allison Boucher	TRC	×	
Stephen Bowes	NPS		×
John Buckley	CSERC	×	
Jim Canaday	DFG	×	
Cindy Charles	GWWF	×	
Jan Costa	Chicken Ranch	×	
Peggy Cranston	BLM	×	
Rebecca Creeman	CSERC	×	
Peter Day	Morrison & Foerster	×	
Peter Drekmeier	TRT	×	
Timothy Findley	Hanson Bridgett	×	
Reba Fuller	Tuolumne Band of the Me-Wuk Indians	×	
Donn Furman	CCSF	×	
Margaret Hannaford	HHWP	×	
Jennie Hatch	CalTrout		×
Zahra Hayat	Morrison & Foerster	×	
Jeff Horn	BLM	×	
Bob Hughes	DFG	×	
Noah Hume	Stillwater Science	×	
Jerry Jackman		×	
Mary Johannis	BOR		×
Russ Kanz	SWRCB	×	
Patrick Koepele	TRT		×
Bill Lyons	Mapes Ranch	×	
Annie Manji	DFG	×	
Dean Marston		×	
Michael Martin	Merced FFC	×	
Lee Morris	TRC	×	
Jennifer O'Brien	DFG	×	
Chris Ott	Ott Farms	×	
Mike Passalaqot*	ERCD*	×	
Jessie Raeder	TRT	×	
Martin Reyes	EORCD*	×	
Jesse Roseman	Citizen	×	
Richard Roos-Collins	Water Power & Law Group, for NHI		×
Nicole Sandkulla	BAWSCA		×
Allison Schutte	Hanson Bridgett, for BAWSCA		×
Chris Shutes	CSPA	×	
Dan Wheeler		×	
Dave Wheeler		×	
Ronald Yoshiyama		×	

*please advise correct spelling

Don Pedro Progress Tracking List

Items to be closed are shaded in gray; will be moved to CLOSED ITEM worksheet after the next Relicensing Participants' meeting.
Red Text indicates items added since the last update of the Progress Tracking List (PTL).
(RP = Relicensing Partipant)

Item No.	*Souce of Item*	*Item*	*Date Requested*	*Date Due*	*Responsible Party*	*Action Taken/Status*	*Date Closed*
1	RP	Poll of RPs for meeting availability and resource area interests.	2/28/2011	3/8/2011	Districts	Created Doodle Poll questionaire and sent it to RPs via email on 3/2/2011. Responses due 03/07/2011. **Poll completed 03/07/2011; 2011 meeting dates announced to RPs via email on 03/15/2011 and have been posted on website calendar.**	
2	CSPA; CDFG; and TRT	Use of an independent facilitator.	2/28/2011	n/a	n/a	Request documented; **Districts' response emailed to RPs on 03/07/2011.**	
3	Several RPs	Alternating the meeting locations for future meetings.	2/28/2011	3/11/2011	Districts	Request for alternating meeting locations to be considered. **Districts' response emailed to RPs on 03/15/2011.**	
4	Several RPs	Use of web conferencing as part of future meetings.	2/28/2011	3/11/2011	Districts	Request for web conferencing as part of the meeting to be considered. **Districts' response emailed to RPs on 03/15/2011.**	
5	NGOs	RPs not to have to pay for PAD reproduction costs.	2/28/2011	3/11/2011	Districts	Request for RPs not to have to pay for PAD reproduction costs to be considered. **Districts' response emailed to RPs on 03/15/2011.**	

6	Several RPs	Procedure for managing study plan revisions on the Don Pedro website.	2/28/2011	3/18/2011	Districts	Process for sharing study plan revisions on the Don Pedro website to be described to RPs.	
7	Several RPs	Exhibit G or other Project Boundary Maps for tailwater and Gasburg Creek areas.	2/28/2011	3/11/2011	Districts	Project Boundary Maps to be uploaded to the Don Pedro website. **Two Project Boundary maps (showing area below the Don Pedro Dam) have been uploaded and RPs advised via email 03/15/2011.**	
8	Districts	RP review of Relicensing Participants List in PAD (Appendix B) to identify additional parties interested in the relicensing.	2/28/2011	3/18/2011	RPs	RPs to advise Districts of additional interested parties and their contact information, if known. **Additional names have been received and added to the Contact List**.	
9	NHI	"Discussion of Cummulative Impacts" to be an agenda item for the April 19-20 meeting.	2/28/2011	04/19-20/2011	Districts	"Discussion of Cummulative Impacts" to be added to the agenda for the April 19-20 RP meeting.	
10	RPs	Uploading of Meeting Slides to the Don Pedro ebsite.	2/28/2011	3/11/2011	Districts	Slides used at the Feb 28 RP meeting to be uploaded to the Don Pedro website. **Meeting presentation slides have been uploaded and RPs advised via email 03/15/2011.**	

HAVE REMOVED HOME EMAILS

From: Devine, John
Sent: Wednesday, April 20, 2011 11:38 PM
To: Tom Terpstra; Staples, Rose
Cc: jalves@modestogov.com; lynette@newman-romano.com; jaud@envres.org; jbeuttler[redacted] jbond@modestogov.com; abouche[redacted]; anadromous[redacted] Stephen_Bowes@nps.gov; artbow[redacted] douglas.brewer@tetratech.com; tony.brochini@nps.gov; johnb@cserc.org; cburt@calpoly.edu; mcarlin@sfwater.org; kelly@friendsoftheriver.org; cindy@[redacted] pcory@tnc.org; chixrnch@mlode.com; J.cowan[redacted]; receptionist@mlode.com; pcranston@ca.blm.gov; rebeccac@cserc.org; Pday@mofo.com; administration@californiavalleymiwok.com; mwdonaldson@parks.ca.gov; mdowd@fs.fed.us; Peter@tuolumne.org; steve.edmondson@noaa.gov; james_eicher@BLM.gov; TFindley@hansonbridgett.com; bfreeman@calpoly.edu; rfuller@mlode.com; donn.w.furman@sfgov.org; jgantenbein@waterpowerlaw.com; Deborah_Giglio@fws.gov; rwgoode911[redacted] goford[redacted] monica.gutierrez@noaa.gov; mhannaford@sfwater.org; James.Hastreiter@FERC.gov; jhatch@caltrout.org; Zhayat@mofo.com; anitajhellam[redacted]; Rachael.Hersh-Burdick@USACE.army.mil; theyne@dfg.ca.gov; holden2jo[redacted] jhorn@ca.blm.gov; timihorn[redacted]; noahnsa[redacted] rwhughes@dfg.ca.gov; jjackman[redacted] net; zachary_jackson@fws.gov; deltakeep[redacted]; ajensen@bawsca.org; Laura_Jensen@tnc.org; mjohannis@usbr.gov; bjohnson@tu.org; rkanz@waterboards.ca.gov; kathryn.kempton@noaa.gov; tkinney86[redacted] patrick@tuolumne.org; Mortalis46[redacted] elevin@sfwater.org; prci.info@chukchansi.net; dslinkard[redacted]; Loy, Carin; maperanch[redacted] amanji@dfg.ca.gov; Dmarko[redacted] mike@hetchhetchy.org; mmartin[redacted]; chixrnch2@mlode.com; damplo[redacted] rmcdevitt@hansonbridgett.com; jeff.mclain@noaa.gov; jmeans@dfg.ca.gov; sixbi[redacted] rhonda@buenavistatribe.com; mary.motola@chukchansi.net; JKObrien@dfg.ca.gov; TomO@stanfarmbureau.org; rsce[redacted] ottfarms[redacted] npinhey@modestogov.com; ruth.porter@hoganlovells.com; chixrnch@lodelink.com; spuccini@dfg.ca.gov; jessie@tuolumne.org; tramirez@sfwater.org; maria.rea@noaa.gov; rhonda.reed@noaa.gov; Kevin.A.Richardson@USACE.army.mil; royalrobbins[redacted]; dave@newman-romano.com; rrcollins@waterpowerlaw.com; jessetroseman[redacted]; srothert@americanrivers.org; nsandkulla@bawsca.org; aschutte@hansonbridgett.com; wsears@sfwater.org; vshumway@fs.fed.us; blancapaloma[redacted]; CNRF[redacted] jpsmithgm[redacted] Staples, Rose; dave@americanwhitewater.org; rstork@friendsoftheriver.org; mtaylor@dfg.ca.gov; gatevelde[redacted]; larry.thompson@noaa.gov; cverkuil@mofo.com; ewalters@mofo.com; richard.wantuck@noaa.gov; eric@tuolumne.org; dan.wheelerhay[redacted] dave.wheelerhay[redacted] douglas.wheeler@hoganlovells.com;

HAVE REMOVED HOME EMAILS
PER SECTION 2.4.3 PAD

hbwillia44[redacted]; bwilson@mofo.com; davewood@ldpmarina.com; john.wooster@noaa.gov; michelle_workman@fws.gov; waynez@stanfarmbureau.org

Subject: RE: Don Pedro Relicensing

Welcome to the relicensing of Don Pedro. I look forward to working with you.

From: Tom Terpstra [mailto:tterpstra@thtlaw.com]
Sent: Tuesday, April 19, 2011 7:11 PM
To: Staples, Rose
Cc: jalves@modestogov.com; lynette@newman-romano.com; jaud@envres.org; jbeuttler[redacted] jbond@modestogov.com; abouche[redacted]; anadromous[redacted] Stephen_Bowes@nps.gov; artbow[redacted] douglas.brewer@tetratech.com; tony.brochini@nps.gov; johnb@cserc.org; cburt@calpoly.edu; mcarlin@sfwater.org; kelly@friendsoftheriver.org; cindy[redacted] pcory@tnc.org; chixrnch@mlode.com; J.cowar[redacted]; receptionist@mlode.com; pcranston@ca.blm.gov; rebeccac@cserc.org; Pday@mofo.com; Devine, John; administration@californiavalleymiwok.com; mwdonaldson@parks.ca.gov; mdowd@fs.fed.us; Peter@tuolumne.org; steve.edmondson@noaa.gov; james_eicher@BLM.gov; TFindley@hansonbridgett.com; bfreeman@calpoly.edu; rfuller@mlode.com; donn.w.furman@sfgov.org; jgantenbein@waterpowerlaw.com; Deborah_Giglio@fws.gov; rwgoode911[redacted]; goforo[redacted] monica.gutierrez@noaa.gov; mhannaford@sfwater.org; James.Hastreiter@FERC.gov; jhatch@caltrout.org; Zhayat@mofo.com; anitajhellam@[redacted] Rachael.Hersh-Burdick@USACE.army.mil; theyne@dfg.ca.gov; holden2jo[redacted]; jhorn@ca.blm.gov; timihorn@[redacted]noahnsa[redacted] rwhughes@dfg.ca.gov; jjackman[redacted]; zachary_jackson@fws.gov; deltakeep[redacted]; ajensen@bawsca.org; Laura_Jensen@tnc.org; mjohannis@usbr.gov; bjohnson@tu.org; rkanz@waterboards.ca.gov; kathryn.kempton@noaa.gov; tkinney86[redacted]; patrick@tuolumne.org; Mortalis46[redacted]; elevin@sfwater.org; prci.info@chukchansi.net; dslinkard[redacted] Loy, Carin; maperanch[redacted]; amanji@dfg.ca.gov; Dmarko[redacted] mike@hetchhetchy.org; mmartin[redacted]; chixrnch2@mlode.com; damplo[redacted]; rmcdevitt@hansonbridgett.com; jeff.mclain@noaa.gov; jmeans@dfg.ca.gov; sixbit[redacted]; rhonda@buenavistatribe.com; mary.motola@chukchansi.net; JKObrien@dfg.ca.gov; TomO@stanfarmbureau.org; rsce[redacted]; ottfarms[redacted]; npinhey@modestogov.com; ruth.porter@hoganlovells.com; chixrnch@lodelink.com; spuccini@dfg.ca.gov; jessie@tuolumne.org; tramirez@sfwater.org; maria.rea@noaa.gov; rhonda.reed@noaa.gov; Kevin.A.Richardson@USACE.army.mil; royalrobbins[redacted]; dave@newman-romano.com; rrcollins@waterpowerlaw.com; jessetroseman[redacted]; srothert@americanrivers.org; nsandkulla@bawsca.org; aschutte@hansonbridgett.com; wsears@sfwater.org; vshumway@fs.fed.us; [redacted]; CNRF[redacted]; jpsmithgm[redacted]; Staples, Rose; dave@americanwhitewater.org; rstork@friendsoftheriver.org; mtaylor@dfg.ca.gov; gatevelde[redacted]; larry.thompson@noaa.gov; cverkuil@mofo.com; ewalters@mofo.com; richard.wantuck@noaa.gov; eric@tuolumne.org; dan[redacted]; dave.wheelerhay[redacted] douglas.wheeler@hoganlovells.com; hbwillia44[redacted]; bwilson@mofo.com; davewood@ldpmarina.com; john.wooster@noaa.gov; michelle_workman@fws.gov; waynez@stanfarmbureau.org
Subject: Don Pedro Relicensing

Dear Ms. Staples:

Please be advised that this office represents Farmers On The Tuolumne ("FOTT"). My clients are interested in the ongoing proceedings, and would like to be included on all future mailings and

notices pertaining to the Don Pedro Relicensing. For convenience, you may send all such notices and mailings to the undersigned. Thank you for your assistance in this matter.

Tom Terpstra
Attorney-at-Law
Law Office of Thomas H. Terpstra
A Professional Corporation
578 N. Wilma Avenue, Suite A
Ripon, California 95366
Phone: (209) 599-5003
Facsimile: (209) 599-5008
Email: tterpstra@thtlaw.com

From: Staples, Rose
Sent: Wednesday, April 27, 2011 9:06 PM
To: Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Dixie, Yakima K - CVMT; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Zipser, Wayne - SCFB
Subject: Revised Itinerary for Don Pedro May 10 FERC Site Visit Posted to the Relicensing Website

I have just posted the **revised** itinerary for the Don Pedro Project May 10th FERC Site Visit. It can be found on both the INTRODUCTION/ANNOUNCEMENT section of the website as well as attached to the May 10th Meeting Announcement on the MEETINGS/MEETINGS CALENDAR.

If you plan to participate in this site visit, you will need to notify James Hastreiter at FERC by Monday, May 2nd either via email at james.hastreiter@FERC.gov or by calling him direct at 503-552-2760.

Thank you.

Rose Staples CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com

FERC Site Visit Itinerary
May 10, 2011

9:00 a.m.	Meet at DPRA Headquarters Building (**Restrooms Available**) (Note: 31 Bonds Flat Road, La Grange, CA is the US Postal Service address for DPRA; however, **for GPS or online mapping services the address is 10200 Bonds Flat Road**)
9:10 a.m.	Introduce the Day
9:20 a.m.	Depart for Don Pedro Powerhouse
9:45 a.m.	Assemble at Powerhouse (view exterior of powerhouse, dam, and switchyard)
10:15 a.m.	Depart for Spillway
10:30 a.m.	Assemble at Spillway overlook
10:45 a.m.	Depart via Red Hills Road for Moccasin Recreation Area (stopping at vista point north of Tuolumne River Bridge to view lake)
11:45 p.m.	Arrive Moccasin Recreation Area and tour facilities (**Restrooms Available**)
12:15 p.m.	Lunch at the Moccasin Marina (**Bring sack lunch or purchase at Marina Snack Bar**)
1:15 p.m.	Depart for Fleming Meadows Recreation Area via Marshs Flat Road
2:00 p.m.	Arrive Fleming Meadows for drive-thru tour of facilities
2:15 p.m.	Depart for La Grange Dam
2:30 p.m.	Arrive MID vantage point to view La Grange Dam and Tuolumne River
3:00 p.m.	Depart for Old La Grange Bridge
3:15 p.m.	Arrive and assemble on Bridge and view River
3:30 p.m.	Depart for MID Water Treatment Plant via Roberts Ferry Bridge
4:00 p.m.	Arrive and assemble at Water Treatment Plant
4:15 p.m.	Depart for Fox Grove
4:30 p.m.	Arrive Fox Grove and view River (**Restrooms Available**)
5:00 p.m.	Tour Ends

From: Staples, Rose
Sent: Thursday, April 28, 2011 2:31 PM
To: Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Dixie, Yakima K - CVMT; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Zipser, Wayne - SCFB
Subject: Schedule for Responding to April 19-20 Study Requests

Several ideas for studies were put forward at the April 19 and April 20 Work Group meetings. The Districts are considering these and will respond to relicensing participants on these ideas/requests on or before Thursday, May 5. We appreciate your continuing interest in the relicensing of the Don Pedro Project. Thank you.

From: Staples, Rose
Sent: Monday, May 02, 2011 8:24 PM
To: Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Dixie, Yakima K - CVMT; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Zipser, Wayne - SCFB
Subject: Don Pedro Relicensing Newsletter Volume 1 Issue 1 Published on Website

Volume 1 – Issue 1 of the Don Pedro Project Relicensing Newsletter has been uploaded to the website (www.donpedro-relicensing.com)! It is attached to an announcement in the INTRODUCTION section! If you have any difficulty opening or downloading the file, please let me know. Thank you.

Rose Staples CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com



Volume 1 | Issue 1

Don Pedro

MID Water and Power

TID WATER & POWER

A newsletter about the relicensing of the Don Pedro Project

Public Scoping Meetings set for May 11

The Federal Energy Regulatory Commission (FERC) will host a pair of public scoping meetings on May 11 in relation to the Modesto and Turlock irrigation districts' relicensing efforts for the Don Pedro Project.

The morning meeting is planned to begin at 9 a.m. and will take place at the California State University, Stanislaus University Student Union Event Center in Turlock, located at 801 W. Monte Vista Ave.

The evening meeting is set to start at 7 p.m. and will take place at Modesto's DoubleTree Hotel, Ballroom 3, located at 1150 Ninth St.

The purpose of these meetings, which are sponsored and facilitated by FERC, is to identify relevant issues of public interest involving the Don Pedro Project in relation to the National Environmental Policy Act.

May 11 FERC Meetings

TURLOCK SCOPING MEETING

WHERE: CSU Stanislaus University Student Union Event Center, located at 801 W. Monte Vista Ave., Turlock

WHEN: 9 a.m.

MODESTO SCOPING MEETING

WHERE: DoubleTree Hotel, Ballroom 3, located at 1150 Ninth St., Modesto

WHEN: 7 p.m.

The scoping meetings, just as any other formal FERC scoping meetings, are designed for members of the public to make statements about the project to FERC staff in an open forum. One of the primary purposes of a formal scoping meeting is so the members of the public have an opportunity to speak their concerns.

MORE INSIDE: Don Pedro's significance and background, plus more about the relicensing process

Also at the scoping meeting, it is expected that FERC staff will describe the environmental review process, as well as provide relevant information and answer procedural questions.

As co-relicensing applicants, MID and TID will have staff members present. It is expected that District representatives will briefly describe the Don Pedro Project and will be available before and after the formal part of the meeting for questions and answers.

Comments on the proposed project may be submitted in written form or communicated verbally during the course of the scoping meeting. The scoping meetings are recorded by a stenographer and become part of the formal record of the FERC proceeding on the project.

Information gathered at these scoping meetings may also help the Districts develop environmental protection measures to present in its environmental resource reports filed with FERC in its Final License Application. This information will also provide FERC staff with the resources needed to publish a more complete environmental impact document for public review.

Important dates

May 10
FERC site inspection of Don Pedro Project

May 11
Public Scoping Meetings in Modesto and Turlock

May 18
Cultural Relicensing Working Group (RWG) and Recreation RWG Meetings

May 19
Aquatic/Water RWG and Terrestrial RWG Group Meetings

June 10
Deadline for Relicensing Participants to request studies and to comment on the Pre-Application Document (PAD)

June 21
Aquatic/Water RWG and Terrestrial RWG Meetings

July 25
Districts to file Proposed Study Plan (PSP) with FERC

From the original dam and powerhouse built in 1923 to the significant facility that exists today, Don Pedro continues to show ...

a history of benefits

People in the region are passionate about the Don Pedro Project. And why wouldn't they be?

The project's reservoir and dam provide flood protection for many area residents. Some water from Don Pedro eventually makes its way to Modesto Reservoir, where it is eventually treated and purified to become drinking water for many Modesto residents. Much of the water from Don Pedro is used by growers to irrigate crops that help feed and employ many in the region, state and nation. There are recreation opportunities aplenty. And let's not forget the power plant that provides clean, efficient and affordable energy powering thousands of homes and businesses within the MID and TID service areas.

Simply put, the Don Pedro dam, reservoir and powerhouse offer a collection of benefits that will continue to be of great value to the people of the Central Valley and beyond.

That value was always part of the vision of the project's forefathers. But to know the story of the project, it's best to know the story of the districts and the people that were antecedents to the project.

Formed in 1887, the Modesto and Turlock irrigation districts are the oldest irrigation districts in California, and are among the oldest in the nation. They were created by a vote of the people in accordance with the laws of the State of California to provide water for agricultural purposes in their respective irrigation service areas which today total approximately 200,000 acres of trees, vines, row and forage crops.

Soon after formation, the Districts acquired a water diversion site on the Tuolumne River located downstream of the Don Pedro site along with "pre-1914" water rights; the Districts have added other water rights to these over time. An original Don Pedro Reservoir with approximately 290,400 acre-feet of storage and its associated Powerhouse were brought online in 1923 to improve water availability for the long growing season of the Central Valley and to bring electrification to a portion of this rural area. The Districts have been providing retail electric service to the communities' farms, homes, municipalities, business and industry since that time. Today, the Districts serve approximately 200,000 electric customers in a 1,000-square mile area.

The Tuolumne River has a long history of water planning. Concern





1887: *Modesto and Turlock irrigation districts are organized.*

1923: *The Original Don Pedro Dam and Powerhouse is constructed, capable of generating up to 15 megawatts and storing 289,000 acre-feet of water.*

1961: *Voters overwhelmingly approve bonds to fund the New Don Pedro project.*

1966: *MID and TID received a federal license for an enlarged Don Pedro from the Federal Power Commission, the predecessor to FERC.*

1967: *Ground is broken on New Don Pedro; diversion tunnel work begins*

1970:
- *Don Pedro Recreation Agency formed*
- *Old Don Pedro opened and water storage transferred to New Don Pedro*

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

over the need to withstand the effects of multiple dry years and the growing demand for electricity resulted in the Districts partnering with the City and County of San Francisco to develop the current Don Pedro Project. The new Don Pedro Project inundated the original dam and impoundment, and the resulting new Don Pedro Reservoir has a storage capacity of 2,030,000 acre-feet, more than seven times that of its predecessor; the new Don Pedro Powerhouse constructed with the dam has a maximum generating capacity of 203 megawatts. Planning for the enlarged Don Pedro began in the 1940s and culminated when the Districts received the federal license in 1966 from the Federal Power Commission, the predecessor to FERC.

The City and County of San Francisco contributed to the construction of the project but has no ownership interest in the dam, reservoir, or powerhouse, nor does it have any ownership of water in the reservoir. San Francisco participated in construction of the project in order to obtain a water banking arrangement in the new reservoir which provides it with greater flexibility in storing water for use at its upstream power facilities and for water supply. Construction of the project also relieved San Francisco of flood control responsibilities in the watershed thereby providing another important benefit for the City.

As the sixth largest reservoir in California, Lake Don Pedro provides extensive habitat for fish and wildlife, and has a wide recreation following. It is known for its bass tournaments and houseboating. Approximately 400,000 visitor-days of recreation occur at the reservoir each year. Activities include camping, boating, fishing, and enjoying water sports such as skiing, wake boarding, and the use of personal watercraft.

1971:

- *New Don Pedro Dam and Powerhouse is constructed with a total generating capacity of 203 megawatts and a water storage capacity of 2,030,000 acre-feet*
- *New Don Pedro Project officially changed to Don Pedro Dam*



Transmission lines near the Don Pedro Powerhouse help transport up to 203 megawatts of generation that helps power MID and TID customers homes and businesses.

The relicensing process

Notice of Intent to relicense filed, public scoping meeting next

Relicensing of the Don Pedro Project follows the Integrated Licensing Process as designated by the Federal Energy Regulatory Commission (FERC).

The Modesto and Turlock irrigation districts took the first step in this several-year process by filing of a Notice of Intent (NOI) and a Pre-Application Document (PAD) in February 2011.

The next formal step is FERC's scoping of the issues to be considered in the relicensing of the project. On May 11, FERC will hold two scoping meetings to obtain public input.

Filings throughout the process will be made available to the public on the project relicensing website located at www.donpedro-relicensing.com. Certain information may be restricted from publication on the relicensing website in accordance with FERC's regulations protecting Critical Energy Infrastructure Information (CEII) or in cases where the document contains sensitive information.

The PAD contains a synopsis of the known information relevant to the relicensing of the Don Pedro Project. It includes a detailed description of the project, an explanation of the relicensing process and the schedule to be followed as well as pertinent information related to Project operations, engineering, water resources, environmental resources, recreation, cultural resources, and socioeconomics. The information in the Pre-Application Document allows FERC and interested parties to identify data gaps and needs for additional information which will form the basis for study requests to acquire the information needed in developing the new license.

The Process

1. Districts filed PAD and NOI in Feb. 2011.
2. FERC conducts scoping.
3. Interested parties discuss issues and develop study requests.
4. Applicant files its proposed study plan and conducts approved studies.
5. Studies are conducted and Study Report issued for review and comment.
6. Applicant files draft and final license applications.
7. FERC issues new license with new terms and conditions in 2016.

www.donpedro-relicensing.com

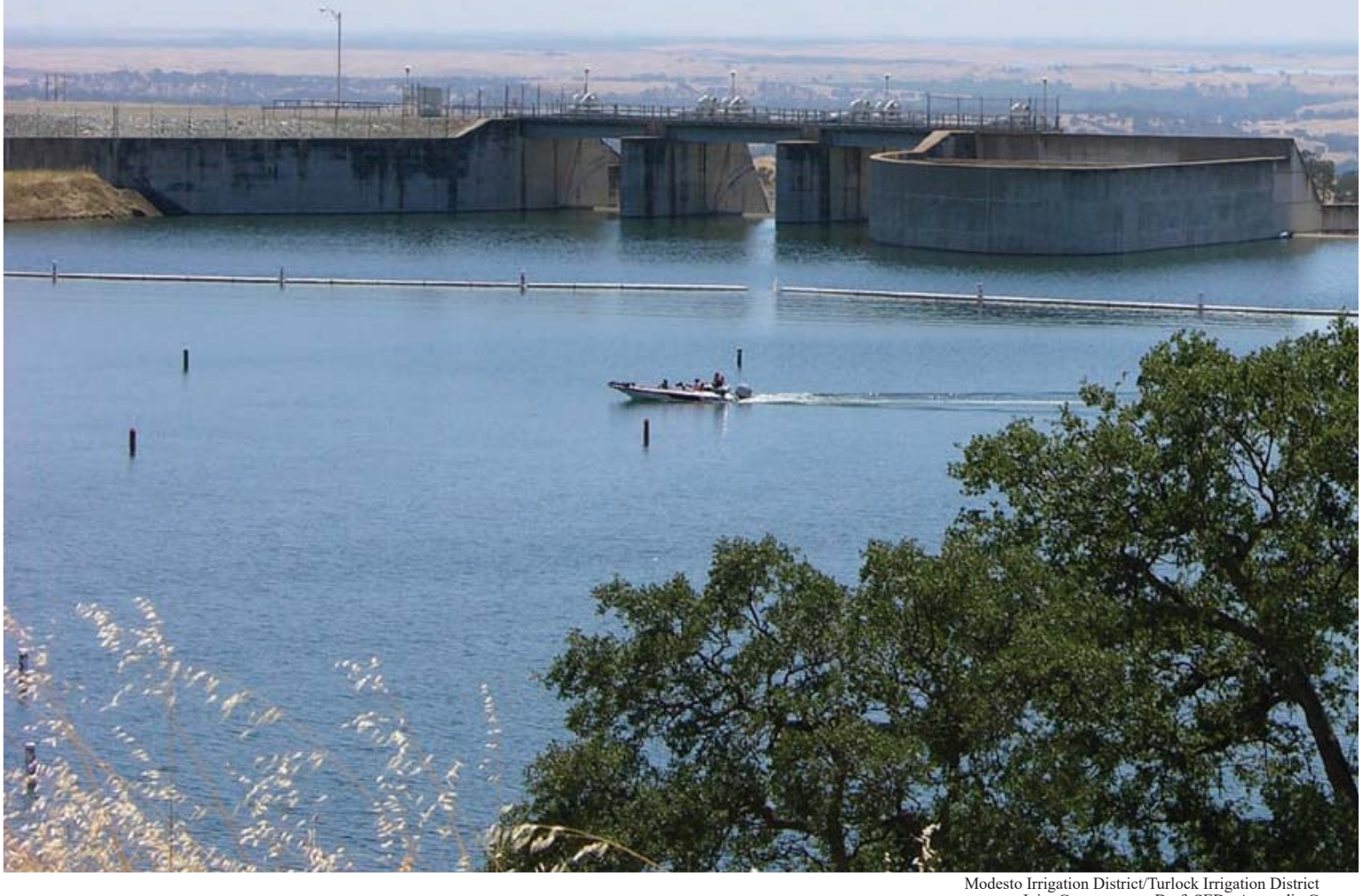
Modesto Irrigation District
Water and Power

WATER & POWER
Serving Central California since 1887

Name of Agency
Return Address Line 1
Return Address Line 2
City, State ZIP

Upcoming Meeting

May 11, 2011
FERC Scoping Meetings in Turlock and Modesto. More info inside.



From: Staples, Rose
Sent: Thursday, May 05, 2011 7:59 PM
To: Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Dixie, Yakima K - CVMT; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Subject: Don Pedro - Final List April 1 Meeting Questions/Requests and Responses to Data Gap Study Requests April 19-20 RWG Meetings

Three Messages in One!

The final list of the questions/requests from the April 1st Don Pedro Relicensing Participants meeting has been uploaded to the www.donpedro-relicensing.com website—as an attachment to the April 1 Meeting Announcement on the meeting calendar under the MEETINGS tab. The document is labeled ***DP RP Progress Tracking List*._110505_Upload.** If you are unable to locate the document or are unable to download it, please let me know. Please also note that those items (from the February 28th meeting) which have since been completed are shaded in gray and will be moved to the CLOSED ITEM worksheet (the second tab at the bottom of the workbook) when the Progress Tracking List is uploaded the next time.

Please find below the **Districts' response** to Relicensing Participants' "data gap" study requests left unaddressed at the April 19 Meetings of the Recreation and Cultural Resources Work Groups and the April 20 Meeting of the Aquatic/Water/Terrestrial Resources Work Group.

Response to Recreation Resources Work Group

[1] Lower Tuolumne River boating study -- RP commented that the Districts should consider undertaking a study of recreational boating in the lower Tuolumne River below La Grange Dam. The "project nexus" would be that the current flows provided below La Grange did not consider whether these flows are usable for recreational boating purposes, but only for fishery purposes. The Districts would agree to prepare a study plan to investigate recreational boating in the lower Tuolumne River with the following scope:

- the reach below La Grange is considered a flat water/swift water experience, not a whitewater experience;
- the objective of the evaluation would be to determine the lowest boatable flow for recreational, personal (non-commercial), non-motorized craft, including canoes, kayaks and rafts;
- the primary goal of such recreational boating is to travel from Point "A" to Point "B" in a certain amount of time, but because of the large number of public entrance and exit points, any length of trip can be accommodated; therefore, the objective is to determine the lowest flow that is boatable;
- "boatable" would be defined as being able to be traversed without undue scraping of the bottom of the craft with reasonable skills for the significant majority of the trip;
- the study would be undertaken using local boaters and District personnel field testing flows at various locations on the lower Tuolumne starting with the lowest established fishery flow of 50 cfs, then 75 cfs, then 100 cfs;
- the study would not include an assessment of river access because there are already many opportunities for public access; nor any assessment of "optimum" flows because there are no objective criteria for a flat water boating experience.

[2] Wards Ferry Takeout for Whitewater Boaters --- the Districts are still reviewing the request for a feasibility study of an improved takeout for whitewater rafters entering the reservoir. We expect to be able to respond on or before May 18.

[3] Study of Recreational Use Levels, Visitor Preferences, and Unmet Demand --- the Districts believe that previous studies and the information routinely collected by DPRA is likely sufficient

to evaluate these issues once the raw data is fully researched. The Districts are undertaking this review of the raw data and will respond to this issue on or before May 18.

[4] Study of Existing Facility Condition Assessment and Public Accessibility --- the Districts will undertake this study, prepare a study plan, and include the same in its July 25, 2011 Proposed Study Plan (PSP) package.

[5] Study of Visual Quality Assessment – the Districts will undertake an assessment of visual effects and visual quality related to federal lands occupied by and immediately adjacent to the Project. BLM has designated Visual Resource Management Areas established, which therefore meets the applicable parts of the FERC ILP seven criteria (standard methods; goals and objectives). Non-federal lands have no criteria against which to objectively judge visual effects. The reservoir is an important visual component of the landscape. The Districts will prepare a study plan for inclusion in its July 25, 2011 PSP.

There were **no additional Cultural or TCP** Resource study requests, only suggestions for improving the draft Study Plans in the PAD. The Districts are revising the draft Plans and will reissue these revised drafts to the Work Group for further review and comment.

Response to Aquatic/Water/Terrestrial Resources Work Group

[1] The Districts were asked whether they intended to perform a study of the relationship between flow in the lower Tuolumne River and the other known stressors on anadromous fish in the river. This request was also later described as consisting of a limiting factor analysis for each of the life stages of these species. Developing a matrix of life stage vs stressor was thought to be a way of determining data gaps and/or possible PM&E measures. The Districts have considered this study request and are not planning to propose such a study at this time. Several of the most significant factors (stressors) affecting salmon and *O. Mykiss* in the lower Tuolumne River are completely unrelated to the Don Pedro Project, or even to MID and TID activities on the river. One of the major issues affecting salmon on the lower Tuolumne River is the extensive disruption to the river bed and banks caused by historical in-channel gold mining operations which have markedly, permanently, and adversely modified the available habitats in the lower Tuolumne River. Another major factor is the in-channel and overbank gravel operations which also have permanently altered the river channel and overbank areas. A third major factor affecting success of salmon restoration has been the introduction of non-native game species by CDFG, especially smallmouth and largemouth bass, which have been shown to forage heavily on smolt and fry. The Project, and the Districts' water users, are now being asked to address these non-Project factors by adding flow to the lower river to "solve" or "mitigate" these non-Project impacts. The Districts do not believe that these factors are Project effects, nor should the Project be expected to solve problems completely unrelated to either the Project or the Project beneficiaries. In any event, such a study would be a PM&E study and should only come after a measurable Project effect has been shown. While the Districts do not propose to undertake such a study at this time, the Districts remain open to reconsider this request if Relicensing Participants could provide the Districts with a specific study proposal which would help us better understand the type of study being requested.

[2] Mussel Study – it was suggested at the meeting that a significant change in mussel populations in the lower Tuolumne River has been observed (actually, since about 1995). This was suggested to be a data gap in the PAD, and the decline was suggested to be potentially due to Project operations. The potential Project effect was identified as ramping. The Project has not performed any significant unit ramping since 1995. The Districts point out that the observations referenced are anecdotal and no evidence of a decline in mussel populations have been documented. The Districts are not planning to prepare a study plan to research mussel populations in the lower Tuolumne River at this time.

[3] Wetland Mapping – it was suggested that the Districts should consider performing a separate wetland mapping effort at the Project, instead of identifying wetlands as a part of other studies. The Districts are not aware of any Project-related impacts to wetlands as the Project has operated in its current fashion for almost 50 years and the near-Project environment has adapted to this operation. If Project-specific wetland impacts are observed while conducting related wildlife and/or botanical studies, then these will be documented, reported and investigated.

[4] 3-D Reservoir Temperature Model – the Districts will prepare a study plan to develop a 3-D reservoir temperature model; this will be included in the Districts' July 25, 2011 Proposed Study Plan (PSP).

[5] The Districts were asked if they planned to undertake a socioeconomic study of the potential impact on water users of alternative instream flows in the lower Tuolumne River. The Project nexus, or the effect on socioeconomic resources, would occur if greater flows are provided to the lower Tuolumne River, resulting in less flow available to the current water users on the Tuolumne River, including MID, TID, CCSF and their customers. The Districts will prepare a study plan for conducting a socioeconomic assessment and include this study plan in its July 25, 2011 PSP package.

[6] The Districts were asked if they intended to prepare population projections and projections of potential increased water needs for irrigation and M&I use over the term of the new license for the purpose of (1) comparing water needs to water rights and (2) identifying potential effects of increased water use on water quality. The Districts are not currently projecting a conflict between its water rights and water needs. The Districts do not understand the Project nexus or connection between water needs and water quality in the lower Tuolumne given the current operation of the Project; therefore, the Districts are not proposing to prepare such a study at this time.

Rose Staples CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com

Don Pedro Progress Tracking List

Items completed are shaded in gray and will be moved to the CLOSED ITEM worksheet before the next issue of the Progress Tracking List (PTL) is uploaded to the Relicensing Website.
Red Text indicates either NEW items or NEW responses/status updates added since the last upload.
(RP = Relicensing Partipant)

Item No.	*Souce of Item*	*Item*	*Date Requested*	*Date Due*	*Responsible Party*	*Action Taken/Status*	*Date Closed*
1	RP	Poll of RPs for meeting availability and resource area interests.	2/28/2011	3/8/2011	Districts	Created Doodle Poll questionaire and sent it to RPs via email on 3/2/2011. Responses due 03/07/2011. **Poll completed 03/07/2011; 2011 meeting dates announced to RPs via email on 03/15/2011 and have been posted on website calendar.**	
2	CSPA; CDFG; and TRT	Use of an independent facilitator.	2/28/2011	n/a	n/a	Request documented; **Districts' response emailed to RPs on 03/07/2011.**	
3	Several RPs	Alternating the meeting locations for future meetings.	2/28/2011	3/11/2011	Districts	Request for alternating meeting locations to be considered. **Districts' response emailed to RPs on 03/15/2011.**	
4	Several RPs	Use of web conferencing as part of future meetings.	2/28/2011	3/11/2011	Districts	Request for web conferencing as part of the meeting to be considered. **Districts' response emailed to RPs on 03/15/2011.**	
5	NGOs	RPs not to have to pay for PAD reproduction costs.	2/28/2011	3/11/2011	Districts	Request for RPs not to have to pay for PAD reproduction costs to be considered. **Districts' response emailed to RPs on 03/15/2011.**	
6	Several RPs	Procedure for managing study plan revisions on the Don Pedro website.	2/28/2011	3/18/2011	Districts	Process for sharing study plan revisions on the Don Pedro website to be described to RPs.	

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
7	Several RPs	Exhibit G or other Project Boundary Maps for tailwater and Gasburg Creek areas.	2/28/2011	3/11/2011	Districts	Project Boundary Maps to be uploaded to the Don Pedro website. **Two Project Boundary maps (showing area below the Don Pedro Dam) have been uploaded and RPs advised via email 03/15/2011.**	
8	Districts	RP review of Relicensing Participants List in PAD (Appendix B) to identify additional parties interested in the relicensing.	2/28/2011	3/18/2011	RPs	RPs to advise Districts of additional interested parties and their contact information, if known. **Additional names have been received and added to the Relicensing Participants Contact Email List**.	
9	NHI	"Discussion of Cummulative Impacts" to be an agenda item for the April 19-20 meeting.	2/28/2011	04/19-20/2011	Districts	"Discussion of Cummulative Impacts" to be added to the agenda for the April 19-20 RP meeting. **Project effects were discussed at the April 19-20 RWG meetings.**	
10	RPs	Uploading of Meeting Slides to the Don Pedro ebsite.	2/28/2011	3/11/2011	Districts	Slides used at the Feb 28 RP meeting to be uploaded to the Don Pedro website. **Meeting presentation slides have been uploaded and RPs advised via email 03/15/2011.**	
11	**RPs**	**Provide a copy of this year's snow surveys used for forecasting.**	**4/1/2011**	**n/a**	**Districts**		
12	**RPs**	**Provide an historic account of the times and duration since project commencement that the reservoir has been into the flood conservation pool during the applicable period-frequency, number of occurrences, duration, and water year type.**	**4/1/2011**	**n/a**	**Districts**		

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
13	RPs	Where, and when, is riparian water used--and how is it separated from storage? Is riparian water the water used on lands that meet the definition of "riparian lands"? Include a map of the lands that are served under a riparian claim. Provide season and amounts of water provided on those lands under claim of riparian right.	4/1/2011	n/a	Districts		
14	RPs	How long does the reservoir normally stay at the peak elevation it reaches in any year?	4/1/2011	n/a	Districts		
15	RPs	Provide the unimpaired flows at La Grange and the historical flows at La Grange since the Project began operating.	4/1/2011	n/a	Districts		
16	RPs	Provide copies of the Districts' pre-1914 appropriative rights, as noted or recorded in accordance with the state laws at the time.	4/1/2011	n/a	Districts		
17	RPs	Provide pre-settlement, post-new Don Pedro flows and reservoir elevations similar to which is provided in the PAD for post-settlement.	4/1/2011	n/a	Districts		
18	RPs	What model will be used to develop the Project Operations Model?	4/1/2011	n/a	Districts		
19	RPs to CCSF	Is there a technical document that describes in some detail the operations of the HHWP?	4/1/2011	n/a	CCSF		

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
20	RPs to CCSF	What is the projected future water demand estimated by CCSF? Are new water storage resources being planned to meet the demand?	4/1/2011	n/a	CCSF		
21	RPs to CCSF	Provide the historical water bank "account balance" that the Districts have provided CCSF. Also, provide documentation on water bank accounting method.	4/1/2011	n/a	CCSF		
22	RPs to CCSF	Explain how the Don Pedro FERC relicensing process can affect CCSF.	4/1/2011	n/a	CCSF		
23	RPs to CCSF	What compensation does CCSF provide the Districts when CCSF's water bank account has a negative balance?	4/1/2011	n/a	CCSF		
24	RPs to CCSF	Could CCSF provide copies of the water balance reports it sends to the Districts?	4/1/2011	n/a	CCSF		
25	RPs to CCSF	Does CCSF have a water balance model it could share with relicensing participants? Or could CCSF provide portions of its water model to the Districts' water balance model?	4/1/2011	n/a	CCSF		
26	RPs to CCSF	What quantity of water in acre feet will CCSF take annually from the river in the next 40 years, compared to same in the last 10 years? What will be the effect on pre-flood releases below Don Pedro?	4/1/2011	n/a	CCSF		

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Subject: Parking Info for the May 11th FERC Don Pedro Project Scoping Meeting at CSUS

Knowing that school will be in session at California State University Stanislaus during the time of the morning FERC Scoping Meeting for the Don Pedro Project,

being held at the University's EVENT CENTER, we thought we would check in with the campus for parking advice. We would like to share with you the information we received.

We are advised that people "should be directed to Parking Lot #8 and/or Lot #11A (temporary gravel lot) off of Geer Rd. The Event Center is centrally located so they'll have to walk a little regardless but Lot #8 and 11A will afford the most available spaces."

The following link is to a map of the campus, showing the location of the campus buildings and the parking lots:
http://www.csustan.edu/Directories/Maps_n_Plans/Campus_Plans/index.html

For more information on the FERC Site Visit (May 10th) and the two FERC Scoping meetings (Turlock and Modesto) on May 11th, including an itinerary for the Site Visit, please visit the www.donpedro-relicensing.com website MEETING section and click on the May 10 and May 11 announcements. Thank you.

Rose Staples CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com

From: Staples, Rose
Sent: Friday, May 06, 2011 4:50 PM
To: Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Dixie, Yakima K - CVMT; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Subject: Additional Alert Regarding Parking at CSUS for the May 11th FERC Scoping Meeting on the Don Pedro Project

I wanted to pass along to everyone some additional information I learned regarding parking at California State University Stanislaus. The reason we are being directed to Parking Lot #8 or Lot 11A is that you

apparently need a CSUS Parking Permit to be able to park in any of the OTHER areas on campus (other than Parking Lot #8 or Lot #11A); and if you park in any of those other areas without a permit, you would be ticketed and fined.

Rose Staples CPS CAP
HDR|DTA
Direct: 207-239-3857

From: Staples, Rose
Sent: Thursday, May 05, 2011 7:47 PM
To: 'Alves, Jim - City of Modesto'; 'Asay, Lynette - N-R'; 'Aud, John - SCERD'; 'Barnes, James - BLM'; 'Beuttler, John - CSPA'; 'Bond, Jack - City of Modesto'; 'Boucher, Allison - TRC'; 'Boucher, Dave - Allison - TRC'; 'Bowes, Stephen - NPS'; 'Bowman, Art - CWRMP'; 'Brewer, Doug - TetraTech'; 'Brochini, Anthony - SSMN'; 'Buckley, John - CSERC'; 'Burt, Charles - CalPoly'; 'Carlin, Michael - SFPUC'; 'Catlett, Kelly - FOR'; 'Charles, Cindy - GWWF'; 'Cory, Philip - TNC'; 'Costa, Jan - Chicken Ranch'; 'Cowan, Jeffrey'; 'Cox, Stanley Rob - TBMWI'; 'Cranston, Peggy - BLM'; 'Cremeen, Rebecca - CSERC'; 'Day, P - MF'; Devine, John; 'Dixie, Yakima K - CVMT'; 'Donaldson, Milford Wayne - OHP'; 'Dowd, Maggie-SNF'; 'Drekmeier, Peter - TRT'; 'Edmondson, Steve - NOAA'; 'Eicher, James - BLM'; 'Fety, Lauren - BLM'; 'Findley, Timothy - Hanson Bridgett'; 'Freeman, Beau - CalPoly'; 'Fuller, Reba - TMTC'; 'Furman, Donn W - SFPUC'; 'Ganteinbein, Julie - Water-Power Law Grp'; 'Giglio, Deborah - USFWS'; 'Goode, Ron - NFMT'; 'Gorman, Elaine - YSC'; 'Gutierrez, Monica - NOAA-NMFS'; 'Hastreiter, James L - FERC'; 'Hatch, Jenny - CT'; 'Hayat, Zahra - MF'; 'Hellam, Anita - HH'; 'Hersh-Burdick, Rachael - USACE'; 'Heyne, Tim - CDFG'; 'Holden, James '; 'Horn, Jeff - BLM'; 'Horn, Tini'; 'Hughes, Noah'; 'Hughes, Robert - CDFG'; 'Jackman, Jerry '; 'Jackson, Zac - USFWS'; 'Jennings, William - CSPA'; 'Jensen, Art - BAWSCA'; 'Jensen, Laura - TNC'; 'Johannis, Mary'; 'Johnson, Brian - CalTrout'; 'Kanz, Russ - SWRCB'; 'Keating, Janice'; 'Kempton, Kathryn - NOAA-MNFS'; 'Kinney, Teresa'; 'Koepele, Patrick - TRT'; 'Lein, Joseph'; 'Levin, Ellen - SFPUC'; 'Lewis, Reggie - PRCI'; 'Linkard, David - TRT /RH'; Loy, Carin; 'Lyons, Bill - MR'; 'Manji, Annie'; 'Marko, Paul '; 'Marshall, Mike - RHH'; 'Martin, Michael - MFFC'; 'Mathiesen, Lloyd - CRRMW'; 'McDaniel, Dan -CDWA'; 'McDevitt, Ray - BAWSCA'; 'McDonnell, Marty - SMRT'; 'McLain, Jeffrey - NOAA-NMFS'; 'Means, Julie - CDFG'; 'Mills, John - TUD'; 'Morningstar Pope, Rhonda - BVR'; 'Motola, Mary - CT'; 'O'Brien, Jennifer - CDFG'; 'Orvis, Tom - SCFB'; 'Ott, Bob'; 'Ott, Chris'; 'Pinhey, Nick - City of Modesto'; 'Porter, Ruth - RHH'; 'Powell, Melissa - CRRMW'; 'Puccini, Stephen - CDFG'; 'Raeder, Jessie - TRT'; 'Ramirez, Tim - SFPUC'; 'Rea, Maria - NOAA-NMFS'; 'Reed, Rhonda - NOAA-NMFS'; 'Richardson, Kevin - USACE'; 'Robbins, Royal'; 'Romano, David O - N-R'; 'Roos-Collins, Richard - Water-Power Law Grp for NHI'; 'Roseman, Jesse'; 'Rothert, Steve - AR'; 'Sandkulla, Nicole - BAWSCA'; 'Schutte, Allison - HB'; 'Sears, William - SFPUC'; 'Shumway, Vern - SNF'; 'Shutes, Chris - CSPA'; 'Slay, Ronn - CNRF/AIC'; 'Smith, Jim - MPM'; Staples, Rose; 'Steindorf, Dave - AW'; 'Stork, Ron - FOR'; 'Stratton, Susan - CA SHPO'; 'Taylor, Mary Jane - CDFG'; 'TeVelde, George A '; 'Thompson, Larry - NOAA-MNFS'; 'Verkuil, Colette - TRT/MF'; 'Walters, Eric - MF'; 'Wantuck, Rick - NOAA-NMFS'; 'Welch, Steve - ARTA'; 'Wesselman, Eric - TRT'; 'Wheeler, Dan'; 'Wheeler, Dave'; 'Wheeler, Douglas - RHH'; 'Williamson, Harry (NPS)'; 'Wilson, Bryan - MF'; 'Winchell, Frank - FERC'; 'Wood, Dave - FR'; 'Wooster, John -NOAA'; 'Workman, Michelle - USFWS'; 'Yoshiyama, Ron'; 'Zipser, Wayne - SCFB'
Subject: Parking Info for the May 11th FERC Don Pedro Project Scoping Meeting at CSUS

Knowing that school will be in session at California State University Stanislaus during the time of the morning FERC Scoping Meeting for the Don Pedro Project, being held at the University's EVENT CENTER, we thought we would check in with the campus for parking advice. We would like to share with you the information we received.

We are advised that people "should be directed to Parking Lot #8 and/or Lot #11A (temporary gravel lot) off of Geer Rd. The Event Center is centrally located so

they'll have to walk a little regardless but Lot #8 and 11A will afford the most available spaces."

The following link is to a map of the campus, showing the location of the campus buildings and the parking lots:
http://www.csustan.edu/Directories/Maps_n_Plans/Campus_Plans/index.html

For more information on the FERC Site Visit (May 10th) and the two FERC Scoping meetings (Turlock and Modesto) on May 11th, including an itinerary for the Site Visit, please visit the www.donpedro-relicensing.com website MEETING section and click on the May 10 and May 11 announcements. Thank you.

Rose Staples CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com

From: Staples, Rose
Sent: Monday, May 09, 2011 8:44 PM
To: Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Dixie, Yakima K - CVMT; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Subject: Wednesday Parking and Reminder of May 18 and May 19 Don Pedro RWG Meetings

Parking for Wednesday's Scoping Meeting at CSUS's Event Center

My apologies for all the emails and confusion regarding PARKING for FERC's Wednesday's scoping meeting at CSUS. FERC was assured by the Event Center when they booked the event that there would not be a parking problem. Initial calls to the campus regarding where best to advise participants to park led to the original series of emails last week. Today, after receiving another inquiry by a relicensing participant, I placed a call direct to the Event Center and was advised that *free parking* is along the streets (Monte Vista and Geer being closest to the Center)—and that to use their parking lots (and I was directed to lots 8 and 11 as being good choices) you would need to stop at one of the "vending machine" type kiosks which are at various locations around the campus to buy a $6 parking permit. If you are not familiar with the campus—and their parking system, you might want to check beforehand by calling the campus or checking in with the Event Center staff when you arrive as to exactly where you can park for free on campus.

May 18 and May 19 RWG Meetings

The Cultural & Recreation RWG meetings are scheduled to be held on Wednesday, May 18th.
The Aquatic/Water and Terrestrial RWG Meetings are scheduled to be held on Thursday, May 19th.
AGENDAS for these meetings should be emailed to you (and posted on the website) by Thursday, May 12th.

Thank you.

Rose Staples CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com

From: Staples, Rose
Sent: Wednesday, May 11, 2011 10:04 AM
To: Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Dixie, Yakima K - CVMT; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Subject: Another Piece of the CSU Parking Puzzle

I received in another email with another piece of the parking puzzle at CSU:

"Just called the parking office at CSU, and apparently if you are in a vehicle with Exempt (State) plates, you do not need to pay for parking in the regular lots."

Rose Staples CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com

From: Staples, Rose
Sent: Friday, May 13, 2011 2:55 PM
To: Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Dixie, Yakima K - CVMT; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Subject: Updated Progress Tracking List has been Posted; May 18-19 Meeting Agendas Will Be Posted Later This Afternoon

The most recent issue of the Don Pedro Relicensing *Progress Tracking List* has been posted to the website (MEETINGS\MEETINGS CALENDAR\April 20 & April 21 RWG Meeting Announcement). It

contains the OPEN action points – questions – requests up through and including the April 20th and April 21st RWG Meetings, along with responses to date. If you have any difficulties in accessing and/or downloading the document, please let me know.

Agendas for next week's RWG Meetings will be forwarded to you a little later this afternoon, but the general timeline for the meetings are:

May 18:
Cultural RWG 9:00 a.m. to 11:30 a.m.
Recreation RWG 1:00 p.m. to 4:30 p.m.

May 19:
Aquatic/Water RWG 9:00 a.m. to 1:00 p.m.
Terrestrial RWG 2:00 p.m. to 5:00 p.m.

Rose Staples CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com

Don Pedro Progress Tracking List

Items completed are shaded in gray and will be moved to the CLOSED ITEM worksheet before the next issue of the Progress Tracking List (PTL) is uploaded to the Relicensing Website.
Red Text indicates either NEW items or NEW responses/status updates added since the last upload.
(RP = Relicensing Partipant) - Last Updated 5/13/2011 by R Staples

Item No.	*Souce of Item*	*Item*	*Date Requested*	*Date Due*	*Responsible Party*	*Action Taken/Status*	*Date Closed*
		Items 1-5 Closed					
6	Several RPs	Procedure for managing study plan revisions on the Don Pedro website.	2/28/2011	3/18/2011	Districts	Process for sharing study plan revisions on the Don Pedro website to be described to RPs.	
		Items 7-10 Closed					
11	**RPs**	**Provide a copy of this year's snow surveys used for forecasting.**	**4/1/2011**	**n/a**	**Districts**	**Districts' response in progress.**	
12	**RPs**	**Provide an historic account of the times and duration since project commencement that the reservoir has been into the flood conservation pool during the applicable period-frequency, number of occurrences, duration, and water year type**	**4/1/2011**	**n/a**	**Districts**	**Districts' response in progress.**	
13	**RPs**	**Where, and when, is riparian water used--and how is it separated from storage? Is riparian water the water used on lands that meet the definition of "riparian lands"? Include a map of the lands that are served under a riparian claim. Provide season and amounts of water provided on those lands under claim of riparian right.**	**4/1/2011**	**n/a**	**Districts**	**Districts' response in progress.**	
14	**RPs**	**How long does the reservoir normally stay at the peak elevation it reaches in any year?**	**4/1/2011**	**n/a**	**Districts**	**Districts' response in progress.**	
15	**RPs**	**Provide the unimpaired flows at La Grange and the historical flows at La Grange since the Project began operating.**	**4/1/2011**	**n/a**	**Districts**	**Districts' response in progress.**	

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
16	RPs	Provide copies of the Districts' pre-1914 appropriative rights, as noted or recorded in accordance with the state laws at the time.	4/1/2011	n/a	Districts	Districts' response in progress.	
17	RPs	Provide pre-settlement, post-new Don Pedro flows and reservoir elevations similar to which is provided in the PAD for post-settlement.	4/1/2011	n/a	Districts	Districts' response in progress.	
18	RPs	What model will be used to develop the Project Operations Model?	4/1/2011	n/a	Districts	Districts' response in progress.	
19	RPs to CCSF	Is there a technical document that describes in some detail the operations of the HHWP?	4/1/2011	n/a	CCSF		
20	RPs to CCSF	What is the projected future water demand estimated by CCSF? Are new water storage resources being planned to meet the demand?	4/1/2011	n/a	CCSF		
21	RPs to CCSF	Provide the historical water bank "account balance" that the Districts have provided CCSF. Also, provide documentation on water bank accounting method.	4/1/2011	n/a	CCSF		
22	RPs to CCSF	Explain how the Don Pedro FERC relicensing process can affect CCSF.	4/1/2011	n/a	CCSF		
23	RPs to CCSF	What compensation does CCSF provide the Districts when CCSF's water bank account has a negative balance?	4/1/2011	n/a	CCSF		
24	RPs to CCSF	Could CCSF provide copies of the water balance reports it sends to the Districts?	4/1/2011	n/a	CCSF		
25	RPs to CCSF	Does CCSF have a water balance model it could share with relicensing participants? Or could CCSF provide portions of its water model to the Districts' water balance model?	4/1/2011	n/a	CCSF		

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
26	RPs to CCSF	What quantity of water in acre feet will CCSF take annually from the river in the next 40 years, compared to same in the last 10 years? What will be the effect on pre-flood releases below Don Pedro?	4/1/2011	n/a	CCSF		
27	Recreation RWG Mtg	Districts were asked to Investigate relationship of the Project Boundary and the downstream Wild & Scenic River Boundary.	4/19/2011	n/a	Districts	Districts' response in progress.	
28	Recreation RWG Mtg	Districts were asked to consider performing a "feasibility" or "site suitability" study of relocating or improving current take-out.	4/19/2011	4/29/11; extended to 5/05/11, then 5/18/11	Districts	Districts responded via email 5/05/11 that they are reviewing the request and they expect to be able to respond on or before 5/18/11.	
29	Recreation RWG Mtg	NPS to provide new ORV guidelines applicable to the Project area.	4/19/2011	4/29/2011	NPS		
30	Recreation RWG Mtg	Districts' debris maintenance and log-jam removal/management appreciated. Districts were asked if it will continue as part of the new license?	4/19/2011	n/a	Districts	Districts' response in progress.	
31	Recreation RWG Mtg	The question was asked that if dispersed recreational use was found to be impacting rare or sensitive plant areas, would Districts restrict such use?	4/19/2011	n/a	Districts	Districts responded to this during the meeting, noting that the new license application is likely to contain identification of unique or sensitive habitats, and it is not uncommon to restrict recreation access to those areas. In fact, some areas of the reservoir shoreline are already restricted.	
32	Recreation RWG Mtg	Districts were asked if they were planning to prepare a study plan for surveying recreational users to identify unmet demand, satisfaction levels, and need for additional facilities?	4/19/2011	4/29/2011; extended to 5/05/11; then 5/18/11	Districts	Districts responded via email 5/05/2011 that they are reviewing existing raw data and expect to be able to respond to this issue or or before 05/18/11.	

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
33	Recreation RWG Mtg	Districts were asked if the current flows on the lower Tuolumne are boatable and compatible with other uses (fishing)?	4/19/2011	n/a	Districts	Districts responded via email 5/05/11.	
34	Recreation RWG Mtg	Districts were asked to consider the following study needs: (1) boatable flows on lower Tuolumne River (were fishery flows boatable) and possible need for additional put-ins/take-outs, (2) suitability of Wards Ferry take-out, (3) recreational use levels, visitor preferences and satisfaction, unmet demand, (4) existing facility condition assessment, including ADA accessiblility, and (5) visual quality assessment, possibly photo documentation of visual quality at different water levels or landscape features to be brought into future planning of recreation	4/19/2011	n/a	Districts	See responses to Items 28, 32, 33, 43, and 57.	
35	Recreation RWG Mtg	The Districts were asked if Turlock Lake was stocked; and if so, with what?	4/19/2011	n/a	Districts	Districts' response in progress.	
36	Cultural RWG Mtg	Study plan should include the requirement for field investigators to have California archaeology experience.	4/19/2011	n/a	Districts	Study plan will include.	
37	Cultural RWG Mtg	Consistent standards of investigation must be used from area to area, probably adopt the BLM standards.	4/19/2011	n/a	Districts	Districts' response in progress.	
38	Cultural RWG Mtg	James Barnes, BLM archaeologist, should be copied on all correspondence with the SHPO regarding Section 106 consultation.	4/19/2011	n/a	Districts	Will occur.	

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
39	Cultural RWG Mtg	Agreement should be reached prior to field studies on how to handle discovery of human remains--and human remains on BLM lands. BLM does not delegate responsibility to FERC for handling human remains on BLM lands. The NID/PG&E process was satisfactory, including the providing of site records to BLM, why sites were not evaluated if this were to occur, and the content of Technical Memos.	4/19/2011	n/a	Districts	Districts' response in progress.	
40	Cultural RWG Mtg	It was suggested that the Districts visit the newly opened UC Davis collection.	4/19/2011	n/a	Districts	Districts will do.	
41	Cultural RWG Mtg	James Barnes to give suggestions for how to consider/approach isolets.	4/19/2011	n/a	BLM		
42	Cultural RWG Mtg	It was emphasized that "protect and preserve is the goal".	4/19/2011	n/a	Districts	Districts acknowledge this goal.	
43	Water / Aquatic / Terrestrial RWG Mtg	It was asked if it was the Districts' intention to perform a study that would develop a clear understanding of how flow relates to other stressors to the anadromous fisheries? Or perform a "limiting factors analysis" of each salmon life stage compared to individual stressors?	4/20/2011	4/29/2011; extended to 5/05/2011	Districts	Districts responded via email 5/05/11.	
44	Water / Aquatic / Terrestrial RWG Mtg	The question was asked if Turlock Lake and Modesto Reservoir were stocked, by whom, and with what? Also, does Turlock Lake spill into the Tuolumne River?	4/20/2011	n/a	Districts	Districts' response in progress.	
45	Water / Aquatic / Terrestrial RWG Mtg	The qustion was asked where did the population of rainbow trout in La Grange Reservoir come from?	4/20/2011	n/a	Districts	It was noted at the meeting that no one knew the origin of this population..	

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
46	Water / Aquatic / Terrestrial RWG Mtg	The question was asked if pikeminnow populatuion has increased over time? Districts to locate and distribute Tim Ford report developed using known information	4/20/2011	n/a	Districts	Districts' response in progress.	
47	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked to provide a citation for study done for Merced Project relicensing on riffle habitat use.	4/20/2011	n/a	Districts	Districts' response in progress.	
48	Water / Aquatic / Terrestrial RWG Mtg	It was pointed out that CDFG recently issued a draft EIR on section dredging that was still open for comment.	4/20/2011	n/a	n/a	No action required.	
49	Water / Aquatic / Terrestrial RWG Mtg	R Kanz requested a copy of the ongoing IFIM study plan be forwarded to him. It was also asked if any disease studies been conducted on anadromous fish in the Tuolumne River? CDFG to look into this and respond.	4/20/2011	n/a	Districts & CDFG	Districts to forward copy of ongoing IFIM study plan to R Kanz.	
50	Water / Aquatic / Terrestrial RWG Mtg	Question raised about period of time over which O. mykiss tracking occurred?	4/20/2011	n/a	Districts	Districts' response in progress.	
51	Water / Aquatic / Terrestrial RWG Mtg	The question was asked if a study should be undertaken to determine effect on predator location in river with changing water temperature?	4/20/2011	n/a	Districts	N Hume responded during the meeting that he believed this could be addressed with existing data.	
52	Water / Aquatic / Terrestrial RWG Mtg	It was asked what impact does flow have on moving predators out of prime spawning and rearing habitat?	4/20/2011	n/a	Districts	Districts' response in progress.	

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
53	Water / Aquatic / Terrestrial RWG Mtg	The question was raised about the status of other native species in the lower Tuolumne River (including lamprey, sturgeon, and cyprinids)? It was also noted that reports of sturgeon in the Tuolumne have occurred; this was clarified to be an anecdotal observation by a riparian water user near the Grayson Ranch in late summer.	4/20/2011	n/a	Districts	Districts' response in progress.	
54	Water / Aquatic / Terrestrial RWG Mtg	Question raised about the status of mussels in the lower Tuolumne River? Is this a data gap? It was reported that anecdotal observations were that prior to 1995 there were many mussels in the river and that now there are very few. Idea was offered that stranding may be a potential cause. It was pointed out that the Project no longer peaks, but RPs noted that flows change in accordance with seasonal downstream flow requirements.	4/20/2011	n/a	Districts	The Districts responded via email 5/05/11.	
55	Water / Aquatic / Terrestrial RWG Mtg	Districts were encouraged to refer to counties' weed watch list for additional information on invasive weeds.	4/20/2011	n/a	Districts	Districts will contact counties.	
56	Water / Aquatic / Terrestrial RWG Mtg	Districts were advised to refer to a study of cottonwoods in the Central Valley.	4/20/2011	n/a	Districts	The Districts advised in the meeting that this study, performed by Stella et al, was summarized in the PAD.	
57	Water / Aquatic / Terrestrial RWG Mtg	It was pointed out that the Districts were not proposing to perform a study dedicated to wetlands mapping and the potental project effects on wetlands. RPs wondered if this would not be needed/useful	4/20/2011	4/29/2011; extended to 5/05/2011	Districts	The Districts responded via email 5/05/11.	

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
58	Water / Aquatic / Terrestrial RWG Mtg	Districts were advised to consider the relationship between pollinator species, vernal pools, and special-status plants.	4/20/2011	n/a	Districts	Districts to consider modifying the current study plan.	
59	Water / Aquatic / Terrestrial RWG Mtg	Concern was raised about effect of dispersed recreation on sensitive areas (e.g. serpentine soils). Consider modifying current plan?	4/20/2011	n/a	Districts	Districts' response in progress.	
60	Water / Aquatic / Terrestrial RWG Mtg	Concern about proposed size of areas to be studied around project facilities.	4/20/2011	na/a	Districts	Districts responded during the meeting that a possible approach to coming to site-specific agreement would be for BLM staff to join field investigators in the field to perform beta testing of appropriate area to study based on actual site observations. Study would have to be modified to indicate such an approach. It was noted that BLM may have limited staff time.	
61	Water / Aquatic / Terrestrial RWG Mtg	Districts were advised that the protocols for CRLF that were in the YT/DS study plan were acceptable.	4/20/2011	n/a	Districts	No response required.	
62	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked to upload copy of proposed WPT protocols to the website	4/20/2011	n/a	Districts	Districts will do.	
63	Water / Aquatic / Terrestrial RWG Mtg	Zac Jackson to forward report which included observations of WPT downstream of the project.	4/20/2011	n/a	USFWS	The report has been forwarded.	
64	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked to Include Critical Habitat maps in the ESA study plan.	4/20/2011	n/a	Districts	At the meeting, the Districts agreed to include Critical Habitat maps in the study plan.	

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
65	Water / Aquatic / Terrestrial RWG Mtg	It was indicated that the Districts would likely be asked for a PM&E measure for periodic eagle monitoring. It was asked if the Districts would accept this; and if so, it would obviate the need for study now.	4/20/2011	n/a	Districts	Districts' response in progress.	
66	Water / Aquatic / Terrestrial RWG Mtg	Regarding water quality study plan, Is oxidation-reduction occuring at reservoir bottom?	4/20/2011	n/a	Districts	Districts' response in progress.	
67	Water / Aquatic / Terrestrial RWG Mtg	Regarding water quality study plan, will reservor bathymetry be able to distinquish original ground from sediment?	4/20/2011	n/a	Districts	Districts' response in progress.	
68	Water / Aquatic / Terrestrial RWG Mtg	Districts should consider getting ADCP readings between old Don Pedro and the new Don Pedro.	4/20/2011	n/a	Districts	Districts' response in progress.	
69	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked if there would be a separate study plan for the 3D temperature model development?	4/20/2011	n/a	Districts	The Districts are developing a study plan for the 3D temperature model development.	
70	Water / Aquatic / Terrestrial RWG Mtg	It was suggested the Districts get data on flows and temps in Moccasin Creek; thought CCSF would have it?	4/20/2011	n/a	Districts	Districts will do.	
71	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked if they would prepare a Study Plan for a Socioeconomic Study? It was suggested it would be needed for CEQA.	4/20/2011	4/29/2011; extended to 5/05/2011	Districts	Districts responded via email 5/05/11.	

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
72	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked if they planned to conduct an analysis of projected population growth and irrigination use compared to their water rights? Study potential effects of such growth on water quality (due to less water being in the river)	4/20/2011	4/29/2011; extended to 5/05/2011	Districts	Districts responded via email 05/05/11.	
73	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked if they were going to evaluate benefits to fisheries with more flow being released to the river. Suggested that high-flow benefits was a data gap	4/20/2011	n/a	Districts	Districts indiciated in meeting that the current IFIM study is investigating that issue. Also, data from prior monitoring could also address that question.	
74	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked to plot escapement vs total acre-feet released to the lower Tuolumne.	4/20/2011	n/a	Districts	Districts' response in progress.	
75	Water / Aquatic / Terrestrial RWG Mtg	It was suggested that a data gap existed as no data on number of salmon emerging from the gravel and the number leaving the Tuolumne.	4/20/2011	n/a	Districts	Districts responded in the meeting that they were uncertain how a one- or two-year study of this would inform any such gap, nor could they think of how to conduct such a study, nor could RPs when asked.	
76	Water / Aquatic / Terrestrial RWG Mtg	It was mentioned that other potential data gaps were (1) potential to improve salmon success if timing of fall impulse flows were adjusted for actual water temperatures, (2) relationship between predation and water temperature, and (3) possible accoustic tagging of bass to track movements under different temperature and flow regimes.	4/20/2011	n/a	Districts	Districts' response in progress.	

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
77	Water / Aquatic / Terrestrial RWG Mtg	The Districts were asked if they were planning any reservoir fish population studies?	4/20/2011	n/a	Districts	Districts responded in the meeting that the reservoir fishery included both good cold and warm water fishery and both were healthy and viable based on the data it had. Reservoir fishery is primarily a stocked fishery. Because there was no evidence of a problem, therefore no apparent Project effect, the study would not be justified	
78	Water / Aquatic / Terrestrial RWG Mtg	It was requested the Districts provide a GIS layer describing the Project Boundary to the BLM.	4/20/2011	n/a	Districts	Districts will do.	

From: Staples, Rose
Sent: Friday, May 13, 2011 5:16 PM
To: Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Dixie, Yakima K - CVMT; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Subject: Don Pedro RWG Meetings Conference Line Number

Thank you for all the responses I have already received as to your participation in next week's meetings.

For those who want to call in, the conference line number will be:

Conference Line for May 18 and May 19 Don Pedro RWG Meetings
Call-In Number 866-994-6437
Conference Code 5424697994

I will aso be posting it on the website in a few minutes.

Thank you.

Rose Staples CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com

Don Pedro Relicensing RWG Meetings

May 18-19, 2011

MID Offices – Modesto CA

(If you plan to participate in these RWG meetings, please email rose.staples@hdrinc.com and indicate (1) which meetings, (2) in person or by phone, and (3) if web conferencing)

Wednesday, May 18 – Cultural Work Group

9:00 a.m.- 9:15 a.m.	Introductions
9:15 a.m.- 9:30 a.m.	Review of Relicensing Schedule & Purpose of Current Meeting
9:30 a.m.-10:00 a.m.	Overview of Previous Meeting and Progress Tracking List
10:00 a.m.-11:00 a.m.	Page-by-Page Review of PAD Study Plans
11:00 a.m.-11:30 a.m.	Path Forward and Action Points

Wednesday, May 18 – Recreation Work Group

1:00 p.m.- 1:10 p.m.	Introductions
1:10 p.m.- 1:20 p.m.	Review of Relicensing Schedule & Purpose of Current Meeting (Review and Discuss Available Information and Study Plans Districts will Prepare)
1:20 p.m.- 1:30 p.m.	Overview of Previous Meeting and Progress Tracking List
1:30 p.m.- 3:00 p.m.	Discussion of Proposed Study Plans -Facility Condition Assessment & Public Accessibility -Red Hills ACEC Visual Quality Assessment -Lower Tuolumne River Boating
3:00 p.m.- 4:00 p.m.	Review of Available Information / Need for Additional Information -Recreation Use Levels, Visitor Preferences, and Unmet Demand -Wards Ferry Takeout
4:00 p.m.- 4:30 p.m.	Path Forward and Action Points

Don Pedro Relicensing RWG Meetings

May 18-19, 2011

MID Offices – Modesto CA

(If you plan to participate in these RWG meetings, please email rose.staples@hdrinc.com and indicate (1) which meetings, (2) in person or by phone, and (3) if web conferencing)

Thursday, May 19 – Aquatic/Water Work Group

9:00 a.m. - 9:15 a.m.	Introductions
9:15 a.m.- 9:30 a.m.	Review of Relicensing Schedule and Purpose of Current Meeting (To Review & Discuss List of Study Plans Districts will Prepare)
9:30 a.m.-10:00 a.m.	Overview of Previous Meeting and Progress Tracking List
10:00 a.m.-12:30 p.m.	Review and Discuss List of Aquatic/Water Resources Study Plans (1) Don Pedro Reservoir 3D Temperature Model Development - CDFG On-going Reservoir Temperature Profiles (2) Reservoir Bathymetry (Underway) (3) Operations Modeling (Scope of Study) (4) Lower Tuolumne River Temperature Model Recalibration (5) Continued Discussion of "Limiting Factors Analysis" (6) Update on On-going IFIM Study (7) Socioeconomics Assessment (Scope of Study)
12:30 p.m.-1:00 p.m.	Path Forward and Action Points

Thursday, May 19 – Terrestrial Work Group

2:00 p.m.- 2:15 p.m.	Introductions
2:15 p.m.- 2:45 p.m.	Review of Relicensing Schedule & Purpose of Current Meeting
2:45 p.m.- 3:15 p.m.	Overview of Previous Meeting and Progress Tracking List
3:15 p.m. - 4:45 p.m.	Review of Proposed Study Plans and Study Requests -Wetlands Study Request -Special-Status Reptiles & Amphibian Protocols -Special-Status Plants Study Area
4:45 p.m.- 5:00 p.m.	Path Forward and Action Points

From: Staples, Rose
Sent: Wednesday, May 18, 2011 10:49 AM
To: Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Dixie, Yakima K - CVMT; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Subject: Don Pedro Water Temp and IFIM Study Plans

There has been a request for copies of the Don Pedro Project Water Temp and IFIM Study Plans, referenced in the AGENDA for tomorrow's meeting. I have uploaded a copy of each to the relicensing website (www.donpedro-relicensing.com) and attached them to the meeting announcement for

tomorrow, May 19th (MEETINGS TAB, under MEETINGS CALENDAR). Please note that these are the October 2009 study plans as submitted to FERC—and that FERC may have subsequently revised the schedules, etc.

If you have any problems locating the documents and/or downloading them, please let me know. Thank you.

Rose Staples CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com



Lower Tuolumne River Water Temperature Modeling
Final Study Plan

Prepared for
Turlock Irrigation District
333 East Canal Drive
Turlock CA 95380

and

Modesto Irrigation District
1231 11th St
Modesto, CA 95354

Prepared by
Stillwater Sciences
2855 Telegraph Ave. Suite 400
Berkeley, CA 94705

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Stillwater Sciences

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Table of Contents

1 BACKGROUND AND PURPOSE 3

2 RECOMMENDED STUDY APPROACH 4

3 STUDY AREA 4

4 METHODS 6

4.1 Validate Existing Water Temperature Model 6
4.2 Initial Scenario Development 6
4.3 Model Simulations and Analysis 7
4.4 Develop Report 7

5 SCHEDULE 8

6 REFERENCES 10

List of Tables

Table 1. Proposed schedule for implementation of FERC-ordered Temperature Modeling Study Plan. 8

List of Figures

Figure 1. Vicinity map for the Tuolumne River water temperature modeling study..... 5
Figure 2. Proposed timeline for implementation of FERC-ordered Temperature Modeling Study Plan..... 9

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1 BACKGROUND AND PURPOSE

The Federal Energy Regulatory Commission (FERC) issued a July 16, 2009 order ("Order") wherein Ordering paragraph (F) directed the Turlock Irrigation District (TID) and the Modesto Irrigation District (MID) to develop a water temperature model in conjunction with instream flow studies of the lower Tuolumne River (FERC 2009). The purpose of the temperature model is "to determine the downstream extent of thermally suitable habitat to protect summer juvenile *Oncorynchus mykiss* rearing under various flow conditions and to determine flows necessary to maintain water temperatures at or below 68 degrees Fahrenheit from La Grange Dam to Roberts Ferry Bridge". The Order further directs the Districts to include study plan elements of methodologies, schedules, progress reports, and consultation with fishery agencies ("Agencies", including the California Department of Fish and Game, National Marine Fisheries Service, and U.S. Fish and Wildlife Service) in developing the plan.

To examine potential water temperature management scenarios for the benefit of lower Tuolumne River salmonids, two overall study questions will be examined in response to the July 16, 2009 FERC Order:

1. What flows are required to maintain summer water temperatures (MWAT) of 68°F or less downstream to Roberts Ferry Bridge at river mile (RM) 39.5?
2. What is the relationship between flow and water temperature at various time periods during the year in specified reaches of the lower Tuolumne River?

Two existing water temperature models have been previously developed for the lower Tuolumne River. Using water temperature and meteorological data collected from 1978–1988, a stream network temperature (SNTEMP) model (Theurer et al. 1984) was previously developed for the lower Tuolumne River during the late 1980's (TID/MID 1992, Appendix 18). The SNTEMP model used channel and basin geometry along with local meteorological data (i.e., air temperature, relative humidity, solar insolation, and wind speed) collected at the Modesto CIMIS weather station (with corrections for differences in elevation) to predict 5-day average instream temperatures from La Grange Dam (RM 52.2) to near the San Joaquin River confluence (RM 2.6) at various times throughout the year under different flow release scenarios. This SNTEMP model was used in conjunction with results of the CDFG instream flow study of habitat areas for key salmonid life stages (Appendices 4 and 5, TID/MID 1992) and the USFWS instream flow study (USFWS 1995), both conducted under the Don Pedro Project FERC fisheries study plan, in the development of the current flow schedule under Article 37 of the current Don Pedro Project (FERC No. 2299) license (FERC 1996).

More recently, a HEC-5Q model was developed for the Tuolumne River and other tributaries of the San Joaquin River as part of a CALFED-funded temperature model (RMA 2008). The Tuolumne River HEC-5Q sub-model was calibrated using updated water temperature and meteorological data collected from 1996–2006. Based upon statements at a November 2007 training session provided by the model developer, RMA Associates, the model reproduces this historical temperature record to within 1–2°F (0.6–1.1^{o}C) depending upon river location and time of year. This performance is more precise than the previous SNTEMP Model, which had a

predicted error of ± 2.7°F (1.5°C) with a 90% confidence interval of ± 5°F (3.0°C) (TID/MID 1992, Appendix 18). The model also has output on 6-hour intervals, providing more discrete time intervals than the SNTEMP model.

2 RECOMMENDED STUDY APPROACH

In response to the Order, TID and MID (the "Districts") propose to use the existing HEC-5Q model to simulate water temperatures at various flows and times of year. The study approach is to first validate the existing water temperature model against water temperature data not used in the initial model calibration. Second, the validated HEC-5Q model, will be used to test a series of flow scenarios to determine the flows needed to maintain specified water temperatures at particular river locations at various times of the year. Ultimately, the water temperature model predictions developed in this study will be used in conjunction with instream flow incremental methodology (IFIM) predictions of weighted usable area (WUA) developed under a separate study plan (Stillwater Sciences 2009). For example, IFIM estimates of WUA of suitable habitat meeting particular life-stage-specific criteria (i.e., depth, velocity, and substrate) determined at a particular flow and time of year will be superimposed upon areas meeting particular water temperature criteria to create an estimate of effective WUA, or EWUA.

3 STUDY AREA

As shown in Figure 1, the study area extends from La Grange Dam (RM 52.2) downstream to the San Joaquin River confluence (RM 0.0). The upper reach from La Grange to Robert's Ferry Bridge (RM 39.5) specified in the Order represents the downstream extent of most summer *O. mykiss* observations in past snorkel surveys (TID/MID 2009). It also contains the Dominant Spawning Reach (down to RM 46.6) and the Dredger Tailing Reach (down to RM 40.3) which typically have the majority of Chinook salmon spawning activity (McBain and Trush 2000).

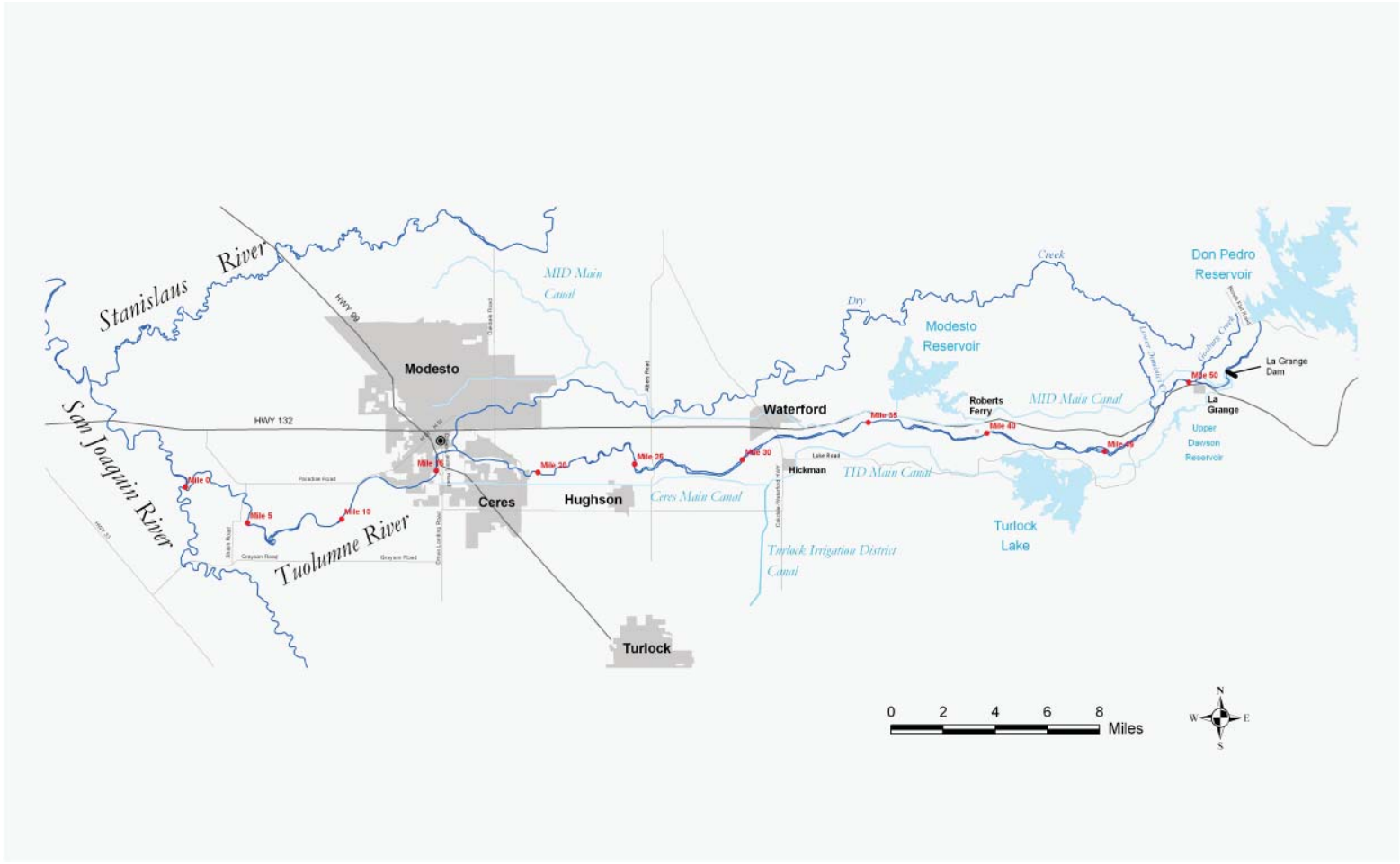

Figure 1. Vicinity map for the Tuolumne River water temperature modeling study.

4 METHODS

The methodology presented in the following sections of this study plan discuss in more detail the steps needed to be performed in order to complete the proposed water temperature modeling study, to inform the complementary IFIM study (Stillwater Sciences 2009), and to report the results to FERC and interested parties.

4.1 Validate Existing HEC-5Q Water Temperature Model

Water temperatures have been recorded continuously by the Districts at various locations in the lower Tuolumne River since 1986 (TID/MID 2005). The HEC-5Q model will be validated against 1996–2009 thermograph data not used in the original model calibration. Data used in the original model calibration may be used if no data independent of the model are available. Because no documentation of the original model calibration was provided in the final CALFED summary report (RMA 2008), an initial step in this process will be to request documentation of thermograph locations, temperature data, and periods of record used in the model calibration so that unbiased goodness of fit statistics can be developed (i.e., observed vs. predicted temperatures) and model uncertainties can be identified. As noted in Section 5, delays in collection of the final HEC-5Q calibration data may result in changes to the proposed schedule. All data records and available metadata (i.e., thermograph model, measurement time-step, specified accuracy, etc) used in the validation exercise will be provided as an electronic data Appendix to the final report.

As recommended by the Agencies, the following temperature modeling goodness of fit metrics are adapted from Theurer et al (1984) using both 6-hr averaged (minimum time-step of the HEC-5Q model) as well as daily averaged thermograph data:

- Maximize the correlation coefficient ($R^2 \leq 1.0$) between modeled and observed water temperatures at individual thermograph locations, as well as across all locations not used in the original calibration data set.
- Determine the fraction of observed temperatures deviating from modeled temperatures by more than 0.5°C, 1°C, and 1.5°C
- Determine any trends in the residual errors (observed minus modeled) either spatially (across several locations) or temporally (at individual locations).

If the goodness of fit results indicate large errors between observed and predicted temperatures, updated model uncertainty estimates will be developed for particular locations or times of year.

4.2 Scenario Development

In addition to an evaluation of the current FERC (1996) flow schedules and the actual flow releases during the 1996–2009 periods as part of the model validation exercise (Section 4.1), the initial scenario will use the validated HEC-5Q model to determine the summer flows necessary to maintain 68°F downstream to Roberts Ferry Bridge (RM 39.5). While these flows are expected to range between 100–400 cfs, the initial model scenario flow range will be expanded if necessary.

In addition to the initial scenario included in the FERC Order (Study Question 1), four additional scenarios corresponding to Study Question 2 were recommended by the Agencies in their review of the Draft Study Plan that correspond to their recommended interim conditions for the protection of various life stages of California Central Valley steelhead (*O. mykiss*) and Fall–run Chinook salmon (*O. tshawytscha*).

1. What flows are required to maintain a summer MWAT of 18ºC (64.4ºF) downstream of La Grange Dam to Roberts Ferry Bridge (RM 39.5)?
2. What flows are required to maintain a MWAT of 18ºC (64.4ºF) downstream of La Grange Dam to the confluence with the San Joaquin River (RM 0) from October 15 to December 1?
3. What flows are required to maintain a MWAT of 13ºC (55.4ºF) downstream of La Grange Dam to Roberts Ferry Bridge (RM 39.5) from October 15 to February 15?
4. What flows are required to maintain a MWAT of 15ºC (59.0ºF) downstream of La Grange Dam to the confluence with the San Joaquin River (RM 0) from March 20 to May 15.

In addition, alternative scenarios (i.e., temperature, location, timing, etc.) may also be evaluated that draw upon findings from the literature or field observations, such as information provided to FERC by the Districts, CCSF, and the Agencies.

4.3 Model Simulations and Analysis

The HEC-5Q model will be used to determine the downstream extent of suitable water temperatures for key *O. mykiss* and *O. tshawytscha* life stages under normal and extreme meteorology. As with any temperature model, using the HEC-5Q model as a predictive tool is limited by the availability of meteorological data corresponding to the conditions of interest (e.g., hottest week of spring or summer), However, various reservoir operation and release scenarios may be simulated against the period-of-record meteorology to generate a range of predicted temperatures for various locations in the river under varying meteorologic conditions. It should be noted that since the reservoir operations modeling component of the existing HEC-5Q is not adequately reflective of actual basin hydrology and District operations of Don Pedro Reservoir, corresponding water storage estimates under various scenarios and water-year types will not be addressed as part of this Study Plan.

4.4 Develop Report

A documentation report will be prepared summarizing the results of the temperature model study, describing the HEC-5Q modeling background, validation, scenario development, model simulations and analysis. The report will include graphics depicting the longitudinal flow versus water temperature relationship under varying meteorologic conditions in order to allow a thermal analysis of various flow regimes. The report will be provided to the Agencies for review and comment prior to submittal to FERC. Periodic progress reports will be prepared as milestone steps under Section 5.

5 SCHEDULE

A proposed schedule is provided in Table 1 and Figure 2. The schedule is predicated on an anticipated study plan acceptance by FERC on or about January 12, 2010, and assumes timely response by the model developer and CDFG in providing requested calibration data and documentation (Section 4.1). In the event that the these responses are not received on a timely basis, or in the event that the validation of the existing model reveals major inconsistencies with observed temperatures in the lower Tuolumne River, the schedule below may be adjusted in consultation with FERC and the stakeholders.

Table 1. Proposed schedule for implementation of FERC-ordered Temperature Modeling Study Plan.

Item	Dates (duration)	Days from FERC Approval of Study Plan
Develop Study Plan and Submit to FERC for Approval	October 14, 2009	--
FERC Response to Study Plan	January 12, 2010 (90d)	
Validate Existing Water Temperature Model	January 13 to April 12, 2010 (90d)	90
Scenario Development	January 13 to May 31, 2010 (139d)	139
Model Simulations and Analysis	June 1 to July 30, 2010 (60d)	199
Progress Report	July 30, 2010 (NA)	199
Prepare Report	October 28, 2010 (90d)	289
Instream Flow and Effective Habitat Evaluations	September 27, 2011 (180d)	623

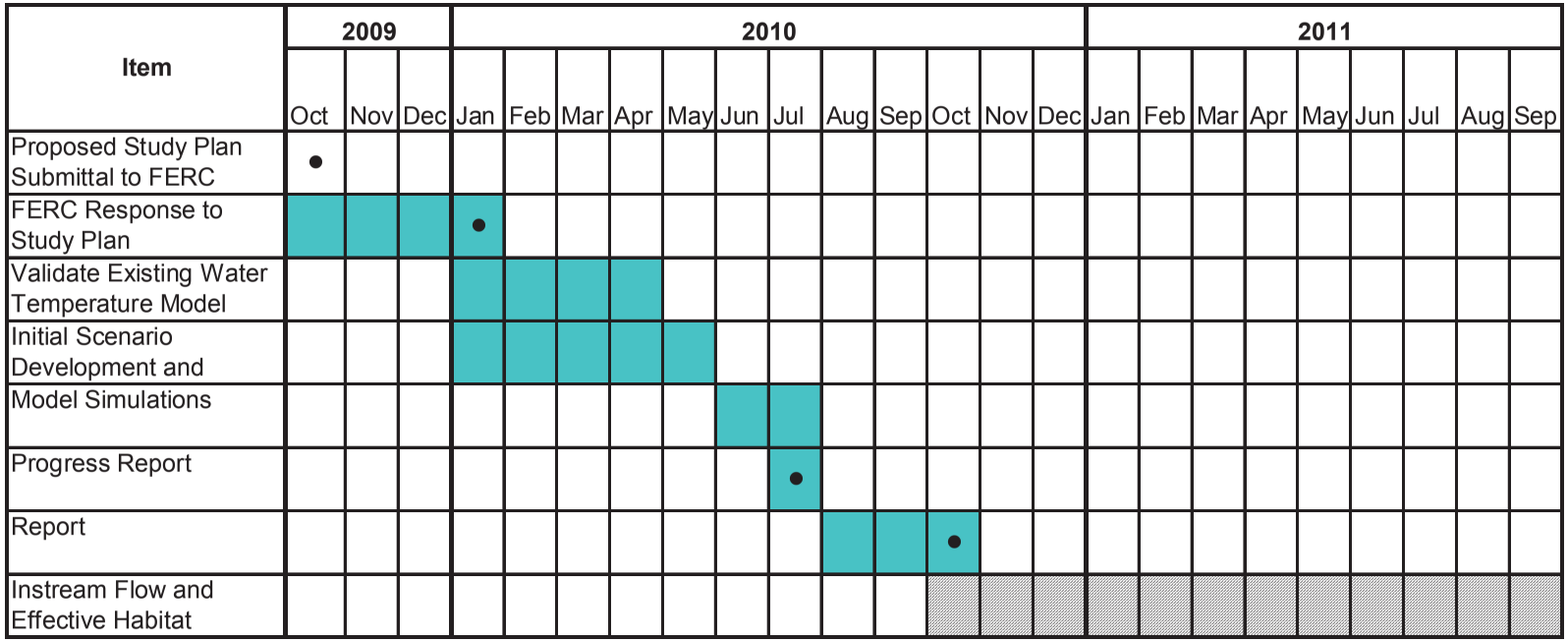

Figure 2. Proposed timeline for implementation of FERC-ordered Temperature Modeling Study Plan.

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Lower Tuolumne River Instream Flow Studies
Final Study Plan

Prepared for
Turlock Irrigation District
333 East Canal Drive
Turlock, CA 95380

and

Modesto Irrigation District
1231 11th St.
Modesto, CA 95354

Prepared by
Stillwater Sciences
279 Cousteau Place, Suite 400
Davis, CA 95616

October 2009

Stillwater Sciences

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Table of Contents

1 BACKGROUND AND PURPOSE 1
2 RECOMMENDED STUDY APPROACH 2
3 METHODS 3
3.1 Logistics 3
3.2 Study area segmentation 4
3.3 Habitat mapping 6
3.4 IFIM/1-D PHABSIM study 6
3.4.1 Study site selection 6
3.4.2 Transect selection 7
3.4.3 Field data collection 8
3.4.4 Hydraulic modeling 11
3.4.5 Target species and habitat suitability criteria (HSC) 12
3.4.6 Habitat modeling 13
3.4.7 Total habitat time series 13
3.4.8 Effective habitat time series development 14
3.5 Pulse flow assessment 16
3.5.1 Pulse flow study site selection 16
3.5.2 Cross section and topography development 17
3.5.3 High flow stage discharge relationships 17
3.5.4 2-D hydraulic model development 18
3.5.5 2-D model simulations and anticipated results 18
3.6 Management alternatives 18
4 REPORTING 19
5 SCHEDULE 19
6 REFERENCES 22

List of Tables

Table 1. Selected instream flow model details for studies on the lower Tuolumne River in 1981 and 1992. 1
Table 2. Field work notification. 3
Table 3. Coarse scale habitat types to be used during instream flow surveys. 6
Table 4. Mesohabitat types and percentage occurrence. 6
Table 5a. Proposed substrate types for the Lower Tuolumne IFIM study. [Use of these codes is subject to final decisions on habitat suitability criteria for substrate] 10
Table 5b. Coarse sediment size gradation chart showing particle size class descriptions and sizes. 10
Table 6. Habitat suitability criteria summary from 1981 CDFG IFIM study. 13
Table 7. Habitat suitability criteria summary from USFWS (1995) IFIM study. 13
Table 8. Proposed schedule for lower Tuolumne River instream flow study implementation. 20

List of Figures

Figure 1. Vicinity map for the lower Tuolumne River IFIM study. 5
Figure 2. Conceptual example of transect weighting method for reach extrapolations proposed for the lower Tuolumne River IFIM study. 15
Figure 3. Conceptual example total habitat time series output for the IFIM study. 16
Figure 4. Proposed schedule for implementation of FERC-ordered instream flow studies. 21

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

1 BACKGROUND AND PURPOSE

The Federal Energy Regulatory Commission (FERC) issued a July 16, 2009 order ("Order") directing Turlock Irrigation District and Modesto Irrigation District ("Districts") to develop and implement an Instream Flow Incremental Method/Physical Habitat Simulation (IFIM/PHABSIM) study of the lower Tuolumne River (FERC 2009). The purpose of the instream flow study is "to determine instream flows necessary to maximize fall-run Chinook salmon *(Oncorhynchus tshawytscha)* and *O. mykiss* production and survival throughout their various life stages." This study plan responds to the Order and provides detailed methods for the proposed approach.

Two prior PHABSIM studies of the lower Tuolumne River have been conducted for the Don Pedro Project (FERC Project No. 2299) as part of the approved FERC Fisheries Study Plan. A 1981 study by CDFG (TID/MID 1992, Appendix 4) was focused within a nine-mile reach (river mile [RM] 50.5–42.0) extending from near the town of La Grange to near Turlock Lake State Recreation Area. A reanalysis of the 1981 CDFG data was also completed by EA Engineering, Science, and Technology (EA) in 1991 on behalf of the Districts (TID/MID 1992, Appendix 5). Selected elements of the CDFG study are summarized in Table 1 below.

Table 1. Selected instream flow model details for studies on the lower Tuolumne River in 1981 and 1992.

Study	Upper RM	Lower RM	Total Transects	Calibration Flows (approx. cfs)			Simulation range (cfs)
				Low	Mid	High	
CDFG reanalysis (TID/MID 1992)	50.5	42.0	19	120	260	410	20–600
USFWS (1995)	52.2	0.0	25 (23 used)	250	600	1,050	25–1,200

In 1992, the second PHABSIM study was conducted by the USFWS (1995), which is also briefly summarized in Table 1. The USFWS study reaches included the entire lower Tuolumne River from La Grange Dam (RM 52.2) downstream to the confluence with the San Joaquin River (RM 0.0), although the most extensive field efforts were focused in riffle and run habitats in the 21-mile reach upstream of Waterford (RM 31) that is most heavily utilized for spawning by salmonid species. Using the results of the USFWS study, the Districts previously responded to an August 2003 information request from FERC staff to develop a flow vs. habitat evaluation that incorporated water temperature effects on Weighted Usable Area (WUA) (Stillwater Sciences 2003).

The rationale for the Order's inclusion of an additional IFIM study is not entirely apparent, especially since both prior studies included simulations for various life stages of *O. mykiss*, in addition to Chinook salmon. In addition to the previous IFIM studies and evaluations, the Districts have also reported on flow fluctuation and juvenile salmonid stranding analyses at flows up to 8,400 cfs (TID/MID 1992, Appendices 14 and 15; TID/MID 2000, Report 2000-6; TID/MID 2005, Appendix E), as well as geographic information system (GIS) based mapping of floodplain inundation surfaces at several flows within this range (TID/MID

2005, Appendix F). The GIS inundation maps were used in a recent assessment of variations in inundation areas at high flows by USFWS (2008). Although data collected from a new study could be combined with data from prior investigations (specifically from the USFWS [1995] study), the recommended study plan detailed below assumes independent, standalone investigations that are not dependent on data from the previous IFIM studies.

2 RECOMMENDED STUDY APPROACH

The instream flow studies are proposed to be separated into a 1-D PHABSIM study from 150 cfs up to at least 400 cfs and a 2-D PHABSIM pulse flow study, which will evaluate spring pulse flows of 1,000 to 5,000 cfs and fall pulse flows of up to 1,500 cfs, as specified in the Order. The 1-D PHABSIM model will estimate habitat availability for various lifestages of Chinook salmon and *O. mykiss* over a range of simulated flow releases included in the FERC Order (150 to at least 400 cfs), as well as in-channel flows up to 1,200 cfs, which corresponds to the flow range in the USFWS (1995) study. The proposed model software is the Riverine Habitat Simulation Model (RHABSIM). This model is an adaptation of the PHABSIM software that was originally developed and maintained by the Instream Flow and Aquatic Systems Group of the U.S. Fish and Wildlife Service in Fort Collins, Colorado (Milhous 1973, Bovee 1982, Milhous et al. 1984). The RHABSIM software, which was developed by Thomas R. Payne and Associates, implements the equivalent algorithms of PHABSIM but features expanded input, output, graphic, and calibration capabilities.

Development and implementation of the IFIM study considers a variety of factors, besides just the hydraulic and habitat suitability criteria (HSC) required for the PHABSIM component of the analysis, to evaluate the suitability of a stream and various flows for the species and life stages of interest. Water temperature is of particular interest since it varies with flow (particularly downstream of large impoundments, such as Don Pedro Reservoir). A water temperature study is planned, based on the results of a HEC-5Q water temperature model (RMA 2008) that will be validated as part of a complementary Tuolumne River water temperature modeling study plan (Stillwater Sciences 2009) included in the Order.

The proposed pulse flow assessment will examine potential responses of salmonid and predator species to spatial variations in inundation area, velocities, and depths in relation to the pulse flows specified in the Order within both in-channel areas as well as temporarily inundated portions of the Tuolumne River floodplain. Although the 1-D PHABSIM methodology is the most commonly used method for flow and habitat assessments within confined channels, the proposed pulse flow assessment will examine the effects of pulse flows for the benefit of migratory salmonid life stages using a 2-D hydraulic model of both in-channel and inundated floodplain areas at flows up to 5,000 cfs. The rationale for the two different methods for the instream flow and pulse flow elements of the study is threefold. First, extension of the IFIM analysis to flows exceeding the bankfull channel width, in the range of 1,500–2,500 cfs in some locations (McBain and Trush 2000), will cause a significant shift in the stage-discharge relationship for the channel. This requires a separate modeling analysis in order to develop a reliably predictive (*i.e.*, log linear) estimate of stage. Second, patchy distribution of floodplain areas makes their treatment as separate, discrete

areas more precise, since the conditions at these locations cannot be as reliably extrapolated to other areas of the river. Third, pulse flows are typically of shorter duration and intended for either the attraction/migration of fall spawners or to facilitate outmigration of juvenile fish; detailed evaluation of such flows in a PHABSIM study in order to assess and generalize their microhabitat suitability for spawning, adult holding, or rearing (which is what the associated HSC are developed for) is of limited use in refining potential flow recommendations.

3 METHODS

The methodology presented in the sections below discusses in more detail the steps for performing the proposed instream flow study and reporting results.

3.1 Logistics

Instream flow studies are best performed when targeted calibration flows are consistently maintained during hydraulic field measurements. Stillwater Sciences will coordinate with TID/MID to ensure these flows are available and manageable during field measurements. Stillwater will notify TID/MID, FERC and the agencies if substantive changes in the study design, methods or schedule are anticipated.

To facilitate field staff safety, allow for coordinated water operations, and facilitate agency staff awareness of study activities, the parties listed in Table 2 will be notified by email or telephone in advance of the proposed field sampling. Prior to mobilization, planned river operations by the Districts will be checked to determine if field surveys would be safe under the anticipated flow and all parties will be notified of any delay or modification to the survey schedule.

Table 2. Field work notification.

Contact	Affiliation	Address	Phone and Email
Tim Ford	TID	333 East Canal Dr. Turlock, CA 95380	209.883.8275 tjford@tid.org
Greg Dias	MID	1231 11th Street Modesto, CA 95354	209.526.7566 gregd@mid.org
Tim Heyne	CDFG	P.O. Box 10 La Grange, CA 95329	209.853.2533 x1# theyne@dfg.ca.gov
To be determined during agency comment period	USFWS	--	--
To be determined during agency comment period	NMFS	--	--

3.2 Study Area Segmentation

The proposed study reach extends from the La Grange stream flow gage (USGS No. 11289650) at RM 51.7 downstream to the lower end of the Gravel Mining Reach at RM 34.2 (McBain and Trush 2000). This reach includes the downstream extent of summer *O. mykiss* observations in past snorkel surveys (TID/MID 2009) as well as large majority of the spawning reach for Chinook salmon. As a secondary option, CDFG has recommended that the downstream boundary for the study extend to RM 24 to the downstream end of the In-Channel Gravel Mining Reach (Figure 1). Within the proposed study reach, the river would be divided into segments of similar habitat, geomorphic, and hydrologic character and analyzed independently. The study reach and number/location of segments would be determined as part of the scoping process.

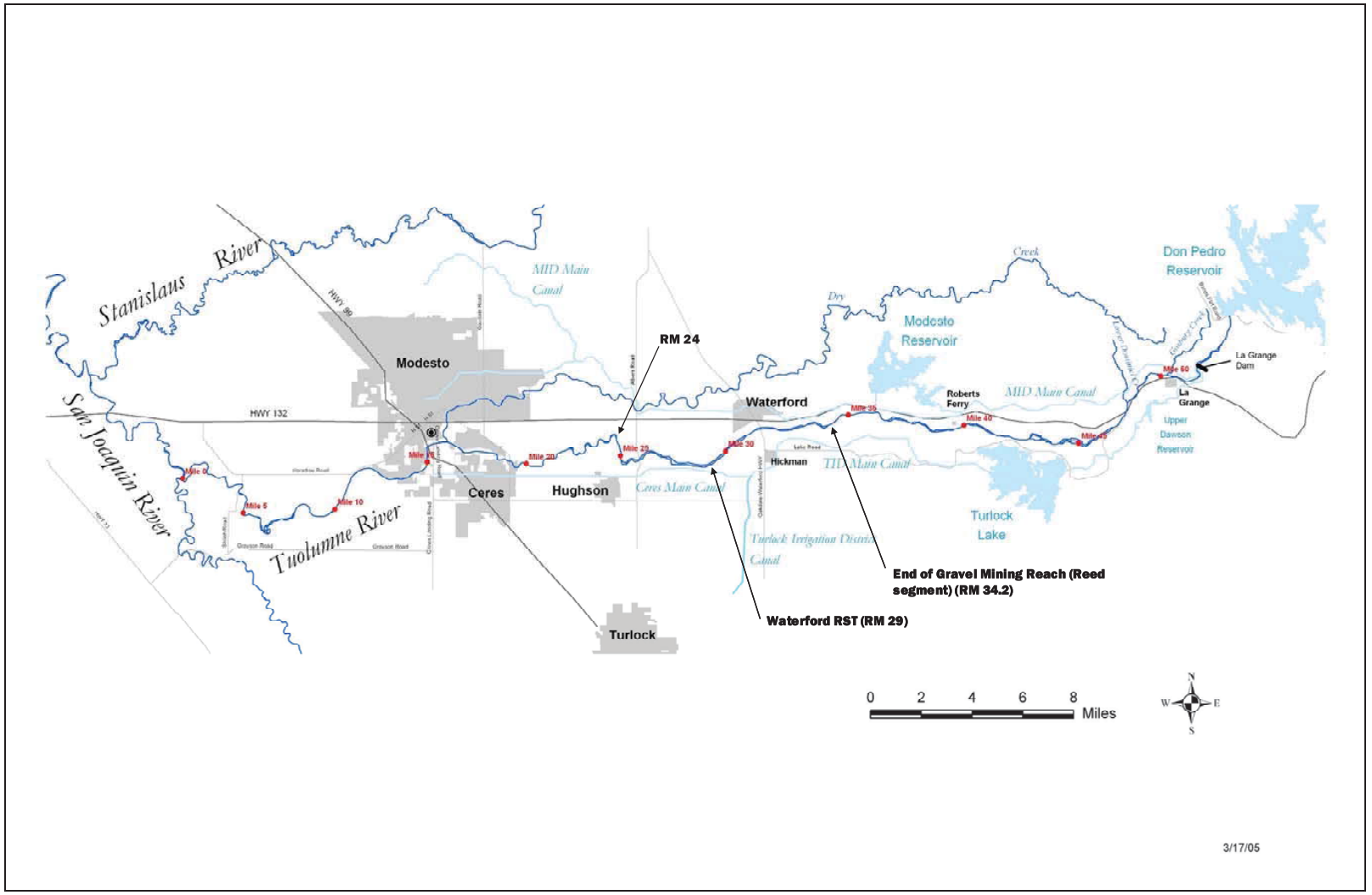


Figure 1. Vicinity map for the lower Tuolumne River IFIM study.

3.3 Habitat Mapping

Within the proposed study reach, existing habitat mapping has been completed down to RM 29.0 below the City of Waterford, as part of *O. mykiss* population estimate surveys being conducted pursuant to the April 2008 FERC Order (Stillwater Sciences, *in prep*.). Data from this current habitat mapping, completed during snorkel surveys during 2008 and 2009, will provide the basis for habitat composition and delineation. Proposed mesohabitat types are listed and described in Table 3.

Table 3. Coarse scale habitat types to be used during instream flow surveys.

Habitat Type	Description
Riffle	Shallow with swift flowing, turbulent water. Partially exposed substrate dominated by cobble or boulder. Gradient moderate (less than 4%).
Run/Glide	Fairly smooth water surface, low gradient, and few flow obstructions. Mean column velocity generally greater than one foot per second (fts^{-1}).
Pool	Slow flowing, tranquil water with mean column water velocity less than 1 fts^{-1} and depths of 10 ft or greater.

The percent composition of these mesohabitat types are shown in Table 4 for the study reach extending from La Grange Gage (RM 51.7) downstream to the end of the Gravel Mining Reach at RM 34.2 (McBain and Trush 2000), along with a secondary reach extending to the location of the existing rotary screw trap (RST) location downstream of the City of Waterford (RM 29.0). Additional habitat mapping would need to be conducted if areas farther downstream are included in the hydraulic simulations (see Study Area Segmentation section above).

Table 4. Mesohabitat types and percentage occurrence.

Habitat Type	# of Units	Total Length (ft)	% of Reach
La Grange Gage (USGS No. 11289650) to end of Gravel Mining Reach (RM 51.7 to RM 34.2)			
Riffle	55	19,195	21%
Run/Glide	55	55,964	61%
Pool	20	16,888	18%
Totals	130	92,046	100.0%
End of Gravel Mining Reach to downstream of Waterford (RM 34.2 to RM 29)			
Riffle	21	6,077	21%
Run/Glide	20	20,885	72%
Pool	2	1,951	7%
Totals	43	28,913	100%

3.4 IFIM/1-D PHABSIM study

3.4.1 Study site selection

Study sites for instream flow data collection will be established in a stepwise process following guidelines from Bovee (1982). First, the study area will be reviewed for possible

segmentation into reaches. Reach segmentation will be based primarily on changes in stream gradient (associated with geomorphic condition), and/or hydrology that may cause habitat types in one reach to display significant hydraulic differences from the same habitat type in another reach (*e.g.*, low gradient riffles in one reach have consistently greater depth or velocity than low gradient riffles in another reach). Stream gradient will be determined using existing topographic data and displayed as a longitudinal profile of elevation versus river mile within the study area.

Second, areas for study sites will be identified. Sites that contain the full complement of common (>10–15% of stream length in the reach) and modelable (*e.g.*, not high gradient riffles or other areas with high air entrainment or significantly non-laminar flow) habitat units in a safe and legally accessible section of stream will be identified. Within these areas, study sites will be established via consensus with the fish resource agencies. In the event consensus is not achieved on study sites, they will be determined by randomly selecting a starting habitat unit (using a random number table or similar device) among the least common habitat unit types. From that starting habitat unit, transect locations will be established in adjacent habitat units (heading upstream or downstream) until the requisite transects are placed in the specified habitat units, as described below. Where possible, sites will be co-located in areas where data have been collected for other studies in order to maximize the potential for integrated data analysis.

An exception to the above protocol will be implemented for habitat units at known spawning sites. Analysis for these units will preferentially target historical high-use spawning sites for Chinook salmon, based on prior surveys and redd counts.

3.4.2 Transect selection

Within each study site, transects will be placed in each habitat unit to be sampled either by professional judgment and concurrence of the transect selection team, or based on a stratified random sampling protocol. The stratified random sampling protocol would involve random placement of transects within strata of similar hydraulic characteristics within each habitat unit, except where such placement would result in transects running through a hydraulic anomaly or other feature (*e.g.*, re-circulating or vertical flow, brush in channel, etc.) that cannot be accurately modeled. In these cases, the transect will be relocated (either placing the transect using professional judgment and concurrence among the transect selection team, or by specifying an arbitrary distance up or downstream of the original location). Transects will be distributed in run, riffle, and pool habitat types. No transects will be placed in habitat units located on private property without the consent of the landowner.

Transect placement will target locations where there is no more than a 0.1 foot difference in stage across the transect and where the velocity profile across the transect is dominantly perpendicular to the transect. Areas with transverse flows, across-channel variation in water surface elevations, or flow contractions/expansions will be avoided.

A sufficient number of transects will be established to model approximately three replicates of each major habitat unit type in the reach (*i.e.*, runs, riffles, and pools), with the number of replicates dependent on the relative proportions of the major habitat unit types (*i.e.*, there

may be more than three replicates of the most common unit type, and fewer of the least common unit type). It is expected that relatively hydraulically homogeneous habitat units will require 1–3 transects per replicate; relatively heterogeneous habitat units will require 2–5 transects per replicate. The final number of transects proposed for the reach will depend on habitat complexity as well as target resource values in the reach, and will be determined during a field site visit with concurrence of agency representatives. If there is not agreement on the appropriate number of transects, the issue will be referred to FERC for final determination.

3.4.3 Field data collection

Target calibration flows will be relatively evenly spaced (on a log scale) and selected to allow the models to simulate in-channel flows over a range covering the current minimum flow (50 cfs) up to approximately 1,000+ cfs, with a target of having the lowest simulated flow at no less than 0.4 of the lowest calibration flow and the highest simulated flow at most 2.5 times the highest calibration flow. The proposed target calibration flow ranges are as follows:

- low flow calibration: approximately 100 cfs;
- middle flow calibration: 250 cfs; and
- high flow calibration: 600 cfs.

Velocity data sets will be collected at all transects at the middle calibration flow, and water surface elevation (WSE) will be collected along each transect at all calibration flows.

3.4.3.1 Hydraulic data

Hydraulic data collection and recording will use standard procedures and guidelines for PHABSIM field studies (Trihey and Wegner 1981; Milhous et al. 1984). In general, hydraulic data collection includes establishing independent elevation reference benchmarks for level control, as well as semi-permanent headpins and tailpins at each transect. Water surface elevations will be measured using an auto-level and stadia rod along each transect at each calibration flow; WSE will be measured near each bank (to the nearest 0.01 foot), and in mid-channel areas where a significant difference between the near-bank WSE exists. A level loop survey tied to the local benchmark will be conducted at each calibration flow to ensure the accuracy of each survey. Benchmark and transect locations will be recorded with a GPS, where feasible.

The local benchmarks established for each transect will serve as the reference elevations to which all elevations (streambed and water surface) are tied. The benchmarks will consist of items that will not change elevation over time, such as lag bolts driven into trees, painted bedrock points, or local infrastructure. Benchmarks will be tied together, where practical, for the upstream and downstream transects at each site, for efficient analysis and QA/QC procedures.

Channel cross section profiles above the highest measured calibration flow will be surveyed (to the nearest 0.1 foot) with a stadia rod and auto-level or total station to establish the

overbank channel profile up to or beyond the water's edge at the highest flow to be modeled, with sufficiently close spacing of verticals to document changes in slope. In-channel profiles will be calculated by subtracting the depth of water measured during the velocity measurements from the average WSE. Additional topographic data collection for each transect will include stage-of-zero-flow (SZF) elevation, which is the controlling elevation within or downstream of the transect line below which flow ceases.

Temporary and permanent staff gage readings and time-of-day will be recorded at the beginning and end of each transect measurement to check that the stage had not changed appreciably during the transect measurement nor the calibration flow measurement for the entire study site.

Depths and mean column water velocities will be measured across each transect at the middle calibration flow. The number of cells sampled for depth and velocity is based on a goal of retaining a minimum of 20–25 stations that would remain in-water at the low calibration flow. Discharge measurements will be collected at each calibration flow following techniques outlined in Rantz (1982). Discharge measurements will be made at each grouping of transects in hydrologically distinct areas using either an existing habitat transect (if deemed suitable) or at some other suitable transect established solely for measuring discharge. These discharge measurements will be used in conjunction with data from the La Grange gaging station (USGS No. 11289650) to determine more precisely the calibration flow and account for accretion, if any, within the study reach.

3.4.3.2 Velocity measurements

Velocity measurements will be made using a Marsh-McBirney Flo-mate pressure transducer-type velocity meters (Hach Corporation, Loveland CO), mounted on standard top-set USGS wading rods. Velocities will be measured at six-tenths of the depth (0.6 depth) when depths were less than 2.5 feet, and at two-tenths (0.2 depth) and eight-tenths (0.8 depth) of the depth when depths equal or exceed 2.5 feet or when the expected velocity profile is altered by an obstruction immediately upstream. In instances of increased turbulence or obstructions, measurements may be taken at all three depths (0.2, 0.6, and 0.8) and a weighted average calculated (Bovee and Milhous 1978). Where transects have a series of water depths greater than approximately 3.5 feet, depth and velocity will be measured using an Acoustic Doppler Current Profiler (ADCP) mounted on a mini-cataraft. The ADCP uses acoustic pulses to measure water velocities and depths across the channel. The ADCP is connected by cable to a power source and a radio modem with data transmitted to a shore-based laptop computer.

3.4.3.3 Substrate data

Data collection at each transect will include substrate and/or cover codes compatible with proposed species HSC. Substrate composition and cover types will be recorded in the field at each cross section location where channel geometry data are collected. Substrate coding, as applicable and feasible (depending on nature of source data), will be adapted to the coding systems specified in Table 5a (from USFWS and CDFG) and/or Table 5b (from prior mapping of the lower Tuolumne River for the Coarse Sediment Management Plan [McBain & Trush 2004]).

Table 5a. Proposed substrate types for the Lower Tuolumne IFIM study. [Use of these codes is subject to final decisions on habitat suitability criteria for substrate]

Substrate Type	Particle Size (inches)
Sand/Silt	< 0.1
Small Gravel	0.1 – 1
Medium Gravel	1 – 2
Medium/Large Gravel	1 – 3
Large Gravel	2 – 3
Gravel/Cobble	2 – 4
Small Cobble	3 – 4
Small Cobble	3 – 5
Medium Cobble	4 – 6
Large Cobble	6 – 8
Large Cobble	8 –10
Large Cobble	10 –12
Boulder/Bedrock	> 12

Table 5b. Coarse sediment size gradation chart showing particle size class descriptions and sizes.

Particle Size Class		Particle Size (mm)	Particle Size (in)
Boulder	**Very Large**	4,096	161.2
		2,896	114.0
	Large	2,048	80.6
		1,448	57.0
	Medium	1,024	40.3
		724	28.5
	Small	512	20.1
		362	14.2
Cobble	**Large**	256	10.1
		181	7.1
	Small	128	5.0
		90.5	3.6
Gravel	**Very Coarse**	64.0	2.5
		45.3	1.8
	Coarse	32.0	1.2
		22.6	0.9
	Medium	16.0	0.6
		11.3	0.4
	Fine	8.00	0.3
		5.66	0.2
	Very Fine	4.00	0.2
		2.83	0.1
		2.00	0.1

Notes:
1. Adapted from McBain & Trush 2004
2. Particle sizes less than 2mm are classified as sand (2-0.063mm), silt (0.063-0.0093mm), and clay (<0.0093mm).

3.4.4 Hydraulic modeling

The hydraulic models used for instream flow studies utilize the data collected in the field for calibration of water surface elevations, discharge, and velocities over a range of flow simulations. The hydraulic modeling will result in output files of hydraulic parameters (depths, velocities, etc.) used in the habitat analysis.

3.4.4.1 Stage-discharge calibration

Stage-discharge relationships are developed from measured discharge and water surface elevation (WSE) using an empirical log/log formula (commonly referred to as IFG-4), or by using a channel conveyance method (referred to as MANSQ). Using the log/log and channel conveyance methods, each transect is treated independently. The IFG-4 method requires a minimum of three sets of stage-discharge measurements and an estimate of SZF for each transect. The quality of the stage-discharge calibration using the IFG-4 method is evaluated by examination of mean error and slope output from the model. MANSQ only requires a single stage-discharge pair, though additional pairs are advisable for validation, and uses Manning's equation to determine a stage-discharge relationship (Bovee and Milhous 1978). In situations where irregular channel features occur on a cross section, for instance bars or terraces, MANSQ is often better at predicting higher stages than IFG-4. MANSQ is most often used on riffle or run transects and is not suitable for transects that have backwater effects from downstream controls, such as pools. It can also be useful as a test and verification of log/log stage discharge relationships.

The Water Surface Profile (WSP) program for use in developing stage-discharge predictions can also be used, but due to its limited application for riffle and run habitat, and its reliance on additional hydraulic control transects, it is not expected to be used extensively in this study, although it may be applicable for certain pool habitat simulations. For the purposes of this study, the IFG-4 program is proposed as the primary method for developing the stage-discharge relationship.

3.4.4.2 Velocity calibration

The preferred method for simulating water velocities is the "one-flow" option. This technique uses a single set of measured velocities to predict individual cell velocities over a range of flows. Simulated velocities are calibrated to measured data and a relationship between a fixed roughness coefficient (Manning's 'n') and depth is developed. In some cases, roughness is modified for individual cells if substantial velocity errors are noted at simulation flows. Velocity adjustment factors (VAFs) are examined to detect any significant water velocity deviations and determine if velocity changes at simulated flows remain consistent with changes in stage and total discharge.

3.4.4.3 Calibration metrics

Various calibration metrics will be used as target values to evaluate performance of the IFG-4 hydraulic model. Although these are not strict thresholds to determine usefulness of the data, an effort will be made to calibrate the model to these standards.

- A beta value (a measure of the change in channel roughness with changes in streamflow) between 2.0 and 4.5;
- Mean error in calculated versus given discharges less than ten percent;
- No more than a 25% difference for any calculated versus given discharge
- No more than a 0.1 foot difference between measured and simulated WSELs
- Mean stage-discharge regression error for all transects less than 10%, and 5% or less for 90% of the transects.
- Velocity Adjustment Factor (VAF) values of 0.2 to 5.0 with a pattern of monotonic increase with an increase in flows and values between 0.90 and 1.10 at the calibration flow.

3.4.5 Target species and habitat suitability criteria (HSC)

Proposed HSC for the current instream flow study will consider the following target species and lifestages:

- *O. mykiss:* adult, spawning, fry, and juvenile.
- Fall-run Chinook salmon: spawning, fry, and juvenile.

Existing HSC data will be compiled for the target species and lifestages, in collaboration with the agencies, to create a database of curves that can be reviewed for applicability to the proposed study. Habitat suitability criteria from prior lower Tuolumne River studies (Tables 6 and 7 will be included in the HSC database for consideration. The database of curves will be reviewed in consultation with the agencies, and screening criteria applied as necessary to minimize the number of curves for further consideration. Proposed screening criteria will include the following, although no single criterion will be used to qualify or disqualify a curve from further consideration.

- Minimum of 150 observations
- Clear identification of fish size classes
- Depth and velocity HSC
- Category II or III data (Bovee 1986)
- Comparable stream size and morphology (*e.g.*, hydrology, stream width and depth, gradient, geomorphology, etc.)
- Source data from the lower Tuolumne River (or other Central Valley streams)
- Habitat availability data collected
- Data collected at high enough flow that depths and velocities are not biased by flow availability
- Availability of presence/absence data

Table 6. Habitat suitability criteria summary from 1981 CDFG IFIM study.

Species	Lifestage	Depth	Velocity	Substrate	Source
Chinook	Spawning	Yes	Yes	Yes	Site-specific
Chinook	Fry	Yes	Yes	All suitable	Unknown
Chinook	Juvenile	Yes	Yes	All suitable	Unknown
Rainbow	Adult	Yes	Yes	Yes	Raleigh et al. (1984)
Rainbow	Juvenile	Yes	Yes	Yes	Raleigh et al. (1984)

Table 7. Habitat suitability criteria summary from USFWS (1995) IFIM study.

Species	Lifestage	Depth	Velocity	Substrate	Source
Chinook	Spawning	Yes	Yes	Combined Substrate / Embeddedness Code	Bovee (1978)
Chinook	Fry	Yes	Yes	All suitable	Bovee (1978)
Chinook	Juvenile	Yes	Yes	All suitable	Bovee (1978)
Rainbow	Adult	Yes	Yes	Combined Substrate / Embeddedness Code	Bovee (1978)
Rainbow	Juvenile	Yes	Yes	Combined Substrate / Embeddedness Code	Bovee (1978)

Following a review and discussion of applicable HSC curves, existing curves may be selected and/or modified for use on the proposed study, or site-specific HSC curves may be developed as deemed appropriate in collaboration with technical experts from the stakeholder group. If there is not agreement on HSC curves to use, the issue will be referred to FERC for final determination.

3.4.6 Habitat modeling

Habitat will be modeled using the HABSIM submodel provided in the RHABSIM software (analogous to HABTAE, HABTAT, etc.). The habitat model combines the hydraulic and HSC components to generate the weighted usable area (WUA), in square feet per 1,000 ft of stream) of the stream for each species and life stage at each simulated flow. The standard option of multiplying individual variable suitabilities (velocity*depth*substrate or cover) for cell centroids will be used to calculate WUA. This output will be proportioned over all habitat types (using the relative abundance of each habitat type and transect as a weighting factor) to obtain the reach-wide estimate of WUA by life-stage. An example of the transect weighting procedure is depicted in Figure 2. WUA versus flow curves will be developed to aid in the interpretation of these habitat flow relationships.

3.4.7 Total habitat time series

A habitat time series (HTS) analysis (Bovee 1982) is proposed for flows up to a maximum of approximately 1,000 cfs (the upper end of the hydraulic modeling range). The HTS analysis uses the WUA versus flow relationship and combines it with current or alternative hydrologic conditions to generate WUA by day under selected flow regimes (including accretion estimates) for different water year types. Figure 3 presents a conceptual example of HTS results. Daily flow values for the study reach under varying water-year types will be

obtained from USGS gage records and used for the analysis. The Total HTS results will be used as the first step in calculation of an Effective Habitat Time Series described below.

3.4.8 Effective habitat time series development

In addition to the standard WUA results as described in the Habitat Modeling and Total Habitat Time Series sections, a secondary analysis showing the "effective" WUA (eWUA) will be conducted. This analysis relates to summertime water temperature suitability for *O. mykiss*, and integrates both micro- and macro-habitat considerations. The results from the HEC-5Q water temperature model (Stillwater Sciences 2009) over a range of flows will be combined with the summer WUA results so that areas ("macrohabitats") with unsuitable water temperatures are excluded from the total WUA sum. In other words, if a given reach has 100,000 square feet of suitable habitat (WUA) based on hydraulic microhabitat conditions at flow 'X', but 30 percent of the reach at flow 'X' is above a critical temperature threshold for the species life stage of interest, the eWUA would be 70,000 square feet. This type of analysis was previously conducted, at a coarser level by Stillwater Sciences (2003), using a combination of the 1992 IFIM evaluation for the lower Tuolumne River (USFWS 1995) and the earlier SNTEMP model results (TID/MID 1992, Appendix 18). The methods are explained more fully in Bovee (1982).

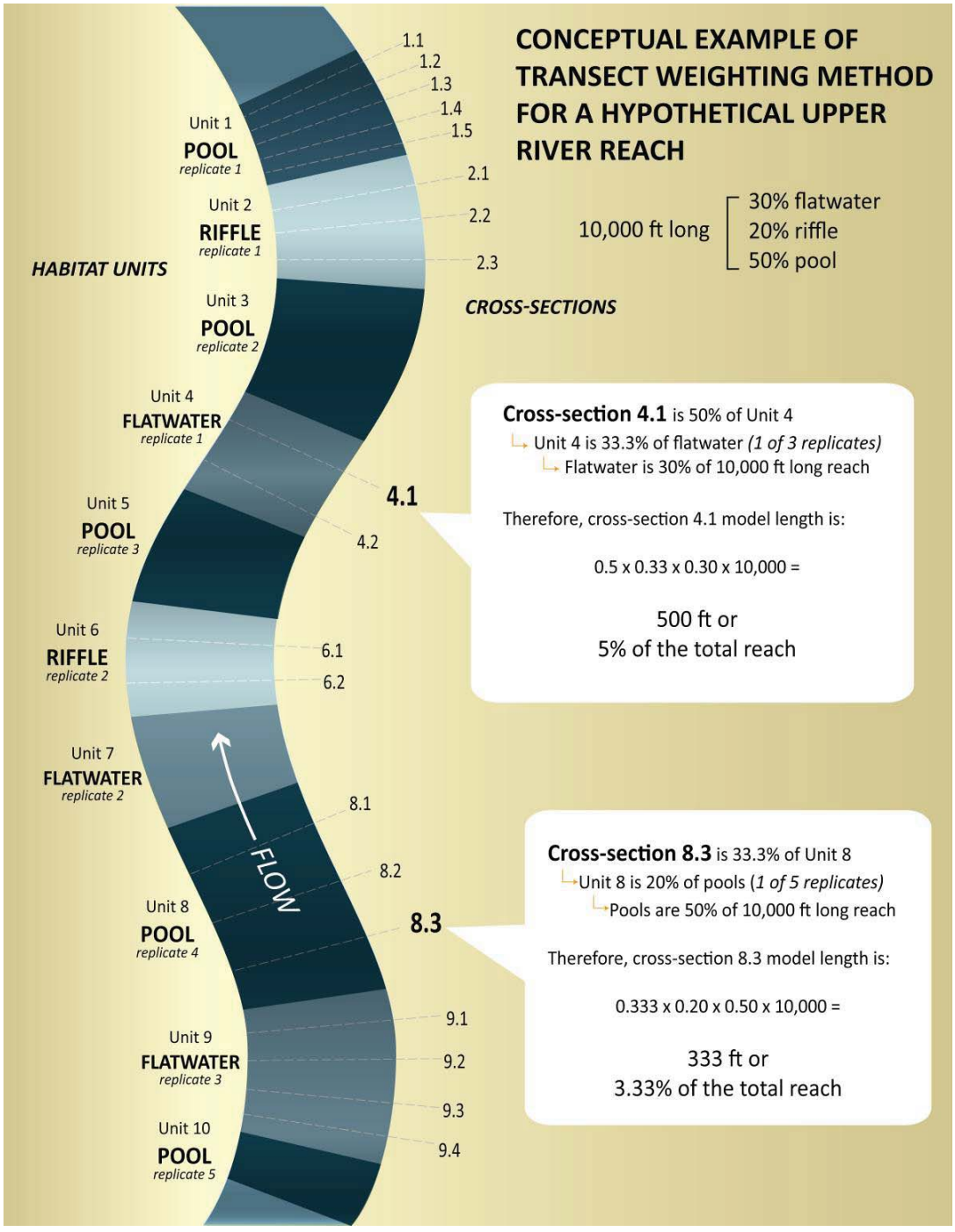


Figure 2. Conceptual example of transect weighting method for reach extrapolations proposed for the lower Tuolumne River IFIM study.

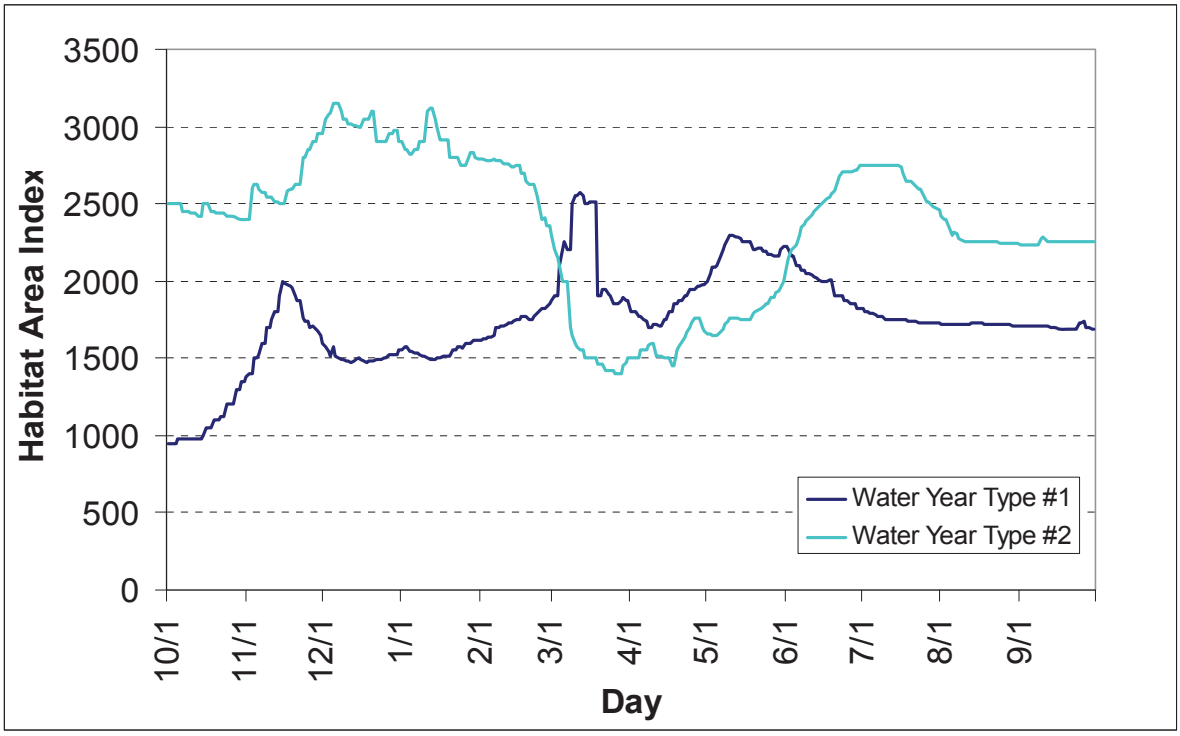


Figure 3. Conceptual example total habitat time series output for the IFIM study.

3.5 Pulse flow assessment

The pulse flow assessment will evaluate spring pulse flows of 1,000 to 5,000 cfs and fall pulse flows of up to 1,500 cfs, as specified in the Order. The detailed approach involves use and expansion of existing topographic maps of the lower Tuolumne River floodplain (RM 52–RM 29), combined with development of a high flow stage-discharge relationship for these same areas as inputs to the River2D hydraulic model (Steffler and Blackburn 2002) or similar two-dimensional modeling software (such as MD-SWMS). The objectives of the assessment are to: 1) gather empirical data on the relationship between water temperature and flow during pulse flow events, and 2) assess habitat usability and habitat segmentation for lower Tuolumne River fish species during pulse flow conditions.

3.5.1 Pulse flow study site selection

Study sites for the pulse flow assessment will include up to four (4) locations upstream of RM 29 (including the gravel-bedded portion of the river used most extensively by salmonids between RM 34.2 to RM 51.7), in addition to other restoration sites (*e.g.*, special run/pool [SRP] 9) where there is existing 2-D modeling data. Study site selection will include areas where significant floodplain inundation is expected at flow ranges up to 5,000 cfs.

3.5.2 Cross section and topography development

Existing LiDAR coverage of the lower Tuolumne River floodplain (RM 52–29), originally developed from aerial surveys of 21 September 2005 at river flows of 321 cfs will be used to for development of the model cross sections and topography. A digital elevation model (DEM) will be used within GIS to develop hydraulic model cross sections, with bathymetric data below the 321 cfs water surface developed (where necessary) using standard survey methods described in Section 3.4.3.1. The existing LiDAR coverage will be point-checked for accuracy, and if significant topographic changes are detected, options for obtaining updated LiDAR coverage will be investigated.

3.5.3 High flow stage discharge relationships

Stage discharge relationships at high flows will be developed at each pulse flow study site within the lower Tuolumne River using either standard survey techniques (where timing and flow conditions allow) or pressure transducers (InSitu® miniTroll) placed in a protective PVC pipe housing and mounted along the active river channel using rebar and foundation stakes. If possible, the pressure transducer elevations will be established using a total station (Sokkia® SET600 or similar) and prism to tie in to an established local benchmark. If this is not possible, the pressure transducer elevation will be tied to an installed temporary benchmark.

The stage recorders will be set at a 15-minute interval and will record corresponding stages to lower Tuolumne River flows of up to 5,000 cfs. Test flows for the pulse flow assessment will include 2,000 cfs, 3,000 cfs, and 5,000 cfs to develop the high flow stage discharge relationship. In the event that the following hydrology conditions are met in the first year of study, tests will occur during the March–May period.

a. The estimated 60-20-20 Index (using 50% exceedance probability) for the then current water year based upon the CDWR within-month March runoff forecast update following March 15 is at least 4.2, provided that (1) daily computed natural flows for both the Tuolumne and San Joaquin Rivers in excess of 50,000 cfs are excluded and (2) the Tuolumne River comprises at least 31% of the index.
b. The 60-20-20 Index for the immediately preceding water year was at least 4.2.
c. The target flow shall be subject to any flow and/or timing limitation required by the VAMP study.
d. The target flow shall be subject to any flow and/or timing limitation required by the Corps of Engineers.

In the event that these high flow conditions are not necessitated by naturally occurring wetter hydrologic conditions (resulting in flood releases in excess of the 301 thousand acre-feet (TAF) annual FERC flow requirements), the Districts will delay data collection for up to 2 years or may alter the intermediate test flows above.

3.5.4 2-D hydraulic model development

River2D model input includes a) topography of the river channel; b) roughness of the channel expressed as a roughness height; c) discharge; and d) downstream water surface elevation. The topography will be developed from the existing LiDAR-derived DEM (subject to the constraints noted in Section 3.5.2 above), whereas elevation data will be developed from the stage discharge relationships described above. Channel roughness will be based on a combination of this topography and professional judgment as a calibration parameter in addition to changes in the finite element network to achieve representative modeled water depths at a given discharge. As an additional calibration, model outputs will be compared to existing flood area inundation maps (TID/MID 2005, Appendix F) previously developed at a wide range of flows (100, 230, 620, 1,100, 3,100, 5,300, and 8,400 cfs).

3.5.5 2-D model simulations and anticipated results

The calibrated 2-D model will be used to simulate flow routing and velocity vectors in both the in-channel areas at pulse flows of 1,000 cfs and 1,500 cfs. In addition, the model will be used to simulate intermediate high flows of 2,500 cfs up to 5,000 cfs. The results of the pulse flow assessment will be used to examine habitat suitability for migratory life stages of lower Tuolumne River salmonids as well as habitat preferences of predators such as largemouth bass *(Micropterus salmoides)* and smallmouth bass *(M. dolomieu)*. During high flows (*e.g.*, spring pulse flows), outmigrating salmon smolts generally use more central portions of the channel, while bass likely seek lower velocities and warmer water near channel margins, as previously examined at individual in-channel restoration sites (McBain & Trush and Stillwater Sciences 2006).

For example, hydraulic modeling conducted at a restored in-channel mining pit ("Special Run Pool" or SRP 9) for pre- and post-project conditions using the River 2D model (Steffler and Blackburn 2002) indicates that the project increases habitat segregation between bass and outmigrating Chinook salmon and may provide a "safe-velocity corridor" for outmigrant salmon during relatively low flow conditions (McBain & Trush and Stillwater Sciences 2006). Modeling for the SRP 9 study suggested that, due to distinct differences in habitat usability between bass and salmon, this effect will occur at predictable flow thresholds in specific habitat types (*e.g.*, riffles and unrestored mining pits habitats). Because high flows may help to spatially separate predators and salmon smolts, the pulse flow study may provide a mechanistic linkage between reductions in the exposure of juvenile salmon to predation at high flows.

Lastly, the pulse flow study will be coordinated with any test flows that examine movement patterns of juvenile Chinook salmon in ongoing rotary screw trap (RST) monitoring, or high flows that are released in relation to fall spawner attraction flows.

3.6 Management alternatives

Management alternatives for the lower Tuolumne River will be considered following completion of the IFIM study and pulse flow assessment detailed in this plan, as well as the Water Temperature study (Stillwater Sciences 2009) included in the Order. Results of these investigations will be evaluated in the context of available information from other studies of

the lower Tuolumne River and consideration of other beneficial uses of Tuolumne River water cited in the San Joaquin River Basin Plan (CVRWQCB 1998) and including: agricultural supply (AGR), cold freshwater habitat (COLD), fish migration (MIGR), municipal and domestic supply (MUN), water contact recreation (REC1), noncontact recreation (REC2), fish spawning (SPWN), warm freshwater habitat (WARM), and wildlife (WILD).

4 REPORTING

A progress report of the Year 1 and Year 2 data collection efforts, including any changes to the proposed study plan, will be made to the Commission by July 1 in each of two years (2010 and 2011). Following completion of the field studies and analysis, a draft report will be prepared detailing the study methods and results. The draft report will be circulated to the stakeholders for a 30-day review period. Comments will be addressed in a final report that will be filed with FERC within 60 days from the end of the 30-day review period.

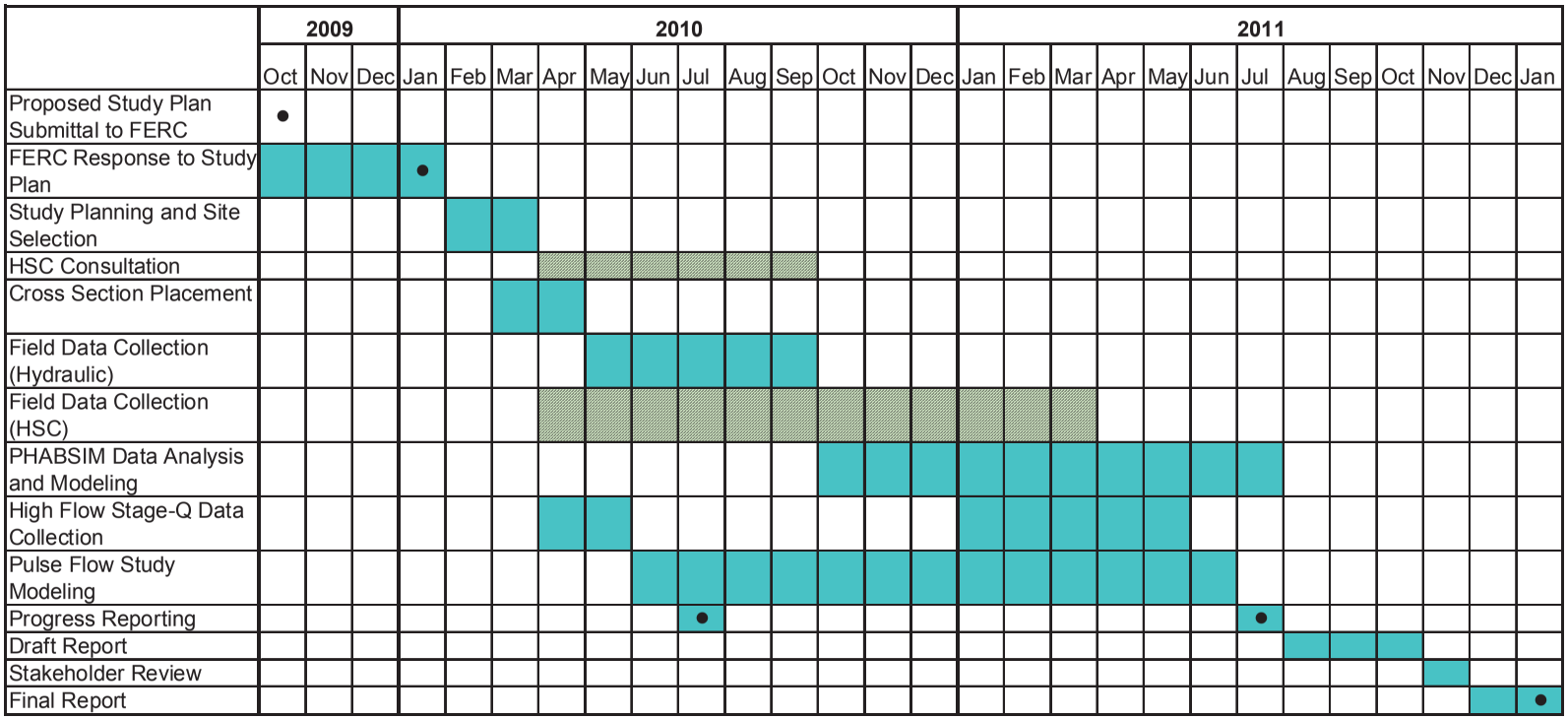
5 SCHEDULE

A proposed schedule is provided in Table 8, and graphically represented in Figure 4. The schedule is predicated on an anticipated study plan acceptance date from FERC. A major factor in the proposed schedule is the development of HSC. Although existing HSC are proposed for the lower Tuolumne River, the proposed schedule assumes that site-specific HSC could be necessary for one or more species or life stages, and analytical and reporting tasks are scheduled accordingly. Lastly, for the pulse flow assessment, stage data collection for the highest flow ranges (up to 5,000 cfs) may be delayed from 2010 until appropriate wet year hydrology occurs (flood releases in excess of the 301 TAF annual FERC flow requirements.

Table 8. Proposed schedule for lower Tuolumne River instream flow study implementation.

Item	Dates (duration)	Days from FERC Approval of Study Plan
Proposed Study Plan Submittal to FERC	October 14, 2009	--
FERC Response to Study Plan	January 12, 2010 (90d)	
Study Planning and Site Selection	January 13 to March 13, 2010 (60d)	60
Habitat Suitability Criteria Consultation	March 13 to September 9, 2010 (150d)	240
Cross Section Placement	March 14 to April 27, 2010 (45d)	105
Field Data Collection (Hydraulic)	April 28 to September 24, 2010 (150d)	255
Habitat Suitability Criteria Field Data Collection (if necessary)	April 1, 2010 to March 31, 2011 (365d)	443
Data Analysis (presuming HSC field data collection or 2011 high flow data collection)	April 1, 2011 to July 29, 2011 (120d)	563
High Flow Stage Discharge Data Collection	March 31, 2010 to June 1, 2010 (62d) or January 15, 2011 to June 1, 2011 (137d)	505
Pulse Flow Study Data Analysis and Modeling	June 1, 2010 to June 30, 2011 (394d)	534
Progress Reporting	July 1, 2010 and July 1, 2011	--
Draft Report	October 27, 2011 (90d)	653
Stakeholder Review	November 26, 2011 (30d)	683
Final Report	January 25, 2012 (60d)	743

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G



Note: HSC consultation and field data collection tasks are somewhat independent of other schedule elements of the IFIM Study, but are shown to provide context.

• indicates due date

Figure 4. Proposed schedule for implementation of FERC-ordered instream flow studies.

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From: Devine, John
Sent: Thursday, May 19, 2011 10:11 AM
To: Richard Roos-Collins; Staples, Rose; Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Dixie, Yakima K - CVMT; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Julie Gantenbein; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Cc: Steve Rothert
Subject: RE: Don Pedro - Final List April 1 Meeting Questions/Requests and Responses to Data Gap Study Requests April 19-20 RWG Meetings

Richard,

We will add these to the Project Tracking List, and try to respond in a timely manner.

John Devine, P.E.
Senior Vice President
HDR|DTA
970 Baxter Blvd, Suite 301| Portland, ME | 04103
Office: 207.775.4495 | Fax: 207.775.1742
Cell: 207-776-2206
Durango, CO: 970-385-4995

From: Richard Roos-Collins [mailto:rrcollins@waterpowerlaw.com]
Sent: Wednesday, May 18, 2011 2:47 PM
To: Staples, Rose; Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Dixie, Yakima K - CVMT; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Julie Gantenbein; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan - CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Cc: Steve Rothert
Subject: RE: Don Pedro - Final List April 1 Meeting Questions/Requests and Responses to Data Gap Study Requests April 19-20 RWG Meetings

John:

I reply to your May 5th response (below) regarding a possible study of the relative significance of stressors for the anadromous fisheries which are present in the lower T.

You state that we requested a study of mitigation measures for non-project stressors. That is incorrect. We appear to have a misunderstanding, and I apologize if I was unclear in making the oral request. Let me try again.

Our April 20th request was that the Districts undertake a study to evaluate the relative effects of project ops and other stressors on these fisheries in the lower T. How do project ops affect each of these fisheries – its population, geographic distribution, age distribution, or habitat, whether overall or by life stage? Next, can we distinguish the effects of the project relative to other stressors? Ranging geographically from furthest to closest, these non-project stressors plainly include: ocean harvest and other conditions, Delta pumps, bass and other predators in the old mining pools, and water supply diversions in the lower T.

The Districts and CCSF submitted extensive testimony on this general topic during the 2009 hearing. I understood this testimony to mean that the existing record does not allow FERC to distinguish the effects of the project relative to these and other non-project stressors. I understood this testimony to mean, in the alternative, that the existing record does not show that the project effects are significant, given the cumulative effects of other stressors. I attach one declaration as an example of this testimony.

So, to continue the discussion which started on April 20th….You state below that certain non-project stressors are "among the most significant."

- What do you mean by significant?
- What is the basis for your conclusion that the non-project stressors you listed have significant effects?
- Since you use a comparative term ("among the most significant"), what evidence in the existing record is the basis for the comparison – e.g., ranking these non-project stressors as more significant than others?
- Does the existing record show whether project ops are a stressor for these fisheries?
- Does the existing record show whether the project ops are a significant stressor? (I adopt whatever meaning you intended in using the term "significant" in your May 5th email.)

Thanks. I regret that I will be unable to attend the team meeting today or tomorrow. RRC

_____

Richard Roos-Collins
Principal,
Water and Power Law Group PC

Subject: FW: Don Pedro Relicensing: Aquatic and Water Resources Meeting
Location: Modesto, CA

Start: Thu 5/19/2011 12:00 PM
End: Thu 5/19/2011 4:00 PM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Loy, Carin

For those of you who are participating in the Don Pedro RWG AQUATIC-WATER RWG Meeting, here is the link (below) to web conferencing in to the meeting. If you have LIVE MEETING software installed on your computer, just click on the JOIN MEETING link below. If not, you will need click on the link beneath the FIRST TIME USERS line. Any problems, please let me know. Thank you.

PS: This message is being sent to the entire participants list.

-----Original Appointment-----
From: Loy, Carin
Sent: Thursday, May 19, 2011 12:13 PM
To: Loy, Carin; Staples, Rose
Subject: FW: Don Pedro Relicensing: Aquatic and Water Resources Meeting
When: Thursday, May 19, 2011 12:00 PM-4:00 PM (GMT-05:00) Eastern Time (US & Canada).
Where: Modesto, CA

From: carin.loy@hdrinc.com [carin.loy@hdrinc.com]
Sent: Wednesday, May 18, 2011 1:17 PM
Subject: Don Pedro Relicensing: Aquatic and Water Resources Meeting
When: Thursday, May 19, 2011 9:00 AM-1:00 PM.
Where: Modesto, CA

When: Thursday, May 19, 2011 9:00 AM (PDT)
Where: Modesto, CA

+~+~+~+~+~+~+~+~+~+

The call-in number for the audio portion will be: 866-994-6437, conference code 5424697994. Thank you.

Carin Loy has invited you to present at an online meeting using Live Meeting.

Join the meeting.

Audio Information

Audio has not been set up for this meeting.

First Time Users:

To save time before the meeting, check your system to make sure it is ready to use Microsoft Office Live Meeting.

Notes

Troubleshooting

Unable to join the meeting? Follow these steps:

1. Copy this address and paste it into your web browser:
   https://www.livemeeting.com/cc/hdrinc/join
2. Copy and paste the required information:
   Meeting ID: 7SCJZD
   Entry Code: 5F[/]dh#B
   Location: https://www.livemeeting.com/cc/hdrinc

If you still cannot enter the meeting, contact support

Notice

Microsoft Office Live Meeting can be used to record meetings. By participating in this meeting, you agree that your communications may be monitored or recorded at any time during the meeting.

From: Staples, Rose
Sent: Friday, May 20, 2011 7:38 PM
To: Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Subject: Don Pedro RWG Meetings Reference Material Posted in a New Location

On the Don Pedro relicensing website, rather than having to drill down through the various MEETINGS levels to reach the material referenced in the RWG meetings, I have created for your viewing four (4) new folders, accessible from the INTRODUCTION TAB (http://www.donpedro-relicensing.com/Lists/Announcements). These folders are called *Cultural RWG Reference Material*,

Recreation RWG Reference Material, *Aquatic-Water Reference Material*, and *Terrestrial RWG Reference Material*. I will keep these folders near the top of the announcement list at all times. I have moved the two 2009 study plans (Water Temp and IFIM) into the Aquatic-Water folder and the two Terrestrial references released earlier in the week into the Terrestrial folder.

Please note that the Recreation RWG folder contains five (5) NEW files, requested at the May 18 Recreation RWG meeting, containing 2005, 2007, 2008, and 2010 Visitor Information.

I will also be creating another new folder, in the same location, for us to keep the most up-to-date release of the *Progress Tracking List (PTL).*

Rose Staples, CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com

2005 Annual Pass Visitor Days								
MONTH	Monthly Base Total	1 Day	2 Days	3 Days	4 Days	5 Days	6 Days	TOTAL
January	898	669	207	229	63	56	135	**1,359**
February	1,159	863	267	296	81	72	174	**1,753**
March	1,804	1,344	415	460	126	113	271	**2,729**
April	2,612	1,946	601	665	183	163	392	**3,950**
May	4,173	3,109	960	1,064	292	261	626	**6,312**
June	4,689	3,493	1,078	1,197	328	293	703	**7,092**
July	5,198	3,873	1,196	1,325	364	325	780	**7,863**
August	4,609	3,434	1,060	1,175	323	288	691	**6,971**
September	3,569	2,659	821	910	250	223	535	**4,472**
October	1,502	1,119	345	383	105	94	225	**2,307**
November	1,204	897	277	307	84	75	181	**1,450**
December	755	562	174	193	53	47	113	**1,142**
Final total of annual pass visitor days for the year 2005								47,400

Exhibit A

YEAR "2005" CUL-DE-SAC USE
VISITOR DAY SAMPLING PROGRAM

(page 2)

Definitions (types) and Numbers of Visitor Days Sampled:

In Season- defined as April 1 through September 30

Off Season- defined as Jan. 1 through March 31, Oct. 1 through Dec. 31

Abbrev.	**Definition** (Visitor Day Type)	**Number of such days in 2005**	**Number of such days sampled in 2005**	**Off Season Holidays (10 total)** (Jan-March, Oct.-Dec.)	**In Season Holidays (15 total)** (April-Sept.)
OSWD	Off Season Weekday	123	9	New Years Day (1/1)	Mother's Day (5/8)
OSWE	Off Season Weekend day	48	4	Martin Luther King (1/17)	Mem. Wknd. (5/27,28,29)
OSH	Off Season Holiday	10	3	President's Day (2/21)	Memorial Day (5/30)
				Easter (3/27)	Father's Day (6/19)
ISWD	In Season Weekday	125	15	Columbus Day (10/10)	4th of July Wknd. (7/1,7/2,7/3)
ISWE	In Season Weekend day	44	13	Veteran's Day (11/11)	4th of July Day (Mon. 7/4)
ISH	In Season Holiday	15	6	Thanksgiving Day (11/24)	Labor Day Wknd. (9/2,9/3,9/4)
	Total days	365	50	Day After Thanksgiving (11/25)	Labor Day (9/5)
				Christmas Eve (12/24)	
				Christmas Day (12/25)	

Cul-de-Sac Use (Average number of visitors per type of visitor day sampled for each specific cul-de-sac):

Cul-de-Sac *(10 sampled)*	**OSWD**	**OSWE**	**OSH**	**ISWD**	**ISWE**	**ISH**
Ward's Ferry	2	3	2	8	24	21
Hwy. 120	2	4	3	5	14	10
Harney Lane	1	2	2	4	7	6
Stent- Jacksonville / River Road	1	1	1	3	3	4
Kanaka Creek	3	5	4	6	16	30
Moccasin Creek	5	11	6	10	18	25
Shawmut Road	3	4	2	5	11	15
Roger's Creek / Hwy. 132	10	29	21	15	43	51
Gillman	1	1	1	1	1	1
Ramos Creek	3	6	3	7	11	13
TOTAL (# visitors for each type of visitor day)	**31**	**66**	**45**	**64**	**148**	**176**

YEAR "2005" CUL-DE-SAC USE
VISITOR DAY SAMPLING PROGRAM

(page 1)

Total Number of Cul-de-sac Visitors in the year "2005" for each type of Visitor Day:

Visitor Day Type	Number of such days in 2005	Times (X)	Average number of visitors for each type of visitor day		Total for 2005
OSWD	123	(X)	31	=	3,813
OSWE	48	(X)	66	=	3,168
OSH	10	(X)	45	=	450
ISWD	125	(X)	64	=	8,000
ISWE	44	(X)	148	=	6,512
ISH	15	(X)	176	=	2,640

*** GRAND TOTAL OF CUL-DE-SAC VISITOR DAYS FOR 2005**	=	**24,583**

*(see page 2 for definitions and numbers of Visitor Day types, and the names of the Don Pedro Lake non-fee walk-in access / cul-de-sacs that were sampled)

2007 Annual Pass Visitor Days

74.50%	of annual permit holders stay in park 1 day.
11.50%	of annual permit holders stay in park 2 days.
8.50%	of annual permit holders stay in park 3 days.
1.75%	of annual permit holders stay in part 4 days.
1.25%	of annual permit holders stay in part 5 days.
2.50%	of annual permit holders stay in part 6 or more days.

2007 base number of annual permit holder visitor days	33,882

MONTH	Monthly Base Total	1 Day	2 Days	3 Days	4 Days	5 Days	6 Days	TOTAL
January	894	666	206	228	63	56	134	**1352**
February	1071	798	246	273	75	67	161	**1620**
March	2839	2115	653	724	199	177	426	**4294**
April	3025	2254	696	771	212	189	454	**4575**
May	4161	3100	957	1061	291	260	624	**6294**
June	5464	4071	1257	1393	382	342	820	**8264**
July	5430	4045	1249	1385	380	339	815	**8213**
August	4971	3703	1143	1268	348	311	746	**7519**
September	2387	1778	549	609	167	149	358	**3610**
October	1531	1141	352	390	107	96	230	**2316**
November	1369	1020	315	349	96	86	205	**2071**
December	740	551	170	189	52	46	111	**1119**

Final total of annual pass visitor days for the year 2007	51,247

Exhibit A

DON PEDRO RECREATION AREA "2007" CUL-DE-SAC USE VISITOR DAY SAMPLING PROGRAM

DEFINITIONS:

In Season- defined as April 1 through September 30

Off Season- defined as Jan. 1 through March 31, Oct. 1 through Dec. 31

Visitor Day Types and Number of each Type of Visitor Day Sampled:

Abbrev.	Visitor Day Type	Total # of days in 2007	Total # of days sampled in 2007	Off Season Holidays 9 total	In Season Holidays 16 total
OSWD	Off Season Weekday	122	6	New Years Day (1/1)	Easter (4/8)
OSWE	Off Season Weekend day	51	3	Martin Luther King (1/15)	Mother's Day (5/13)
OSH	Off Season Holiday	9	2	President's Day (2/19)	Mem. Wknd. (5/25,26,27)
ISWD	In Season Weekday	123	15	Columbus Day (10/8)	Memorial Day (5/28)
ISWE	In Season Weekend day	44	11	Veteran's Day(observed 11/12)	Father's Day (6/17)
ISH	In Season Holiday	16	8	Thanksgiving Day (11/22)	4th of July Wknd. (6/30,7/1,7/2,7/3)
	Total days	**365**	**45**	Day After Thanksgiving (11/23)	4th of July Day (Wed. 7/4)
				Christmas Eve (12/24)	Labor Day Wknd. (8/31,9/1,9/2)
				Christmas Day (Sun. 12/25)	Labor Day (9/3)

CUL-DE-SAC USE (AVG. # OF VISITORS PER TYPE OF VISITOR DAY SAMPLED FOR EACH CUL-DE-SAC:

Don Pedro Recreation Area Cul-de-Sacs Sampled	OSWD	OSWE	OSH	ISWD	ISWE	ISH
Ward's Ferry Bridge	2	4	3	7	24	22
Hwy. 120	2	3	4	5	13	15
Harney Lane	0	1	2	2	5	7
Stent- Jacksonville / River Road	0	2	1	2	3	4
Kanaka Creek	4	5	5	9	16	34
Moccasin Creek	7	14	13	12	23	30
Shawmut Road	2	4	2	4	11	15
Roger's Creek / Hwy. 132	12	35	25	17	47	53
Gillman	1	1	1	1	1	1
Grizzly Road	2	2	1	4	3	5
Avg. # visitors for each type of visitor day	**32**	**72**	**57**	**63**	**146**	**180**

Exhibit B

DON PEDRO RECREATION AREA "2007" CUL-DE-SAC USE VISITOR DAY SAMPLING PROGRAM

TOTAL NUMBER OF CUL-DE-SAC VISITORS IN THE YEAR "2007" FOR EACH TYPE OF VISITOR DAY:

Visitor Day Type	Number of such days in 2007	Times (X)	Average number of visitors for each type of visitor day		Total for 2007
OSWD	122	(X)	32	=	3,904
OSWE	51	(X)	72	=	3,672
OSH	9	(X)	57	=	513
ISWD	123	(X)	63	=	7,749
ISWE	44	(X)	146	=	6,424
ISH	16	(X)	180	=	2,880

*** GRAND TOTAL OF CUL-DE-SAC VISITOR DAYS FOR 2007**	**=**	**25,142**

Exhibit B

2008 Annual Pass Visitor Days

74.50% of annual permit holders stay in park 1 day.
11.50% of annual permit holders stay in park 2 days.
8.50% of annual permit holders stay in park 3 days.
1.75% of annual permit holders stay in part 4 days.
1.25% of annual permit holders stay in part 5 days.
2.50% of annual permit holders stay in part 6 or more days.

2008 base number of annual permit holder visitor days	27333

MONTH	Monthly Base Total	1 Day	2 Days	3 Days	4 Days	5 Days	6 Days	TOTAL
January	677	504	156	173	47	42	102	**1024**
February	1611	1200	371	411	113	101	242	**2437**
March	2277	1696	524	581	159	142	342	**3444**
April	2101	1565	483	536	147	131	315	**3178**
May	3100	2310	713	791	217	194	465	**4689**
June	3506	2612	806	894	245	219	526	**5303**
July	5024	3743	1156	1281	352	314	754	**7599**
August	4536	3379	1043	1157	318	284	680	**6861**
September	2297	1711	528	586	161	144	345	**3474**
October	1260	939	290	321	88	79	189	**1906**
November	634	472	146	162	44	40	95	**959**
December	310	231	71	79	22	19	47	**469**

Final total of annual pass visitor days 2008	41343

Exhibit A

DON PEDRO RECREATION AREA "2008" CUL-DE-SAC USE VISITOR DAY SAMPLING PROGRAM

DEFINITIONS:

In Season- defined as April 1 through September 30

Off Season- defined as Jan. 1 through March 31, Oct. 1 through Dec. 31

Visitor Day Types and Number of each Type of Visitor Day Sampled:

Abbrev.	Visitor Day Type	Total # of days in 2008	Total # of days sampled in 2008	Off Season Holidays 10 total	In Season Holidays 12 total
OSWD	Off Season Weekday	121	5	New Years Day (1/1)	Mother's Day (5/10)
OSWE	Off Season Weekend day	51	3	Martin Luther King (1/21)	Mem. Wknd. (5/23,24,25)
OSH	Off Season Holiday	10	2	President's Day (2/18)	Memorial Day (5/26)
				Easter (3/23)	Father's Day (6/15)
ISWD	In Season Weekday	127	16	Columbus Day (10/13)	4th of July Day (Fri. 7/4)
ISWE	In Season Weekend day	44	12	Veteran's Day(11/11)	4th of July Wknd. (7/5, 7/6)
ISH	In Season Holiday	12	7	Thanksgiving Day (11/27)	Labor Day Wknd. (8/30, 8/31)
	Total days	**365**	**45**	Day After Thanksgiving (11/28)	Labor Day (9/1)
				Christmas Eve (12/24)	
				Christmas Day (Sun. 12/25)	

CUL-DE-SAC USE (AVG. # OF VISITORS PER TYPE OF VISITOR DAY SAMPLED FOR EACH CUL-DE-SAC:

Don Pedro Recreation Area Cul-de-Sacs Sampled	OSWD	OSWE	OSH	ISWD	ISWE	ISH
Ward's Ferry Bridge	2	3	3	8	22	25
Hwy. 120	2	2	4	7	12	16
Harney Lane	0	1	1	2	3	3
Stent- Jacksonville / River Road	0	2	0	1	3	3
Kanaka Creek	4	5	4	8	13	25
Moccasin Creek	8	15	14	16	24	31
Shawmut Road	2	3	2	6	13	13
Roger's Creek / Hwy. 132	13	41	33	21	51	57
Gillman	1	1	1	1	1	1
Grizzly Road	1	1	1	4	5	6
Avg. # visitors for each type of visitor day	**34**	**74**	**63**	**74**	**146**	**180**

TOTAL NUMBER OF CUL-DE-SAC VISITORS IN THE YEAR "2008" FOR EACH TYPE OF VISITOR DAY:

Exhibit B

DON PEDRO RECREATION AREA "2008" CUL-DE-SAC USE VISITOR DAY SAMPLING PROGRAM

Visitor Day Type	Number of such days in 2008	Times (X)	Average number of visitors for each type of visitor day		Total for 2008
OSWD	121	(X)	34	=	4,114
OSWE	51	(X)	74	=	3,774
OSH	10	(X)	63	=	630
ISWD	127	(X)	74	=	9,398
ISWE	44	(X)	146	=	6,424
ISH	12	(X)	180	=	2,160

*** GRAND TOTAL OF CUL-DE-SAC VISITOR DAYS FOR 2008**	**=**	**26,500**

Exhibit B

2010 Annual Pass Visitor Days

74.50% of annual permit holders stay in park 1 day.
11.50% of annual permit holders stay in park 2 days.
8.50% of annual permit holders stay in park 3 days.
1.75% of annual permit holders stay in part 4 days.
1.25% of annual permit holders stay in part 5 days.
2.50% of annual permit holders stay in part 6 or more days.

2010 base number of annual permit holder visitor days	27871

MONTH	Monthly Base Total	1 Day	2 Days	3 Days	4 Days	5 Days	6 Days	TOTAL
January	389	290	89	99	27	24	58	**588**
February	789	588	181	201	55	49	118	**1193**
March	1644	1225	378	419	115	103	247	**2487**
April	1978	1474	455	504	138	124	297	**2992**
May	2631	1960	605	671	184	164	395	**3979**
June	4348	3239	1000	1109	304	272	652	**6576**
July	6488	4834	1492	1654	454	406	973	**9813**
August	4397	3276	1011	1121	308	275	660	**6650**
September	3368	2509	775	859	236	211	505	**5094**
October	1035	771	238	264	72	65	155	**1565**
November	515	384	118	131	36	32	77	**779**
December	289	215	66	74	20	18	43	**437**

Final Total of Annual Pass Visitor Days 2010	42154.9

Exhibit A

DON PEDRO RECREATION AREA "2010" CUL-DE-SAC USE VISITOR DAY SAMPLING PROGRAM

DEFINITIONS:

In Season- defined as April 1 through September 30

Off Season- defined as Jan. 1 through March 31, Oct. 1 through Dec. 31

Visitor Day Types and Number of each Type of Visitor Day Sampled:

Abbrev.	Visitor Day Type	Total # of days in 2010	Total # of days sampled in 2010	Off Season Holidays 9 total	In Season Holidays 14 total
OSWD	Off Season Weekday	122	7	New Years Day (1/1)	Easter Sunday (4/4)
OSWE	Off Season Weekend day	51	3	Martin Luther King (1/18)	Mother's Day (5/9)
OSH	Off Season Holiday	9	2	President's Day (2/15)	Mem. Wknd. (5/28, 5/29, 5/30)
					Memorial Day (5/31)
ISWD	In Season Weekday	126	16	Columbus Day (10/11)	Father's Day (6/20)
ISWE	In Season Weekend day	43	12	Veteran's Day(11/11)	4th of July Wknd. (7/2, 7/3)
ISH	In Season Holiday	14	7	Thanksgiving Day (11/25)	4th of July Day (7/4)
	Total days	**365**	**47**	Day After Thanksgiving (11/26)	Labor Day Wknd. (9/3, 9/4, 9/5)
				Christmas Eve (12/24)	Labor Day (9/6)
				Christmas Day (12/25)	

CUL-DE-SAC USE (AVG. # OF VISITORS PER TYPE OF VISITOR DAY SAMPLED FOR EACH CUL-DE-SAC:

Don Pedro Recreation Area Cul-de-Sacs Sampled	OSWD	OSWE	OSH	ISWD	ISWE	ISH
Ward's Ferry Bridge	2	3	3	8	28	23
Hwy. 120	3	6	6	7	15	16
Harney Lane	0	2	1	3	5	4
Stent- Jacksonville / River Road	1	1	1	1	1	2
Kanaka Creek	4	9	11	8	21	30
Moccasin Creek	8	15	20	16	33	40
Shawmut Road	2	4	3	9	13	14
Roger's Creek / Hwy. 132	13	38	28	30	60	63
Gillman	1	1	1	1	1	0
Grizzly Road	2	4	3	4	5	5
Avg. # visitors for each type of visitor day	**36**	**83**	**77**	**87**	**182**	**197**

Exhibit B

TOTAL NUMBER OF CUL-DE-SAC VISITORS IN THE YEAR "2010" FOR EACH TYPE OF VISITOR DAY:

Visitor Day Type	Number of such days in 2010	Times (X)	Average number of visitors for each type of visitor day		Total for 2010
OSWD	122	(X)	36	=	4,392
OSWE	51	(X)	83	=	4,233
OSH	9	(X)	77	=	693
ISWD	126	(X)	87	=	10,962
ISWE	43	(X)	182	=	7,826
ISH	14	(X)	197	=	2,758

GRAND TOTAL OF CUL-DE-SAC VISITOR DAYS FOR 2010	**=**	**30,864**

Exhibit B

DON PEDRO RECREATION AGENCY

DAY USE VISITOR DAYS BY COUNTY

COUNTY	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
ALAMEDA	40,572	44,560	35,050	33,767	35,170	33,081	30,596	32,266	32,707	33,439
ALPINE	64	20	32	15	48	28	30	6	16	16
AMADOR	229	321	229	192	303	430	221	3,496	211	224
BUTTE	208	259	248	133	159	273	182	258	185	205
CALAVERAS	1,055	1,565	1,326	1,184	1,425	1,509	1,522	1,004	1,294	1,122
COLUSA	37	17	31	16	15	23	194	5	42	40
CONTRA COSTA	17,291	20,192	17,079	16,763	15,263	16,296	16,433	12,813	17,455	17,646
DEL NORTE	42	25	46	48	23	37	15	2	36	43
EL DORADO	891	919	915	1,171	908	1,299	911	1,361	887	939
FRESNO	4,071	5,220	4,710	4,360	4,348	4,060	5,551	4,335	4,118	4,336
GLENN	67	310	44	12	111	0	3	9	36	36
HUMBOLDT	88	123	95	43	68	33	170	45	13	30
IMPERIAL	22	2	19	48	13	10	4	26	37	40
INYO	49	182	21	47	52	51	111	65	34	33
KERN	1,650	2,034	1,567	1,611	2,177	1,563	2,283	1,543	1,369	1,372
KINGS	1,210	922	924	917	889	743	1,076	992	1,044	977
LAKE	96	32	102	67	40	79	99	167	132	131
LASSEN	51	55	34	32	26	49	43	26	63	120
LOS ANGELES	7,154	9,297	8,893	8,508	10,141	8,863	8,223	7,716	8,430	8,954
MADERA	1,640	2,297	2,367	2,152	2,331	2,075	2,741	1,872	2,652	2,996
MARIN	918	1,109	602	956	554	535	462	696	444	478
MARIPOSA	3,711	4,338	4,036	3,331	3,603	3,667	3,847	4,053	4,028	3,974
MENDOCINO	126	35	12	28	93	70	62	27	51	202
MERCED	14,993	16,653	14,729	18,185	16,787	15,396	17,692	15,640	21,062	20,774
MODOC	186	43	12	22	27	24	3	7	15	15
MONO	283	147	84	182	36	62	96	31	52	51
MONTEREY	6,251	7,362	6,127	7,580	6,317	5,063	5,349	4,899	6,884	7,420
NAPA	265	275	519	342	371	292	192	549	434	458
NEVADA	139	227	208	62	144	164	329	199	142	146
ORANGE	4,006	4,224	2,692	3,829	4,269	3,819	4,820	3,179	2,743	2,858
PLACER	998	1,508	923	1,554	1,366	1,442	1,282	852	1,278	1,430
PLUMAS	287	118	69	23	14	79	35	17	43	40
RIVERSIDE	739	1,178	1,312	1,226	1,293	1,403	1,288	750	719	735
SACRAMENTO	4,906	6,088	6,628	6,406	5,428	5,557	5,629	5,287	6,364	6,374
SAN BENITO	4,365	4,960	3,236	3,434	4,411	2,843	3,216	2,231	3,154	3,200
SAN BERNARDINO	1,851	1,931	1,698	1,408	1,530	1,366	1,541	984	1,171	1,244
SAN DIEGO	1,268	2,519	2,191	1,568	1,743	1,359	1,313	979	1,224	1,302
SAN FRANCISCO	4,714	4,469	3,725	2,437	3,849	3,773	3,302	3,581	4,030	4,169
SAN JOAQUIN	22,142	24,387	21,947	22,658	24,694	22,710	24,603	19,400	24,348	24,662
SAN LUIS OBISPO	1,267	2,015	1,265	1,416	1,323	982	685	936	500	532
SAN MATEO	9,402	9,125	6,726	8,373	7,372	7,518	8,090	7,603	9,277	9,491
SANTA BARBARA	1,702	1,186	1,095	959	1,109	862	890	587	616	782
SANTA CLARA	51,220	53,190	42,282	39,300	36,545	31,755	34,295	31,689	33,540	35,439
SANTA CRUZ	8,482	8,634	7,395	7,486	8,074	5,625	5,703	5,720	6,037	6,245
SHASTA	202	186	144	128	149	315	101	270	95	108
SIERRA	44	19	18	7	7	21	23	15	6	9
SISKIYOU	73	47	29	114	49	44	82	5	17	17
SOLANO	2,359	2,047	1,877	1,901	2,079	1,512	2,062	1,988	2,850	2,909
SONOMA	1,998	2,046	2,189	1,518	1,573	1,556	1,706	1,354	1,815	2,031
STANISLAUS	85,852	82,659	85,766	79,817	85,242	91,826	92,082	84,690	82,074	79,262
SUTTER	67	105	87	145	155	117	157	131	94	108
TEHAMA	76	34	19	79	29	33	49	49	62	56
TRINITY	18	8	24	23	0	0	5	11	1	1
TULARE	1,302	1,662	1,069	1,386	1,520	1,295	1,139	1,498	2,069	2,272
TUOLUMNE	21,020	23,751	22,395	20,928	21,588	21,668	22,189	17,519	17,735	17,629
VENTURA	3,928	4,628	4,469	4,024	3,983	4,479	4,819	3,514	3,803	4,036
YOLO	458	619	434	423	353	264	279	216	302	299
YUBA	52	28	148	69	97	47	46	43	62	71
OUT OF STATE	4,000	3,992	4,459	4,194	5,007	4,664	4,300	3,184	4,164	4,527
OUT OF COUNTRY	2,513	1,882	1,734	1,701	2,294	2,075	1,844	1,198	1,588	1,588
TOTAL VISITOR DAYS	344,670	367,786	328,106	320,308	328,587	316,784	326,015	293,588	315,654	319,643

DON PEDRO RECREATION AGENCY

NUMBER OF PERMITS ISSUED - 2010

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
VEHICLE DAY	385	688	1,593	2,166	7,142	10,854	23,011	12,409	7,667	1,007	497	344	67,763
GROUP DAY		1	1			7		8					17
VEHICLE ANN	71	79	129	123	249	228	110	16	1			14	1,020
VEHICLE SEN	54	57	77	50	64	61	42	7	2			14	428
2 ND VEH. ANN	18	13	23	23	38	40	41	6	5	36		1	244
BOAT DAY USE	196	509	1,309	1,530	2,961	4,483	8,334	4,833	3,093	624	320	141	28,333
BOAT ANNUAL	109	96	166	144	270	282	139	20	4			30	1,260
SC BOAT ANN	27	13	7	18	13	8	4	2	1		1	20	114
HOOKUP NIGHT	518	540	1,015	828	917	1,526	1,382	1,130	595	576	354	310	9,691
HOOKUP WEEK	19	48	31	19	1								118
HOOKUP MONTH	18	17	25	17						3			80
TENT NIGHT	650	685	1,363	1,620	1,918	3,332	3,801	2,471	1,063	189	136	138	17,366
TENT WEEK	9	7	6	18									40
LAKESHORE CAMP	1	2	3	9	74	198	613	170	188	12			1,270
PW DAY USE	2	7	13	15	274	743	1,726	1,037	471	29	2		4,319
PW ANNUAL	74	18	10	182	29	44	13	5				26	401
RESERVATION FEES	412	465	789	837	1,023	1,477	1,587	946	415	119	94	82	8,246

DON PEDRO RECREATION AGENCY
DAVIS-GRUNSKY REPORT
2010

MONTHLY VISITOR DAYS

MONTH	# VISITOR DAYS	%
January	1,200	0.40%
February	2,826	0.90%
March	6,097	1.80%
April	10,242	3.20%
May	31,911	10.00%
June	52,578	16.50%
July	96,710	30.20%
August	68,076	21.20%
September	38,784	12.20%
October	6,391	2.00%
November	3,357	1.10%
December	1,471	0.50%
	319,643	100.00%

TOTAL MONTHLY REVENUE

	%
January	6.50%
February	4.70%
March	7.00%
April	6.90%
May	10.70%
June	14.50%
July	20.00%
August	13.40%
September	7.90%
October	3.50%
November	1.50%
December	3.40%
	100.00%

GATE RECEIPTS

	%
VEHICLE DAY USE	29.40%
VEHICLE ANNUAL	6.40%
BOAT DAY USE	12.30%
BOAT ANNUAL	6.60%
TENT UNITS	22.80%
TRAILER UNITS	22.50%
TOTAL	100.00%

ANNUAL PERMIT PEOPLE

MONTH	# PEOPLE		%
January	588		1.40%
February	1,193		2.90%
March	2,487		5.80%
April	2,992		7.10%
May	3,979		9.50%
June	6,576		15.50%
July	9,813		23.30%
August	6,650		15.70%
September	5,094		12.10%
October	1,565		3.80%
November	779		1.80%
December	437		1.10%
	42,153	**Exhibit A**	**100.00%**

RECEIPT BREAKDOWN BY DEPARTMENT

	%
ADMIN. OFFICE	45.50%
WEBSITE	5.00%
FLEMING	28.70%
MOCCASIN	11.40%
BLUE OAKS	9.40%
	100.00%

VISITOR DAYS/COUNTY OF ORIGIN

COUNTY	# VISITORS	%
Stanislaus	79,262	24.70%
Tuolumne	17,629	5.50%
Merced/S. Joaquin	45,436	14.20%
S. California	19,169	6.00%
Bay Area	106,060	33.20%
Rest of State	45,972	14.40%
Out of State	4,527	1.50%
Out of Country	1,588	0.50%
	319,643	100.00%

TOTAL VISITOR DAYS:	**361,796**	**Monthly Visitors + Exhibit A**
CUL-DE-SAC USE:	**30,864**	**Exhibit B**
RAFTING TAKE OUT:	**3,037**	
VISITOR PASSES:	**1,983**	
TOTAL VISITOR DAYS 2010:	**397,680**	

DON PEDRO LAKE
VESSEL MONITORING AND CARRYING CAPACITY STUDY

PURPOSE:

To develop and initiate a vessel lake-use monitoring and carrying capacity study at Don Pedro Lake that will be utilized to help insure the continued availability of a quality recreational boating experience.

GOAL:

The goal of this monitoring and carrying capacity study will be to gather information that will be used to determine if numerical limits or other types of use restrictions or regulations should be placed on specific types of vessels that are operated on Don Pedro Lake. Recommendations to establish specific vessel carrying capacities and or desired vessel lake use regulations should be completed by October 2003.

DEFINITIONS:

Vessel Carrying Capacity- *Specific maximum numerical limits placed on specific types of vessels.*
Private Houseboats- *Privately owned vessels that are 10' or greater in width with sleeping capacity (built in plumbing), limited by a specific number of houseboat permits and subject to specific Agency Houseboat Rules and Regulations.*
Rental Houseboats- *Marina concessionaire owned rental vessels that are 10' or greater in width with sleeping capacity (built in plumbing), limited by a specific number of houseboat permits and subject to specific Agency Houseboat Rules and Regulations.*
Rental Watercraft- *Marina concessionaire owned rental vessels, less than 10' wide and limited by specific number permitted under the marina's concession lease agreement with the Agency.*
Private Watercraft- *Privately owned vessels that are less than 10' wide, with or without sleeping capacity (built in plumbing) that require a current permit from the Agency in order to be stored, moored or operated within the Don Pedro Recreation Area. No specific numerical limits have been set for this type of vessel. Rental vessels that are brought in from outside the Recreation Area are grouped with this category for purposes of this monitoring program.*

JUSTIFICATION FOR LAKE-USE MONITORING PROGRAM:

The growing population of California and the areas surrounding Don Pedro Lake will inevitably lead to an increase in the numbers of recreational boaters who visit the Lake. If a quality recreational boating experience is to be preserved at Don Pedro Lake and vessel overcrowding is to be prevented then carrying capacities for vessels using the lake need to be established.

No comprehensive vessel lake-use monitoring or carrying capacity study has ever been conducted at Don Pedro Lake. Statistical data was never used to establish the existing restricted use areas on the lake or to determine the existing numerical restrictions that have been placed on those vessels that are currently limited. In addition, no numerical limits have ever been established for private watercraft that can be brought in from the outside.

Without a comprehensive Monitoring and carrying capacity study the Agency cannot properly plan for the future. Initially, collected data will be used to understand the impacts that vessels currently operated on the lake are having. Then the data will be utilized to establish specific vessel carrying capacities for specific types of vessels. Once these carrying capacities are established, the Agency can make objective decisions on whether numerical limits or other types of use restrictions should be placed on specific types of vessels or on specific areas of the lake. In addition, the data collected will be useful for the planning of future facilities and infrastructure that will be needed to meet future recreational boating demands.

Multiple benefits can be gained by conducting this study. Establishing specific limits for specific vessel types, properly evaluating existing restricted use areas and implementing new restrictions if needed will ultimately result in less crowding, less noise, less complaints, lower environmental impact, improved safety, greater customer satisfaction and the continued assurance of a quality recreational experience at Don Pedro Lake.

BACKGROUND / HISTORY:

The numbers of private permitted houseboats, and marina concessionaire rental vessels allowed on Don Pedro Lake are currently limited by the Agency. There are no established numerical limits for private watercraft but, existing restricted lake use areas and a variety of other factors can influence the types and numbers of these vessels that are operated at any given time.

PRIVATE HOUSEBOATS:

A review of the history of the New Don Pedro Lake reveals that during the1970s and early1980s, as demand for private houseboat permits increased, the two marina concessionaires periodically petitioned the Agency to increase the number of these permits. The number of private houseboat permits increased incrementally from 47 in 1971 to the current limit of 257 established in 1983. 195 of these houseboats were assigned to the Lake Don Pedro Marina concessionaire and 62 to the Moccasin Pt. Marina. This limit of 257 private houseboat permits and their numerical division between the two marina concessionaires has remained unchanged since 1983.

Public demand and Agency and marina concessionaire financial concerns were always the motivation for increasing private houseboat permit numbers. Additional private houseboats provided additional year round Agency permit and marina mooring fee income

No statistical data was ever compiled or utilized to determine this final houseboat permit number or the potential impacts that this many private permitted houseboats could have on the Recreation Area.

RENTAL HOUSEBOATS:

The number of permitted marina rental houseboats also increased incrementally during the 1970s and the early 1980s. Like the private permitted houseboats, the Agency permitted an increase in rental houseboats to meet the public demand and to generate additional marina revenue.

In 1983 both marina concessionaires were allotted a maximum of 10 rental houseboats for each marina. This allotment remained unchanged until 1999 when upon completion of several required improvements the current Moccasin Pt. Marina concessionaire (Forever Resorts) was allowed to increase their rental houseboat fleet to 20 houseboats. When Forever Resorts purchased the Lake Don Pedro Marina in 2001, they were initially allotted permits for 13 rental houseboats. However, their concession lease agreement stipulated that upon completion of certain facility improvements they could increase their rental houseboat fleet to 20 houseboats. They have recently completed these required improvements and are now eligible to increase their rental houseboat fleet.

The Moccasin Pt. Marina recently reached their 20 rental houseboat limit. The Lake Don Pedro Marina currently has only 13 rental houseboats. The Agency anticipates that the Lake Don Pedro Marina will be increasing their fleet to its 20 houseboat limit over the next couple of years. These rental houseboat permit increases have been granted based on the concessionaire's ability to improve marina facilities. No monitoring program or statistical data was ever utilized to determine these current rental houseboat numbers or the potential impacts that these additional marina rental houseboats might have on the Recreation Area.

RENTAL WATERCRAFT:

Like rental houseboats, the number of marina rental watercraft permitted on the lake have always been restricted by the terms of the marina's concession lease agreement with the Agency. As public demand increased, the Agency permitted the marina concessionaires to increase their rental watercraft fleet.

Currently, the Moccasin Pt. Marina is approved for a maximum of 30 rental watercraft and the Lake Don Pedro Marina a maximum of 50 rental watercraft. These watercraft can consist of any combination of either fishing boats, deck boats, water ski boats or personal watercraft. No monitoring program or statistical data was ever utilized to determine these rental watercraft numbers or the potential impacts that this many rental watercraft might have on the Recreation Area.

PRIVATE WATERCRAFT:

There are no established numerical limits for private watercraft that can be brought in from outside the Recreation Area. However, there are certain limiting factors that do act to control the numbers of these vessels. Private watercraft that are stored or moored within the Recreation Area are limited by either the number of available marina slips and dry storage spaces or by the number of private permitted houseboats upon which many are stored. The only factors that currently limit the number of private watercraft brought in from outside the Recreation Area are the number of available parking spaces within the three developed Recreation Area sites and possibly the Recreation Area permit fees.

The Lake Don Pedro Marina is currently permitted for up to 336 private watercraft slips and 250 private watercraft dry storage spaces. The Moccasin Pt. Marina is permitted for 42 private watercraft slips and 22 covered vessel dry storage units. The Moccasin Pt. Marina also offers open vessel dry storage however the number of open vessel dry storage spaces are not currently specified by their concession lease agreement with the Agency.

The number of permitted private houseboats has a direct effect on the number of private watercraft that can be stored upon them. There is currently no set limit on how many personal watercraft can be stored upon a private houseboat. Some private houseboaters store as many as five personal watercraft aboard their houseboats. Since all vessels that are stored or moored within the Recreation Area are required to have current Agency permits, the expense of this required permit can sometimes act as a limiting factor.

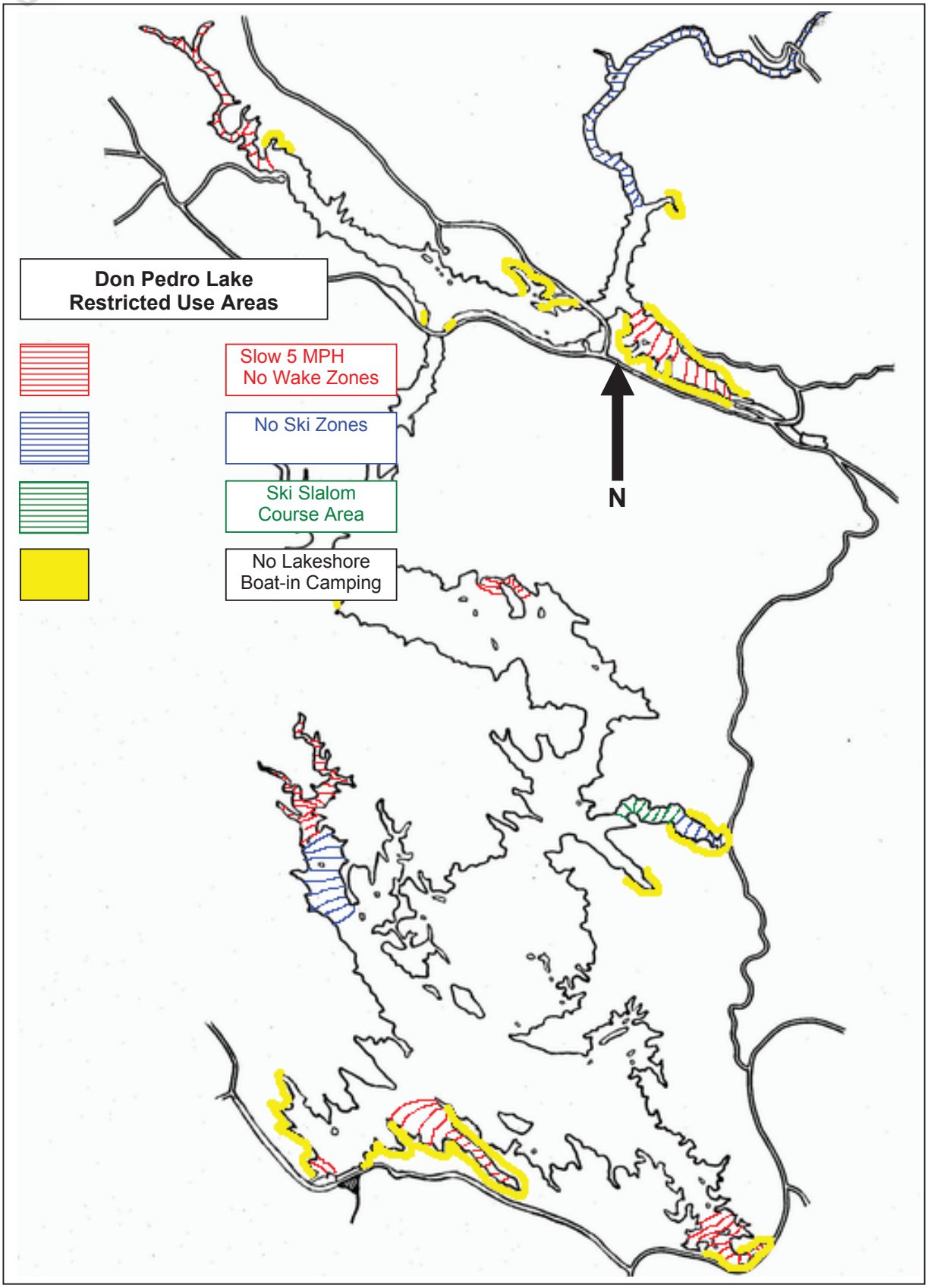
Rental vessels that are rented from concessionaires outside of the Recreation Area that are less than 10 feet in width can be brought into the Recreation Area by the private parties that are renting them. These vessels are subject to the same permit fees as privately owned vessels. They are also limited numerically by the same factors that limit other privately owned watercraft, so for purposes of this monitoring program they will be defined as private watercraft.

No monitoring program or statistical data was ever utilized to establish any of the limiting factors that determine the current numbers of private watercraft that can enter the Recreation Area from outside.

RESTRICTED USE AREAS:

There are currently seven “5 mph No Wake” zones, three “No Ski” zones and one special use “Ski Area” zone established and posted on the lake **(see lake map)*. These restricted zones and the one special use “Ski Slalom Area” zone have an effect on the types, numbers and use patterns of vessels that are operated on the lake. In addition, there are certain areas around the lake where Boat-in Lakeshore Camping is prohibited **(see lake map)*. This restriction also has an effect on vessel numbers and types.

5 mph No Wake zones exist in launch ramp and marina areas and also in shallow or hazardous areas. No Ski zones exist in areas considered suitable for fishing but too hazardous for skiing. Areas where lakeshore boat-in camping is prohibited lie adjacent to either developed private property or public road access. No monitoring program or statistical data was ever utilized to establish any of these restricted areas or to evaluate the impacts of their locations on recreational boating .


Don Pedro Lake
Restricted Use Areas
Slow 5 MPH
No Wake Zones
No Ski Zones
Ski Slalom
Course Area
No Lakeshore
Boat-in Camping
N

CURRENT FACTORS THAT INFLUENCE VESSEL NUMBERS ON DON PEDRO LAKE:

	Private Houseboats	***Rental Houseboats***	***Rental Watercraft***	***Private Watercraft***
Permit Fees Required	Yes	Yes	Yes	Yes
Established Permit Limit	Yes (257 total, 195 at LDPM, 62 at MPM)	Yes (40 total, 20 at each marina)	Yes (80 total, 50 at LDPM, 30 at MPM)	Yes (effected by # of houseboats)
Recreation Area Facilities	Yes	Yes	Yes	Yes
Suitable Houseboat Mooring Areas	Yes	Yes	No	Yes
Available Houseboat Slips	Yes	Yes	No	Yes
Available Watercraft Slips	No	No	Yes	Yes (336 at LDPM, 42 at MPM)
Available Houseboat Repair Space	Yes	Yes	No	No
Available Dry Storage Space	No	No	No	Yes (250 at LDPM, 22+ at MPM)
Available Vehicle and Boat Trailer Parking	Yes	Yes	Yes	Yes
Number of Campsites	No	No	Yes (effects demand)	Yes
Lake Elevation *(launching, parking, surface acreage)*	Yes (effects demand for private houseboats)	Yes (effects demand for rentals)	Yes (effects demand for rentals)	Yes
Restricted Use Areas *(incl. Boat-in Camping)*	No	No	Yes	Yes
Lake Popularity and Marketing	Yes	Yes	Yes	Yes
Lake Location	Yes	Yes	Yes	Yes
Nearby Accommodations	No	No	Yes (effects demand for rentals)	Yes
Economy and Disposable Income	Yes	Yes	Yes	Yes
Weather / Season	No	No	Yes (effects demand)	Yes
Other Regulations	Yes (effects demand)	Yes (effects demand)	Yes (effects demand)	Yes

MONITORING PROGRAM METHODS:

Five methods will be utilized to obtain data for this study:

1) Lake users will be surveyed
2) Personnel who work or volunteer on the lake and or respond to the Lake will be surveyed
3) Criteria and methods utilized by other lake managing agencies for the establishment of vessel numerical limitations will be investigated
4) Existing Don Pedro Lake statistics will be compiled and evaluated
5) And a 2003 vessel use monitoring/sampling program will be implemented.

The data gathered from these five approaches will be compiled together, evaluated and utilized towards the development of vessel carrying capacities and or other recommended lake use regulations and restrictions.

LAKE USER SURVEYS:

If preserving a quality recreational boating experience at Don Pedro Lake is the purpose of this program then the Agency needs to somehow establish criteria for what a quality recreational boating experience actually is. In order to establish these criteria Lake users will be surveyed. Two different lake user surveys will be conducted, a private houseboater survey and a general lake user survey. Questions

regarding frequency of visitation, areas of the lake most visited, numbers and types of vessels owned and operated, and opinions in regards to lake management issues will be asked on both surveys.

The data gathered from Lake User surveys will be utilized to understand the use patterns and impacts of specific boating groups. Their opinions will also help the Agency to establish criteria for what most lake users consider that a "quality recreational boating experience" is. Also, data and opinions collected from these surveys will give the Agency insight into how the boating public will react if specific vessel number restrictions and or other new boating and lake use regulations are implemented as a result of this study.

Private houseboaters are somewhat of a specialized user group on Don Pedro Lake. Their houseboats are moored on the lake year round, most own and operate multiple vessels and as a group they probably spend more time on the lake than any other lake user group. For these reasons, they are being surveyed separately. Specific questions geared towards houseboat use have been included in their survey which has already been sent out to them **(see lake use survey-houseboater*).

Private houseboater survey data will help the Agency to better understand the use patterns and impacts of the houseboats that are currently permitted on the lake. The experiences, perceptions and opinions of houseboaters will be helpful in the establishment of maximum numerical houseboat limits.

Lake User- Survey-Houseboater

DON PEDRO LAKE USE SURVEY *(please return with your Houseboat Permit Renewal Application)*

1. How many days out of each year do you normally spend on your houseboat at Don Pedro Lake?
   a. Less than twenty days
   b. Twenty to forty days
   c. Forty or more days
2. Please list three areas of the lake where you spend the most time on your houseboat. *(example: Upper Bay)*

   (1)_____ (2)_____ (3)_____
3. How much lake area around your houseboat do you normally utilize to recreate within?
   a. Usually stay within a one mile radius of houseboat
   b. Usually stay within a five mile radius of houseboat
   c. Frequently go beyond a five mile radius of houseboat for lake recreation
4. How many other vessels are normally operated on Don Pedro by persons who use your houseboat?
   a. Usually two or less per year
   b. Usually three to five per year
   c. Usually more than five per year
5. Have you ever experienced a time when you felt that too many boats were on the Lake?
   a. No
   b. Yes, (if yes, please explain) _____
6. Should the Agency increase the number of private permitted houseboats currently on the lake?
   a. Yes
   b. No
   7. Should the Agency increase the number of permitted marina rental houseboats currently on the lake?
   a. Yes
   b. No
8. Do you ever encounter difficulty finding a suitable place to moor your houseboat along the shoreline?
   a. Yes, frequently
   b. Y es, sometimes
   c. No, never ****(Please use other side for additional comments)****

Data and opinions from all other lake users will be gathered by means of a general lake user survey **(see lake user survey-general)*. This survey will not be as user specific as is the houseboater survey. General lake user survey participants will be asked to identify the types of activities that they engage in, this will help to identify the type of user that is responding.

These surveys will be distributed to lake users from Recreation Area entrance stations, the Agency Visitor Center, Marina concessionaire facilities and Agency personnel in the field. Marina concessionaires will be requested to mail surveys to slip and dry storage customers. Additional survey forms may also be mailed out with Agency campground reservation confirmation forms. Survey participants will be requested to return completed surveys to the Agency by no later than Sept. 15, 2003. Survey return drop boxes will be provided at all survey distribution locations. Participants will also be able to mail completed surveys back to the Agency or return them to Agency personnel in the field.

LAKE PERSONNEL SURVEY:

Personnel who regularly engage in work at or around the lake and or respond to emergencies at the Lake will be surveyed. The intent of these surveys will be to ascertain worker opinions and impressions in regards to the boating activity that currently takes place on the lake. The ability of Agency, marina, law enforcement, volunteer and emergency response personnel to provide quality service to the current numbers of vessel operators who use Don Pedro Lake is a factor that needs to be considered before vessel carrying capacity numbers can be established. All permanent Agency employees and selected seasonal Agency employees will be surveyed. Selected marina employees, Tuolumne County Sheriff's Boat Patrol unit personnel, Fire Dept. personnel, ambulance personnel and U.S.C.G. Auxiliary volunteers will also be surveyed.

Don Pedro Lake Personnel Survey

**This survey for DPRA, LDPM, MPM, TCSO, TCFD, CDF, Ambulance and U.S.C.G. Auxiliary only!*
***Please return to DPRA staff or Dave Jigour, Division Manager, Lake Operations. Thank You!*

1. Have you ever experienced a time when you felt that there were too many vessels being allowed onto Don Pedro Lake?
   a. No
   b. Yes, (if yes, please explain) _____
2. Are there any changes that you believe should be instituted that would improve the overall quality and safety of the recreational boating experience at Don Pedro Lake?
   a. No
   b. Yes, (if yes, please explain) _____

   _____
3. Within your own area of responsibility, do you feel that <u>most of the time</u> you have adequate staffing and support to provide consistent and quality service to the current numbers of vessel owners and operators that utilize Don Pedro Lake?
   a. Yes
   b. No, (if no, please explain) _____

   _____
4. Are there any specific types of vessels or specific areas on the lake that you believe require additional regulations or restrictions?
   a. No
   b. Yes, (if yes, please explain) _____

   _____
5. Please circle your employer, Agency or volunteer group that you work for or are associated with:
   DPRA LDPM MPM TCSO TCFD CDF Ambulance USCG Auxiliary

Lake User Survey-General

DON PEDRO LAKE USER SURVEY

Your input will help to shape the future of recreational boating on Don Pedro Lake!
Please take a moment to fill out this survey and return it to one of the locations listed below.

1. How many days out of the year do you normally spend at Don Pedro Lake?
   a. Less than 10 days per year or don't visit every year.
   b. 10 to 20 days per year.
   c. More than 20 days per year.
2. Do you own and operate your own vessel(s) on Don Pedro Lake?
   a. Yes b. No c. No, but I operate rental vessels
3. If you own, how many vessels do you own and regularly operate at Don Pedro?
   a. One b. Two c. Three or more
4. What type of water related activities do you engage in on Don Pedro Lake? *(circle all that apply)*
   a. Fishing b. Sailing, wind-surfing c. Boat-in Camping
   d. Houseboating e. Swimming f. Speed boating
   g. Personal Watercraft operation (jet-ski, wave-runner etc.) h. Pleasure boating, sight seeing
   i. Water-skiing, wake-boarding, knee-boarding, other skill required boat towed activities
   j. Tubing or other similar un-skilled boat towed activities
   k. Kayaking, canoeing, other paddled vessels
   l. Other: _____
5. On Don Pedro Lake, how far away from the launch ramp or marina do you normally travel in your vessel?
   a. Usually stay within two miles of launch ramp or marina.
   b. Usually stay within two to five miles of launch ramp or marina.
   c. Frequently go beyond five miles from launch ramp or marina.
6. Name your three favorite areas of the lake *(please use location names listed on map on back).*

   (1) _____ (2) _____ (3) _____
7. Have you ever experienced a time when you felt there were too many boats on the lake?
   a. No
   b. Yes, (if yes, please explain) _____
8. Do you feel that the existing restricted use areas (i.e. 5mph & No Ski areas) on the lake are sufficient and in the proper locations on the lake?
   a. Yes
   b. No, (if no, please explain) _____
9. Are there any changes that should be made that would improve the overall quality and safety of the recreational boating experience at Don Pedro Lake?
   a. No
   b. Yes, (if yes, please explain) _____

   _____

**If you have additional comments you may write them on the back of this form.*
*****Please limit your response to one survey per person,** mail or return this form to Agency staff or to one of the survey return drop box locations listed below **by no later than September 15, 2003.***

Our mailing address:

- Don Pedro Recreation Agency, 31 Bonds Flat Rd., La Grange, CA 95329

Survey return drop box locations:

- Fleming, Blue Oaks and Moccasin Pt. Recreation Area Entrance Stations.
- Recreation Area Headquarters / Visitor Center *(the round building that overlooks the dam)*
- Lake Don Pedro Marina Office, Marina Store and Trading Post.
- Moccasin Pt. Marina Store and Office.

Thank you for your cooperation, DPRA

CRITERIA AND METHODS FROM OTHER LAKE MANAGEMENT AGENCIES:

Other lake management agencies will be contacted in order to determine if they have established maximum vessel carrying capacities for their facilities. The California Department of Boating and Waterways will also be contacted to see if they can recommend any methods for determining vessel carrying capacities. Recommended criteria and methods will be evaluated and a determination made as to whether such criteria and methods could be adapted and utilized at Don Pedro Lake. Methods and criteria for establishing vessel carrying capacities that are obtained as a result of this research, if applicable to Don Pedro Lake, will be incorporated and utilized towards accomplishing the goal of this study.

DON PEDRO LAKE STATISTICS:

The Tuolumne County Sheriff's Department will be contacted and requested to provide boating related incident statistics at Don Pedro Lake for the past 10 years. The California Department of Boating and Waterways will also be requested to provide Don Pedro Lake boating incident statistics. In addition, Agency boating related incident report files will be reviewed. Don Pedro Lake vessel incident statistics will be compiled and compared to visitor day and vessel use statistics in order to determine what correlations exist, if any, between the numbers of vessel related incidents to the numbers of vessels actually being operated. If definite vessel incident trends are observed as a result of researching these statistics then such findings will be taken into consideration in the ultimate determination of specific vessel carrying capacities.

2003 VESSEL USE MONITORING/SAMPLING PROGRAM:

Beginning in the Spring of 2003 a Don Pedro Lake Vessel Use Monitoring/Sampling Program will be initiated. All Agency vessels will be supplied with monitoring/sampling lake maps **(see Vessel Use Monitoring/Sampling Map)*. These maps and instructions will also be provided to the Tuolumne County Sheriff's Boat Patrol Unit and the USCG Auxiliary. Sampling maps will have location names on them, a key with symbols designating specific vessel types (moored or under power) and a place for the day of the week, date, lake elevation and weather conditions. Sampling program participants will be requested to fill out one sampling map per day, date the map, record lake elevation and weather conditions and then record directly on the map the numbers of specific vessel types observed in each area of the lake visited.

Agency Lake Operations personnel will be instructed to fill out sampling maps each day that they go out on the lake. Completed sampling maps will be removed from Agency vessels daily and collected. Tuolumne County Sheriff's Boat Patrol and USCG Auxiliary personnel will also be requested to fill these sampling maps out every day that they are at Don Pedro if possible. Sheriff's and USCG personnel can return their completed sampling maps to Agency personnel or fax or mail them back into the Agency.

The data collected from these monitoring/sampling maps will be useful for several different reasons. It will indicate the areas of the lake that are most and least popular for specific types of vessels. It will illustrate statistically whether certain areas of the lake are over-used while other areas of the lake are under-used. It will statistically show what days during the on-season are the busiest for specific types of vessels in specific areas of the lake. It will show the effects of lake elevation and weather on boating activity. It will help the Agency to determine whether a simple surface acreage formula for determining vessel carrying capacity can be applied to Don Pedro or whether a modified "suitable" surface acreage formula should be applied. It will also be extremely useful towards determining whether sufficient suitable or desirable shoreline mooring space exists on Don Pedro to sustain any further increase in permitted private and or rental houseboats.

Vessel use monitoring/sampling data will provide real vessel use statistics that will be essential for the final determination of specific vessel carrying capacities and or other desirable vessel regulations or restrictions.

DON PEDRO LAKE
VESSEL MONITORING / SAMPLING MAP

**Information and instructions on back cover*

Name: _____

Employer / Organization (if applicable)**:** _____

Date(s) Sampled **list date for each day that observations are recorded*	**Day of Week** *Sun.,Mon., Tues,Wed., Thurs.,Fri., Sat.*	**Weather Conditions**	**Lake Elev.** (if known)	**Notes and Comments**

Please return completed vessel monitoring/sampling maps to Recreation Agency staff or mail them to:

The Don Pedro Recreation Agency at 31 Bonds Flat Rd., La Grange, CA, 95329

If you have any questions, call us at (209) 852-2396.
Thank you for your participation !
DPRA

DON PEDRO LAKE
VESSEL MONITORING AND CARRYING CAPACITY STUDY

The current population growth in the areas surrounding Don Pedro Lake and the overall population growth in California will inevitably lead to an increase in the number of recreational boaters who visit the Lake. In order to be prepared for this inevitable growth, the Don Pedro Recreation Agency is initiating a vessel lake-use monitoring and carrying capacity study for the 2003 boating season. Information gathered from this study will be utilized to establish vessel carrying capacities for Don Pedro Lake. Vessel carrying capacities are specific numerical limits established for specific types of vessels. The purpose for establishing such limits is to prevent vessel overcrowding, overtaxing of available resources and preserve the quality of the recreational boating experience at Don Pedro Lake.

Several different methods will be utilized to obtain data for this study. Lake users and personnel who work at the lake will be surveyed. Criteria and methods utilized by other lake management agencies will be investigated. Don Pedro Lake statistics will be evaluated and vessel use field observations will be recorded and compiled.

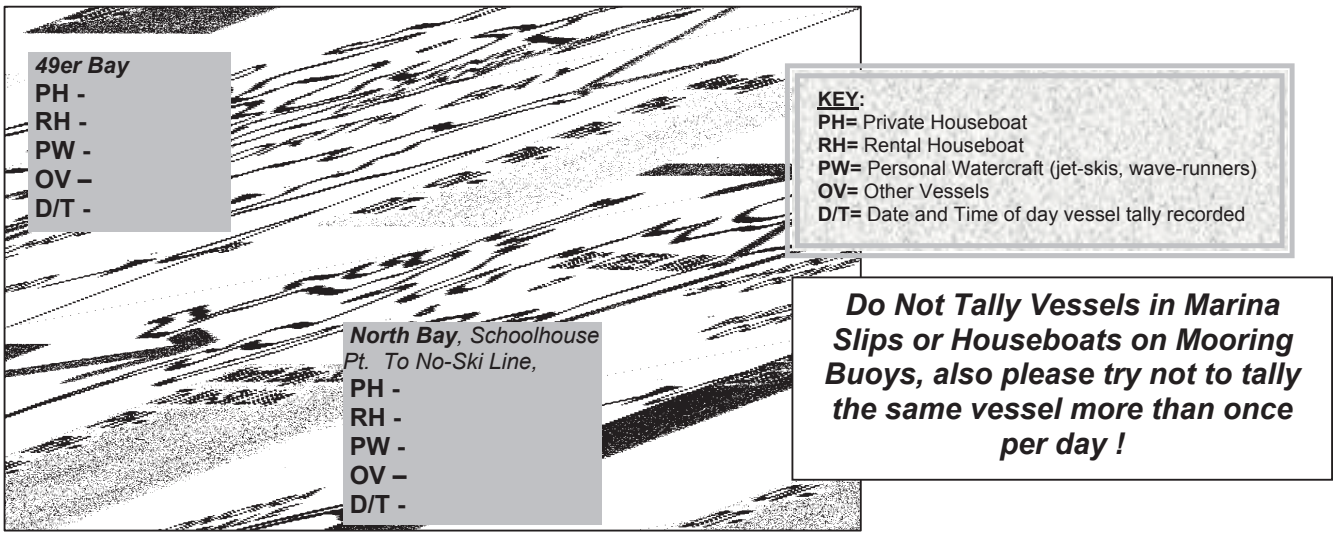
The purpose of the enclosed **Don Pedro Lake Vessel Monitoring / Sampling Map** is to provide a way to record actual vessel use field observations and statistics that can be utilized towards the development of vessel carrying capacities and or other needed vessel lake use regulations.

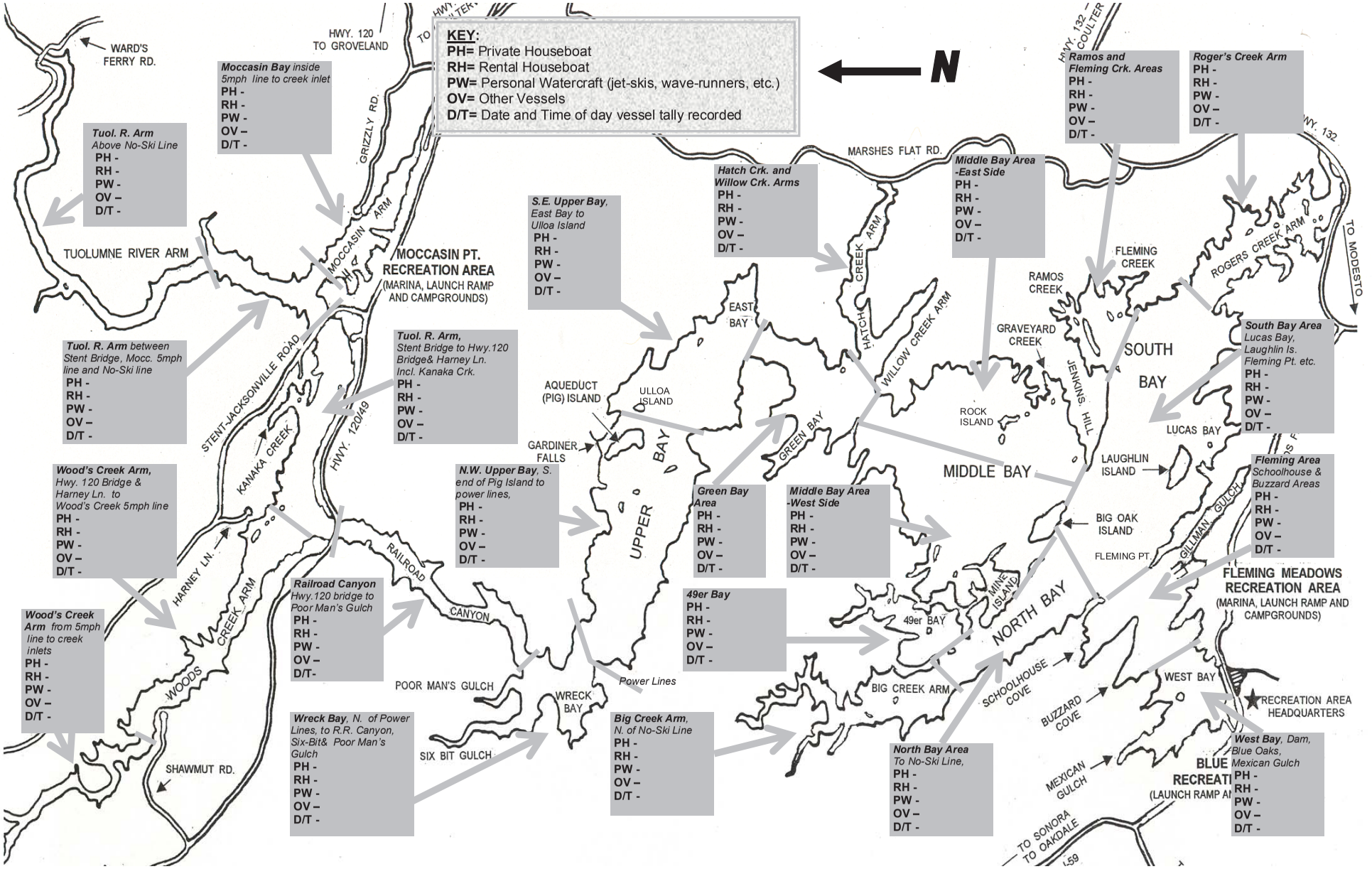
Don Pedro Lake Vessel Monitoring / Sampling Map Instructions:

Each monitoring/sampling map may be used for one or several days. On the front cover in the spaces provided, please record your name, employer or organization (if applicable), the date or dates that you are making observations, the day of the week, basic weather information (such as sunny and hot), the lake elevation if known (this information can be obtained later) and any special notes or comments such as holiday or special event information.

The enclosed lake map has been divided into twenty-two different vessel monitoring / sampling areas. Adjacent to each area is a corresponding vessel sampling tally box. Please tally the number of vessels that you observe in the corresponding tally box for each area that you are in. Tally private houseboats, rental houseboats and personal watercraft separately. Tally all other types of vessels observed together as “other vessels”. Count all moored, beached vessels and vessels that are under power. If you recognize the same vessel in more than one sampling area, do not tally it twice for the same day. **Do not tally vessels in marina slips or houseboats on mooring buoys**. Each map may be used for multiple visits to the lake. However, do not tally sampling data for the same area more than once per each map.

A larger number of participants will increase the accuracy of the statistical data gathered for this sampling program. Your participation and cooperation in recording field observations, whenever possible, will be very much appreciated. ***Thank You, DPRA!***




KEY:
PH= Private Houseboat
RH= Rental Houseboat
PW= Personal Watercraft (jet-skis, wave-runners, etc.)
OV= Other Vessels
D/T= Date and Time of day vessel tally recorded
N
WARD'S FERRY RD.
HWY. 120 TO GROVELAND
GRIZZLY RD.
Moccasin Bay inside 5mph line to creek inlet
PH -
RH -
PW -
OV –
D/T -
Tuol. R. Arm Above No-Ski Line
PH -
RH -
PW -
OV –
D/T -
TUOLUMNE RIVER ARM
MOCCASIN ARM
MOCCASIN PT. RECREATION AREA
(MARINA, LAUNCH RAMP AND CAMPGROUNDS)
S.E. Upper Bay, East Bay to Ulloa Island
PH -
RH -
PW -
OV –
D/T -
Hatch Crk. and Willow Crk. Arms
PH -
RH -
PW -
OV –
D/T -
MARSHES FLAT RD.
Middle Bay Area -East Side
PH -
RH -
PW -
OV –
D/T -
Ramos and Fleming Crk. Areas
PH -
RH -
PW -
OV –
D/T -
Roger's Creek Arm
PH -
RH -
PW -
OV –
D/T -
HWY. 132 – COULTER
HWY. 132
TO MODESTO
ROGERS CREEK ARM
FLEMING CREEK
RAMOS CREEK
HATCH CREEK ARM
WILLOW CREEK ARM
EAST BAY
GRAVEYARD CREEK
JENKINS HILL
SOUTH BAY
South Bay Area Lucas Bay, Laughlin Is. Fleming Pt. etc.
PH -
RH -
PW -
OV –
D/T -
Tuol. R. Arm between Stent Bridge, Mocc. 5mph line and No-Ski line
PH -
RH -
PW -
OV –
D/T -
STENT-JACKSONVILLE ROAD
KANAKA CREEK
HWY. 120/49
Tuol. R. Arm, Stent Bridge to Hwy.120 Bridge& Harney Ln. Incl. Kanaka Crk.
PH -
RH -
PW -
OV –
D/T -
AQUEDUCT (PIG) ISLAND
ULLOA ISLAND
GARDINER FALLS
ROCK ISLAND
LUCAS BAY
LAUGHLIN ISLAND
MIDDLE BAY
GREEN BAY
UPPER BAY
Wood's Creek Arm, Hwy. 120 Bridge & Harney Ln. to Wood's Creek 5mph line
PH -
RH -
PW -
OV –
D/T -
N.W. Upper Bay, S. end of Pig Island to power lines,
PH -
RH -
PW -
OV –
D/T -
Green Bay Area
PH -
RH -
PW -
OV –
D/T -
Middle Bay Area -West Side
PH -
RH -
PW -
OV –
D/T -
Fleming Area Schoolhouse & Buzzard Areas
PH -
RH -
PW -
OV –
D/T -
BIG OAK ISLAND
FLEMING PT.
GILLMAN GULCH
HARNEY LN.
RAILROAD CANYON
Railroad Canyon Hwy.120 bridge to Poor Man's Gulch
PH -
RH -
PW -
OV –
D/T-
49er Bay
PH -
RH -
PW -
OV –
D/T -
MINE ISLAND
49er BAY
NORTH BAY
FLEMING MEADOWS RECREATION AREA
(MARINA, LAUNCH RAMP AND CAMPGROUNDS)
Wood's Creek Arm from 5mph line to creek inlets
PH -
RH -
PW -
OV –
D/T -
WOODS CREEK ARM
POOR MAN'S GULCH
Power Lines
WRECK BAY
BIG CREEK ARM
SCHOOLHOUSE COVE
BUZZARD COVE
WEST BAY
RECREATION AREA HEADQUARTERS
Wreck Bay, N. of Power Lines, to R.R. Canyon, Six-Bit& Poor Man's Gulch
PH -
RH -
PW -
OV –
D/T -
SIX BIT GULCH
Big Creek Arm, N. of No-Ski Line
PH -
RH -
PW -
OV –
D/T -
North Bay Area To No-Ski Line,
PH -
RH -
PW -
OV –
D/T -
MEXICAN GULCH
West Bay, Dam, Blue Oaks, Mexican Gulch
PH -
RH -
PW -
OV –
D/T -
BLUE
RECREATI
(LAUNCH RAMP A
SHAWMUT RD.
TO SONORA
TO OAKDALE
I-59

DON PEDRO LAKE USER SURVEY

Your input will help to shape the future of recreational boating on Don Pedro Lake!
Please take a moment to fill out this survey and return it to one of the locations listed below.

1. How many days out of the year do you normally spend at Don Pedro Lake?
   a. Less than 10 days per year or don't visit every year.
   b. 10 to 20 days per year.
   c. More than 20 days per year.
2. Do you own and operate your own vessel(s) on Don Pedro Lake?
   a. Yes b. No c. No, but I operate rental vessels
3. If you own, how many vessels do you own and regularly operate at Don Pedro?
   a. One b. Two c. Three or more
4. What type of water related activities do you engage in on Don Pedro Lake? *(circle all that apply)*
   a. Fishing b. Sailing, wind-surfing c. Boat-in Camping
   d. Houseboating e. Swimming f. Speed boating
   g. Personal Watercraft operation (jet-ski, wave-runner etc.) h. Pleasure boating, sight seeing
   i. Water-skiing, wake-boarding, knee-boarding, other skill required boat towed activities
   j. Tubing or other similar un-skilled boat towed activities
   k. Kayaking, canoeing, other paddled vessels
   l. Other: _____
5. On Don Pedro Lake, how far away from the launch ramp or marina do you normally travel in your vessel?
   a. Usually stay within two miles of launch ramp or marina.
   b. Usually stay within two to five miles of launch ramp or marina.
   c. Frequently go beyond five miles from launch ramp or marina.
6. Name your three favorite areas of the lake *(please use location names listed on map on back).*
   (1) _____ (2) _____ (3) _____
7. Have you ever experienced a time when you felt there were too many boats on the lake?
   a. No
   b. Yes, (if yes, please explain) _____
8. Do you feel that the <u>existing</u> restricted use areas (i.e. 5mph & No Ski areas) on the lake are sufficient and in the proper locations on the lake?
   a. Yes
   b. No, (if no, please explain) _____
9. Are there any changes that should be made that would improve the overall quality and safety of the recreational boating experience at Don Pedro Lake?
   a. No
   b. Yes, (if yes, please explain) _____

**If you have additional comments you may write them on the back of this form.*
*****Please limit your response to one survey per person**, mail or return this form to Agency staff or to one of the survey return drop box locations listed below **by no later than September 15, 2003.***

<u>Our mailing address:</u>

- Don Pedro Recreation Agency, 31 Bonds Flat Rd., La Grange, CA 95329

<u>Survey return drop box locations:</u>

- Fleming, Blue Oaks and Moccasin Pt. Recreation Area Entrance Stations.
- Recreation Area Headquarters / Visitor Center *(the round building that overlooks the dam)*
- Lake Don Pedro Marina Office, Marina Store and Trading Post.
- Moccasin Pt. Marina Store and Office.

<u>Optional:</u>
******Provide your contact information and you will be entered in a drawing for a free 2004 Don Pedro Recreation Agency Annual Pass!** (only one entry per person will be accepted)*

Name (please print) _____ Phone # (optional) _____

Mailing Address _____

Thank you for your cooperation, DPRA

LAKE USE SURVEY *(please return with your Houseboat Permit Renewal Application)*

1. On average how many days out of the year do you spend on your houseboat at Don Pedro Lake?
   a. Less than ten days
   b. Ten to thirty days
   c. Thirty or more days

2. On average, how many other vessels are operated on Don Pedro Lake by all persons who use your houseboat each year?
   a. Two or less
   b. Three to five
   c. More than five

3. Have you ever experienced a time when you felt that there were too many boats being operated on Don Pedro Lake?
   a. Yes, on some weekends and holidays during the Summer
   b. Yes, but only around certain Summer holidays
   c. Yes, but it has only happened a couple of times
   d. No

4. *(complete this sentence)* When boating traffic on Don Pedro Lake is heavy it is …
   a. concentrated primarily in the popular areas of the lake.
   b. evenly distributed throughout the entire surface of the lake.

5. Should the Agency increase the number of private houseboat permits that are currently on the lake?
   a. Yes
   b. No

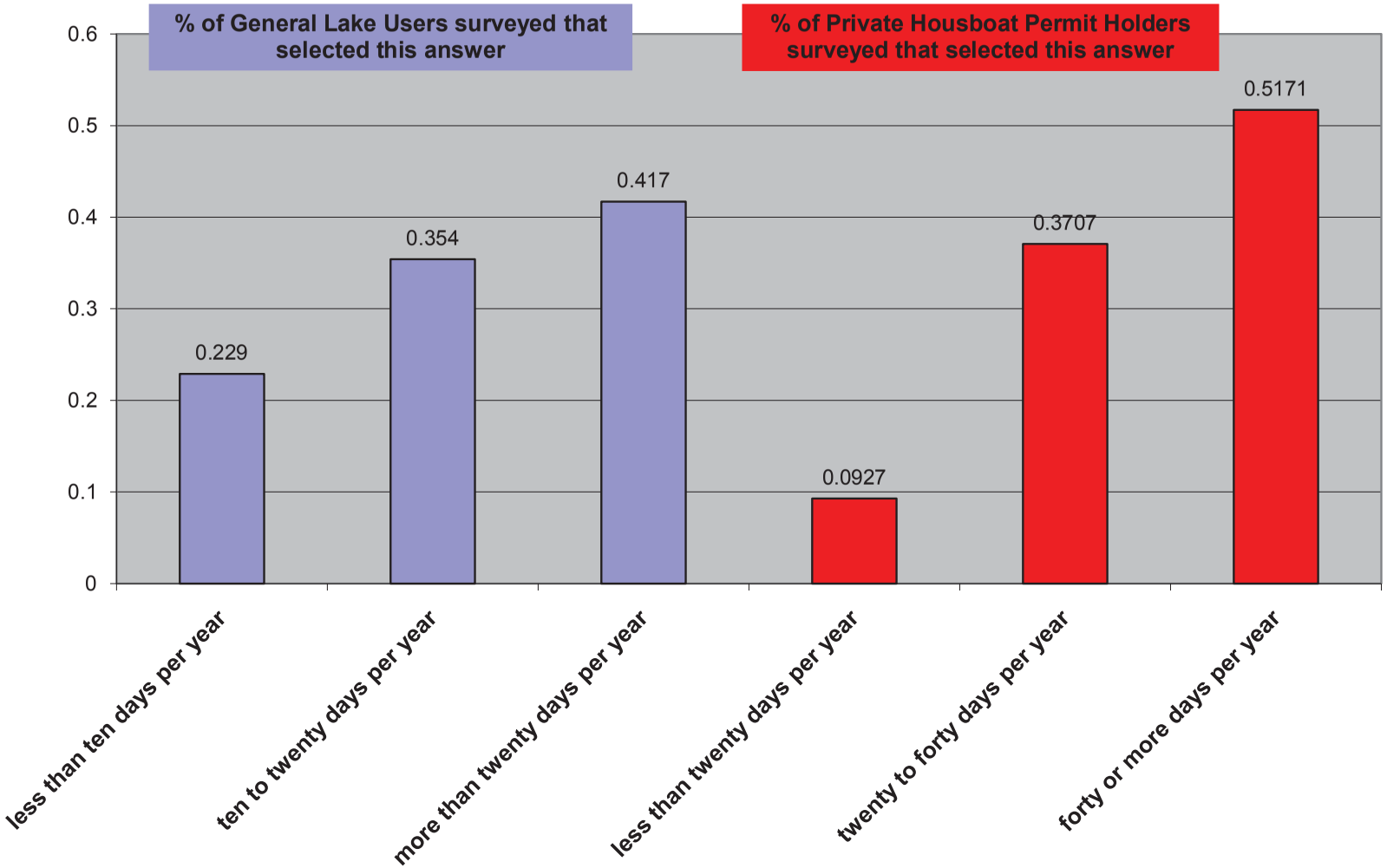
6. Should the Agency increase the number of permitted marina rental houseboats that are currently on the lake?
   a. Yes
   b. No

7. From Memorial Day through Labor Day, how often do you encounter difficulty finding a suitable place to moor your houseboat along the shoreline?
   a. Always
   b. Frequently
   c. Occasionally
   d. Never

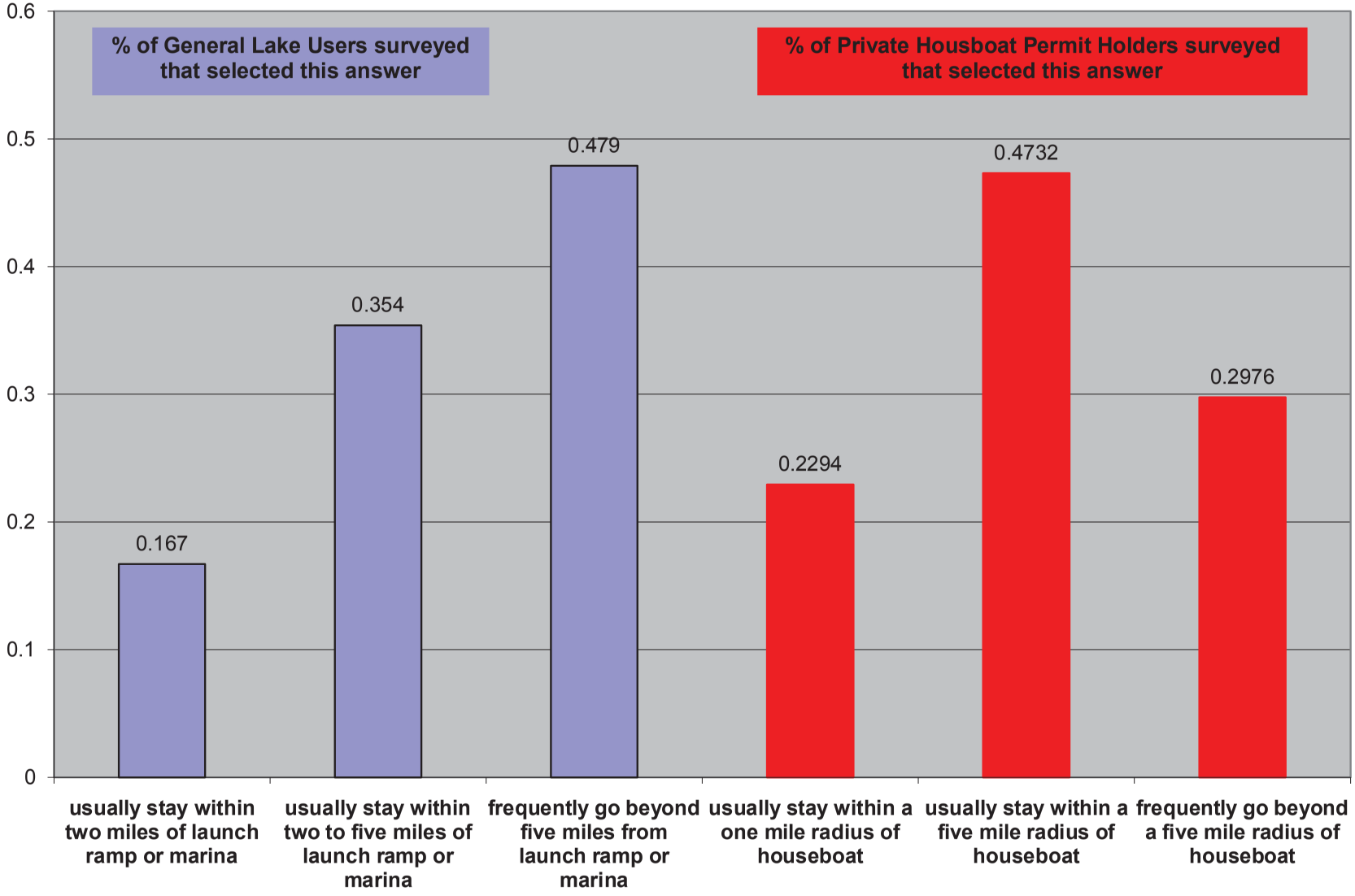
8. What areas of the lake do you use the most? **(choose up to three favorite areas)*
   a. South Bay Area *(includes Lucas Bay, Ramos Creek and Rogers Creek)*
   b. West Bay Area *(includes Mexican Gulch, Buzzard, Schoolhouse, Fleming, private marina)*
   c. North Bay Area *(includes Big Creek, 49er Bay)*
   d. Middle Bay Area *(includes Mud Flats, east shore of Mine Island, Graveyard Creek)*
   e. Hatch Creek, Willow Creek and Green Bay Areas
   f. Upper Bay Area *(includes East Bay, Pig Island, Siphon and Wreck Bay)*
   g. Railroad Canyon, Six Bit Gulch and Poor Man's Gulch Areas
   h. Wood's Creek Arm *(includes Sullivan Creek)*
   i. Tuolumne River Arm between bridges *(includes Kanaka Creek)*
   j. M occasin Bay
   k. Tuolumne River Arm north of Stent-Jacksonville bridge to above Ward's Ferry Bridge

9. Should the Agency restrict the number of personal watercraft allowed on the Lake?
   a. Yes
   b. No

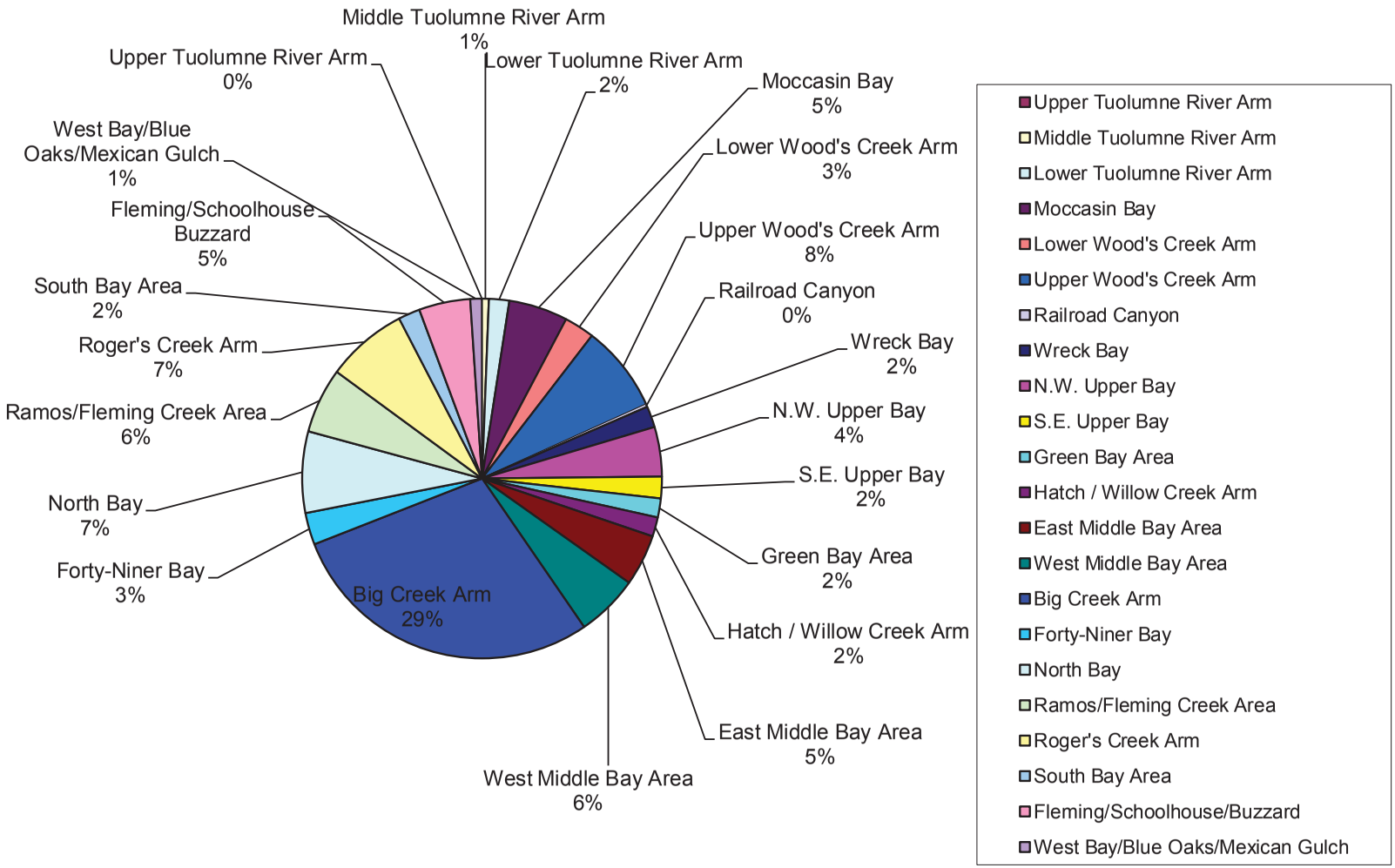
Average number of days per year spent recreating at Don Pedro Lake
(based on 2002 and 2003 user survey results)



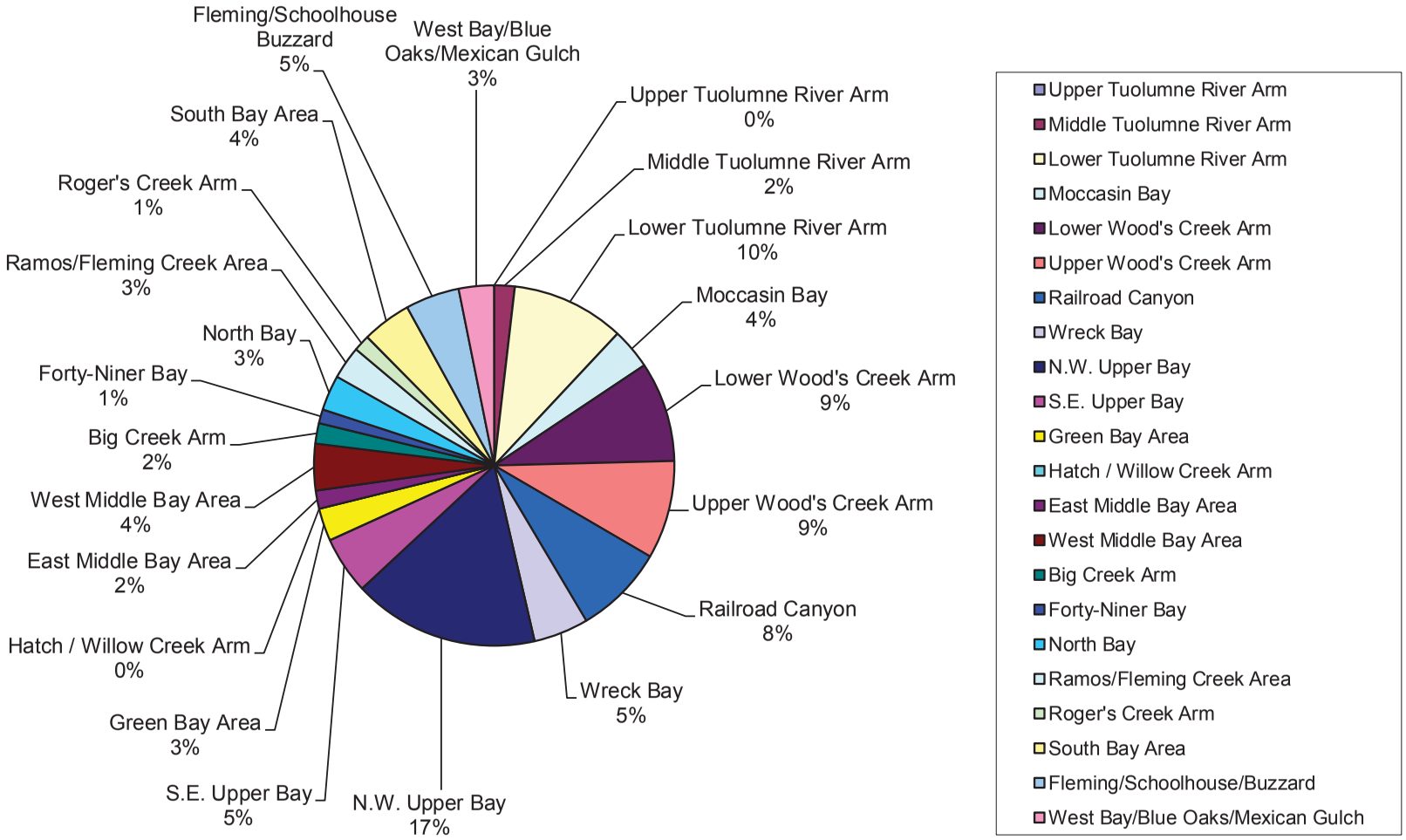
Average distance traveled for recreation on Don Pedro Lake
(based on 2002 and 2003 user survey results)



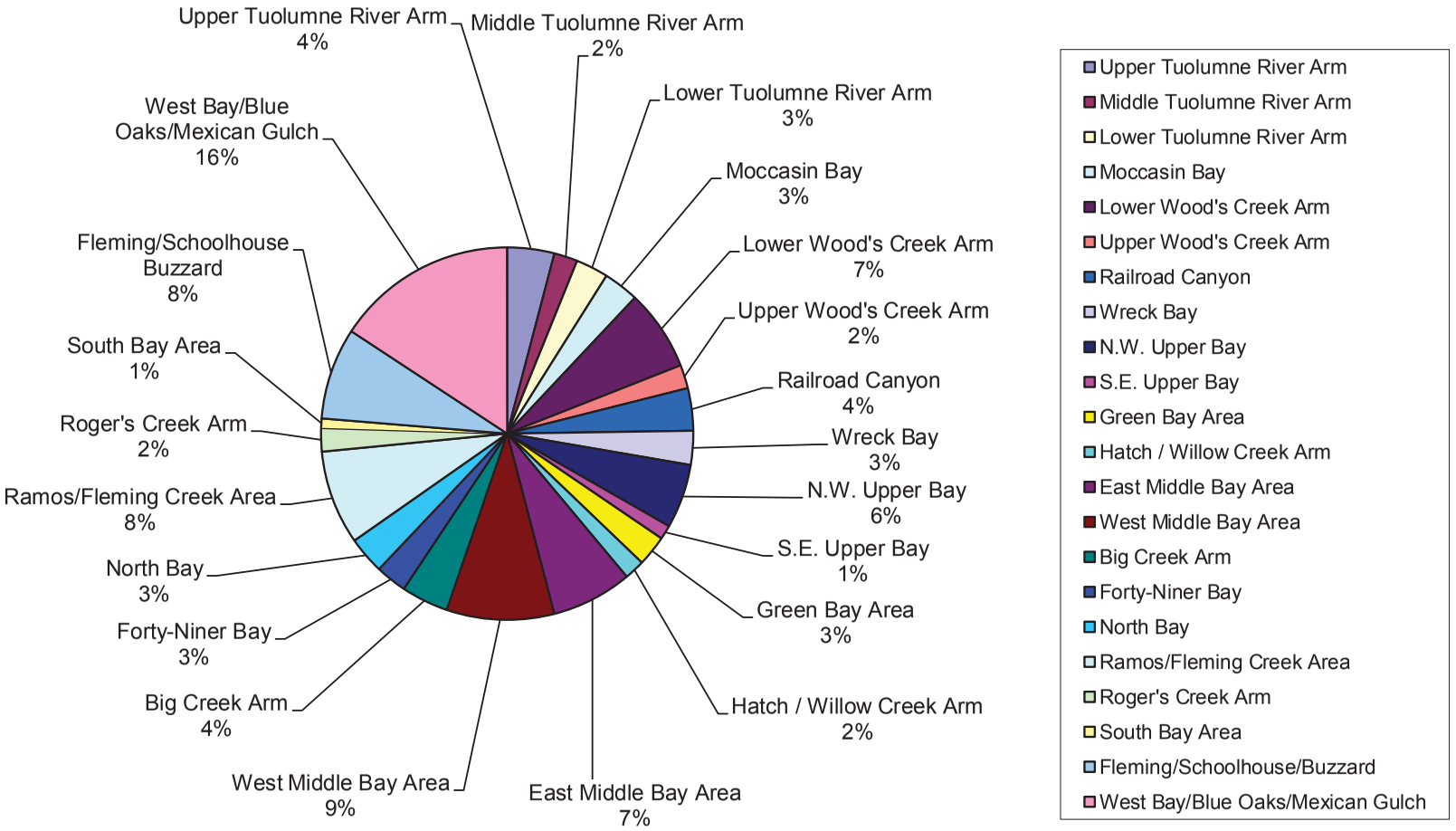
Average "Summer" percentage of Private Houseboats observed in different sampling areas of Don Pedro Lake *(per 2003 and 2004 Vessel Monitoring Sampling Data)*



Average "Summer" percentage of Rental Houseboats observed in different sampling areas of Don Pedro Lake *(per 2003 and 2004 Vessel Monitoring Sampling Data)*

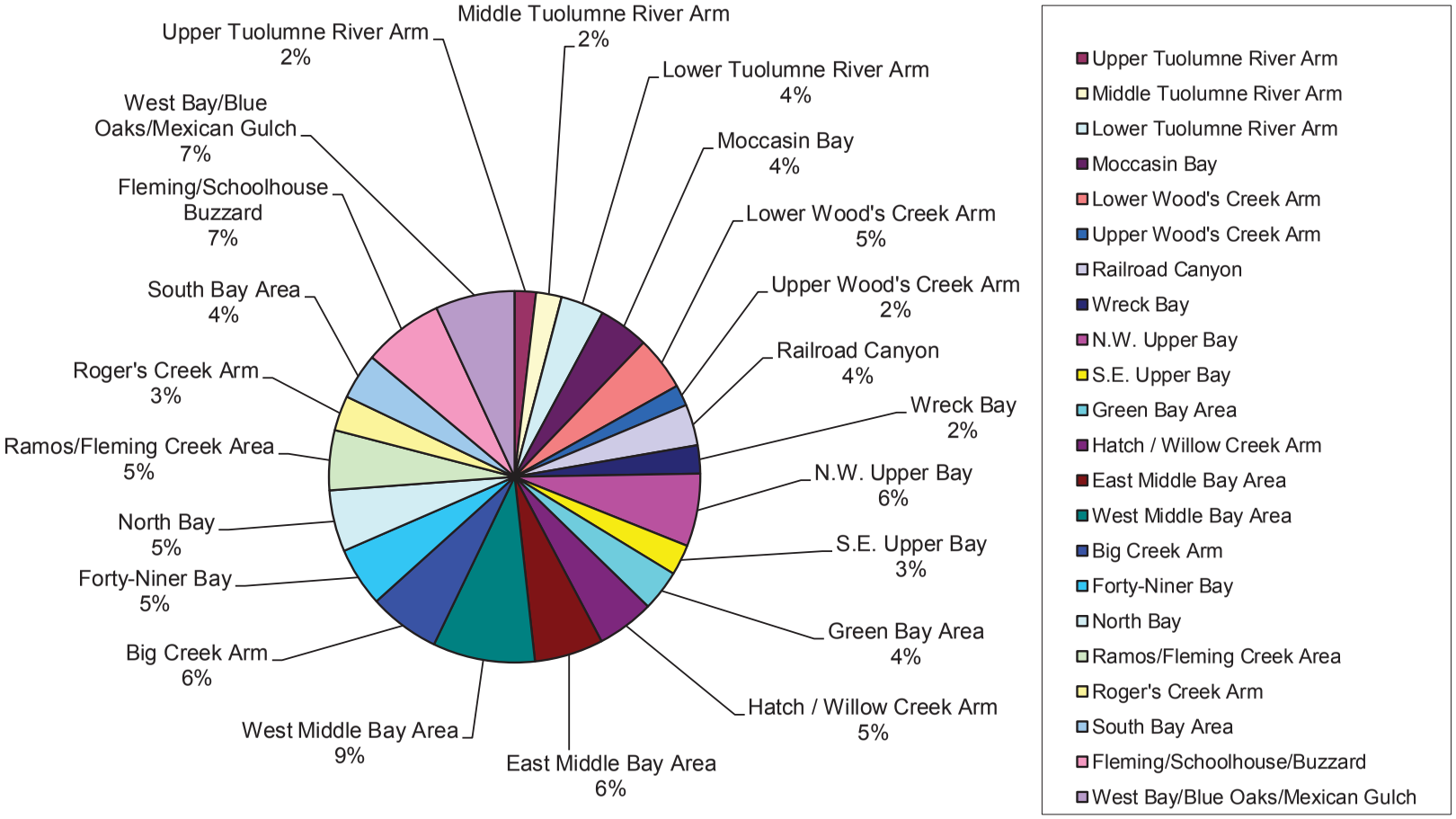


Average "Summer" percentage of Personal Watercraft observed in different sampling areas of Don Pedro Lake *(per 2003 and 2004 Vessel Monitoring Sampling Data)*



Average "Summer" percentage of *<u>Other Type of Vessels</u> observed in different sampling areas of Don Pedro Lake *(per 2003 and 2004 Vessel Monitoring Sampling Data)*

**(<u>Other Types of Vessels</u> include all vessels that are not houseboats or personal watercraft)*



DON PEDRO LAKE "GENERAL USER" SURVEY RESULTS

The Don Pedro Lake "General User" survey was conducted from the 2003 Memorial Day Weekend until mid-October 2003. Survey forms were made available to the public in special labeled survey dispenser boxes placed at all Recreation Area entrance stations, the Recreation Area Visitor Center and both marina concessionaire offices. The survey form was printed on the back of the Agency Dispersed Area / Lakeshore Camping Map. All persons who registered for Lakeshore camping and all persons who requested a map would have consequently received one of these survey forms during this time period. In addition a free annual pass to be chosen by random drawing was offered as an incentive to encourage users to complete and return survey forms. Only 48 survey forms were returned to the Agency. Some were not complete.

Survey Questions, Answers and Comments *Listed in the order that they appeared on the Original Survey*	**Total # of respondents who selected answer or comment**	*** % of respondents who selected answer or comment**
1. How many days out of the year do you normally spend at Don Pedro Lake?		
a. Less than 10 days per year or don't visit every year	11	22.9%
b. 10 to 20 days per year.	17	35.4%
c. More than 20 days per year.	20	41.7%
2. Do you own and operate your own vessel(s) on Don Pedro Lake?		
a. Yes	47	97.9%
b. No	0	0%
c. No, but I operate rental vessels	1	2.1%
3. If you own, how many vessels do you own and regularly operate at Don Pedro? *(only 45 responses to this question)*		***% of 45**
a. One	25	55.6%
b. Two	9	20%
c. Three or more	11	24.4%
4. What type of water related activities do you engage in on Don Pedro Lake? **(multiple selections, % does not total to 100)		***** % of 48 that selected category***
a. Fishing	31	64.6%
b. Sailing, wind-surfing	4	2.1%
c. Boat-in Camping	14	29.2%
d. Houseboating	11	22.9%
e. Swimming	34	70.8%
f. Speed boating	15	31.3%
g. Personal Watercraft operation (jet-ski, wave-runner etc.)	23	47.9%
h. Pleasure boating, sight seeing	27	56.3%
i. Water-skiing, wake-boarding, knee-boarding, other skill required boat towed activities	34	70.8%
j. Tubing or other similar un-skilled boat towed activities	30	62.5%
k. Kayaking, canoeing, other paddled vessels	6	12.5%
Other: Skinny Dipping	1	2.1%
Other: Tube Fishing	1	2.1%

DON PEDRO LAKE "GENERAL USER" SURVEY RESULTS

Survey Questions, Answers and Comments *Listed in the order that they appeared on the Original Survey*	**Total # of respondents who selected answer or comment**	*** % of respondents who selected answer or comment**
5. On Don Pedro Lake, how far away from the launch ramp or marina do you normally travel in your vessel?		
a. Usually stay within two miles of launch ramp or marina.	8	16.7%
b. Usually stay within two to five miles of launch ramp or marina.	17	35.4%
c. Frequently go beyond five miles from launch ramp or marina.	23	47.9%

6. Name your three favorite areas of the lake ***(3 areas selected by each respondent so % does not total to 100)*		
Middle Bay	14	29.2%
Tuolumne River Arm	12	25.0%
Woods Creek Arm	11	22.9%
North Bay / Big Creek Arm	10	20.8%
South Bay / Rogers Creek Arm	10	20.8%
Moccasin Bay	8	16.7%
Upper Bay	7	14.6%
Jenkin's Hill	7	14.6%
West Bay / Fleming / Blue Oaks / Dam Area	6	12.5%
49er Bay	5	10.4%
Hatch Creek Arm	5	10.4%
Railroad Canyon	4	8.3%
Graveyard Creek / Rock Island	4	8.3%
Gardiner Falls / Pig Island	4	8.3%
Six Bit Gulch	3	6.3%
Poor Man's Gulch	2	4.2%
Lucas Bay	2	4.2%
Wreck Bay	1	2.1%
Green Bay	1	2.1%
Ramos Creek	1	2.1%
Willow Creek	1	2.1%
Power Lines	1	2.1%
Ward's Ferry	1	2.1%
Mine Island	1	2.1%
Rough & Ready Creek	1	2.1%
Marina	1	2.1%
SS Relief	1	2.1%

DON PEDRO LAKE "GENERAL USER" SURVEY RESULTS

Survey Questions, Answers and Comments *Listed in the order that they appeared on the Original Survey*	**Total # of respondents who selected answer or comment**	*** % of respondents who selected answer or comment**
7. Have you ever experienced a time when you felt there were too many boats on the lake? **(47 responded to this question)*		***% of 47 that responded***
a. No	30	63.8%
b. Yes, (if yes, please explain)	17	37.2%
****Paraphrased comments in regards to Yes answer on question #7*** *(18 submitted comments)*		
Weekends and Holidays	4	8.5%
Fourth of July Holiday	4	8.5%
Too many unskilled boaters and jet ski operators	2	4.25%
Launch ramps could be better regulated and supervised, sometimes have to wait in long lines to pull and launch boat	2	4.25%
Railroad Canyon is sometimes just like a freeway	1	2.13%
Too many boarders cause too much rough water	1	2.13%
Sometimes so many boats that you have to dodge skiers	1	2.13%
Many seem unaware of what their vessel wake does to moored vessels	1	2.13%
Only fish on weekdays, never on weekends or holidays	1	2.13%
There is always a cove to hang in	1	2.13%

8. Do you feel that the <u>existing</u> restricted use areas (i.e. 5mph & No Ski areas) on the lake are sufficient and in the proper locations on the lake? **(46 responded to this question)*		***% of 46 that responded***
a. Yes	39	84.8%
b. No, (if no, please explain)	7	15.2%
****Paraphrased comments in regards to No answer on question #8*** *(11 submitted comments)*		
Moccasin Bay is not sufficiently marked	3	6.5%
5mph zone extends too far out from the Moccasin Pt. boat ramp	2	4.3%
Wood's Creek 5mph buoy line should be moved back to original location	2	4.3%
Need more 5mph zones to provide areas free of skiers and jet-skiers	1	2.2%
Don't understand "No-Ski" buoys in Big Creek Arm	1	2.2%
Just wish people would abide by them more	1	2.2%
Ramos Creek should be a 5mph zone since there is a restroom there	1	2.2%
You should close off an area to boats and fishing each year for spawning	1	2.2%

DON PEDRO LAKE "GENERAL USER" SURVEY RESULTS

Survey Questions, Answers and Comments Listed in the order that they appeared on the Original Survey	**Total # of respondents who selected answer or comment**	*** % of 48 respondents who selected answer or comment**
9. Are there any changes that should be made that would improve the overall quality and safety of the recreational boating experience at Don Pedro Lake?		
a. No	17	35.4%
b. Yes, (if yes please explain)	31	64.6%
Paraphrased comments in regards to Yes answer on question #9		
Need more boating law enforcement on the lake	6	12.5%
More monitoring, enforcement and supervision needed at Boat launch ramps on busy days	5	10.4%
Need to implement and enforce loud noise and loud music restrictions on lake and along undeveloped shoreline	3	6.3%
More boater education needed in safe operation and boating laws	3	6.3%
Create specific areas where loud music is prohibited	1	2.1%
Vessel mooring should not be allowed on the inside of launch ramp courtesy docks	1	2.1%
Provide separate areas for jet-ski operation	1	2.1%
Post direction of traffic flow signs on lake	1	2.1%
Keep the jet-skis off of the lake	1	2.1%
Back-fill and pave edge of Blue Oaks Boat ramp to make safe	1	2.1%
Add two additional launch ramps in no-camping areas	1	2.1%
Install private launch ramps for people who pay a private launch fee	1	2.1%
Boaters need to pay more attention	1	2.1%
Fee collection and traffic flow into Moccasin Pt. should be better organized	1	2.1%
Add another courtesy dock for unloading	1	2.1%
Keep planting Kokanee and King Salmon	1	2.1%
Need more areas with garbage cans for trash drop off	1	2.1%
Too many rental boats at the marina, take up slip space that could be used for private vessel mooring	1	2.1%
Need a Saturday night barbecue and Sunday morning breakfast at the Trading Post	1	2.1%
Keep area around fish cleaning station and ramp bathroom green and cut	1	2.1%
Its great!	1	2.1%
Extremely pleasurable boating	1	2.1%

DON PEDRO LAKE PRIVATE HOUSEBOAT PERMIT HOLDER SURVEY RESULTS

*This survey was sent out to all 257 Don Pedro Lake private houseboat permit holders in December of 2002. A total of 205 surveys were returned to the Agency. This is a 79.8% survey participation rate. Most surveys were completed, some were partially completed, many were accompanied by comments and suggestions. *(Partially completed surveys for some questions resulted in respondent numbers totaling less than 205 and percentages totaling less than 100) .*

Survey Questions, Answers and Comments *Listed in the order that they appeared on the Original Survey*	**Total # of respondents who selected answer or comment**	*** % of 205 respondents who selected answer or comment**
1. How many days out of each year do you normally spend on your houseboat at Don Pedro Lake?		
a. Less than twenty days	19	9.27%
b. Twenty to forty days	76	37.07%
c. Forty or more days	106	51.71%
2. Please list <u>three areas</u> of the lake where you spend the most time on your houseboat ***(3 areas were selected by each respondent therefore % does not total to 100)*		**
Middle Bay	61	29.76%
North Bay / Big Creek	45	21.95%
Upper Bay	40	19.51%
Woods Creek	39	19.02%
Ramos Creek	34	16.59%
Pig Island / Gardiner Falls	18	8.78%
South Bay	17	8.29%
Schoolhouse	14	6.83%
LDPM Private Houseboat Marina	13	6.34%
Buzzard	11	5.37%
Hatch Creek	11	5.37%
49er Bay	11	5.37%
Kanaka Creek	11	5.37%
Moccasin Pt. Marina	9	4.39%
Wreck Bay / Power Line Area	9	4.39%
Mooring Buoy	9	4.39%
Six Bit Gulch	9	4.39%
Tuolumne River Arm	9	4.39%
Rock Island / Graveyard / Jenkins Hill / Don Pedro Bar Area	9	4.39%
Fleming Creek	5	2.44%
Gillman Gulch	5	2.44%
Mud Flats	5	2.44%
Railroad Canyon	4	1.95%
Harney Lane / Hwy. 120 Bridge Area	4	1.95%
Lucas Bay	3	1.46%
Roger's Creek	2	0.98%
Fleming Meadows	2	0.98%
Domingo Gulch (in Upper Bay West of Ulloa Island)	2	0.98%
4th of July Cove	1	0.49%
Lower Bay / West Bay	1	0.49%
Houseboat Repair Yard	1	0.49%

DON PEDRO LAKE PRIVATE HOUSEBOAT PERMIT HOLDER SURVEY RESULTS

Survey Questions, Answers and Comments *Listed in the order that they appeared on the Original Survey*	**Total # of respondents who selected answer or comment**	*** % of 205 respondents who selected answer or comment**
3. How much lake area around your houseboat do you normally utilize to recreate within?		
a. Usually stay within a one mile radius of houseboat	47	22.94%
b. Usually stay within a five mile radius of houseboat	97	47.32%
c. Frequently go beyond a five mile radius of houseboat for lake recreation	61	29.76%
4. How many other vessels are normally operated on Don Pedro Lake by persons who use your houseboat?		
a. Usually two or less per year.	110	53.66%
b. Usually three to five per year	66	32.20%
c. Usually more than five per year	23	11.61%
5. Have you ever experienced a time when you felt that too many boats were on the Lake?		
a. No	43	20.98%
b. Yes (if yes, please explain)*	155	75.61%
****Paraphrased comments received in regards to Yes answer on question #5*** *(see appendix for photo copies of complete comments and suggestions received)*		
Weekends and Holidays in the Summer	106	51.71%
Fourth of July weekend only	21	10.24%
Too many rental houseboats at Moccasin	7	3.41%
Too many Jet-Skiers and skiers	7	3.41%
Insufficient boating law enforcement and patrol	6	2.93%
Rental Houseboats delay pump-outs at LDPM Marina	5	2.44%
Too many violate no wake zones	5	2.44%
Hard to find good shoreline mooring area at times	5	2.44%
Increasing numbers of inexperienced vessel operators	5	2.44%
No Privacy	4	1.95%
Too many rental boats	2	0.98%
Rental Houseboats delay pump-outs at MPM Marina	1	0.49%
Weekend Fishing Tournaments	1	0.49%
Noise and boat traffic from Moccasin Boat Ramp too close to houseboat mooring lines, causes too many problems	1	0.49%
Too many unattended houseboats left in coves for long periods	1	0.49%
6. Should the Agency increase the number of private permitted houseboats currently on the lake?		
a. Yes	8	3.90%
b. No	191	93.17%
Wrote in “Undecided	1	0.49%

DON PEDRO LAKE PRIVATE HOUSEBOAT PERMIT HOLDER SURVEY RESULTS

Survey Questions, Answers and Comments Listed in the order that they appeared on the Original Survey	**Total # of respondents who selected answer or comment**	*** % of 205 respondents who selected answer or comment**
7. Should the Agency increase the number of permitted marina rental houseboats currently on the lake?		
a. Yes	5	2.44%
b. No	190	92.68%
Wrote in: "Undecided"	1	0.49%
Wrote in: "Yes, if it lowers the cost for private houseboats"	1	0.49%
Wrote in: "West Shore only"	1	0.49%
Wrote in: "Depends on how many"	1	0.49%
8. Do you ever encounter difficulty finding a suitable place to moor your houseboat along the shoreline?		
a. Yes, frequently	44	21.46%
b. Yes, sometimes	120	58.54%
c. No, never	28	13.66%

DRAFT

USGS
science for a changing world

USGS Western Pond Turtle (*Emys marmorata*) Visual Survey Protocol for the Southcoast Ecoregion

Survey Protocol, version 1



U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY
WESTERN ECOLOGICAL RESEARCH CENTER

DRAFT

USGS Western Pond Turtle (*Emys marmorata*) Visual Survey Protocol for the Southcoast Ecoregion

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U.S. GEOLOGICAL SURVEY
WESTERN ECOLOGICAL RESEARCH CENTER

Survey Protocol

Sacramento, California
2006

U.S. DEPARTMENT OF THE INTERIOR
DIRK KEMPTHORNE, SECRETARY

U.S. GEOLOGICAL SURVEY
P. Patrick Leahy, Acting Director

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For additional information, contact:

Center Director
Western Ecological Research Center
U.S. Geological Survey
3020 State University Drive, East Modoc Hall
Sacramento, CA 95819

TABLE OF CONTENTS

1.0 Introduction....1
2.0 Pond Turtle Natural History....1
3.0 Purpose....4
4.0 Protocol Organizational Overview....4
5.0 Pre-survey Procedures....5
5.1 Preparing a Survey Map....5
5.2 Preparing a Field Kit....5
5.3 Navigating to a Site....7
6.0 Visual Survey Protocol....7
6.1 Initial Survey Data for Visual Surveys....7
6.1.1 Site Visit Form....8
6.1.1.1 Weather Data....8
6.1.1.2 Water Quality Measurements....9
6.1.1.3 Species List....10
6.2 Visual Survey Techniques....11
6.3 Visual Survey Animal Records....12
6.3.1 Non-turtle Animal Records....12
6.3.2 Non-native Turtle Animal Records....13
6.3.3 Pond Turtle Animal Records....14
6.4 Ending a Site....15
6.4.1 Documenting Non-native Vegetation....15
6.4.2 Documenting Landscape and Vegetation....16
6.4.2.1 Documenting Water and Habitat Characteristics....17
6.5 End of Survey....19
7.0 Post-survey Procedures....19
Literature Cited....21
Appendix 1. Landscape Figures....25
Appendix 2. Data Definitions....26
Appendix 3. Vegetation Communities Commonly Found in Southern California....28
Appendix 4. Paper Data Form....54
Appendix 5. Additional References and Resources....56

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1.0 INTRODUCTION

This protocol documents standard visual survey techniques for southern populations of the western pond turtle (*Emys marmorata*), hereafter referred to as pond turtle, in the southcoast ecoregion of the United States (within the U. S. this extends from Santa Barbara, California to the Mexican boarder). The purpose of this protocol is to provide standard guidelines for determining pond turtle presence and relative abundance. The protocol also contributes information on general habitat components and disturbances found at each location so that hypotheses can be formulated and tested as to why a species occurs or does not occur in a particular area. In addition, the techniques are effective at documenting other aquatic species such as fish, amphibians, snakes, and other aquatic freshwater taxa. This protocol is based on methods found in the USGS Aquatic Species and Habitat Assessment Protocol for Southcoast Ecoregion Rivers, Streams, and Creeks (U. S. Geological Survey, 2006a).

This protocol describes visual surveys that are to be conducted in streams, rivers, ponds, reservoirs and lakes. Surveys conducted on linear sites, for example streams or rivers, will be broken down into 250 m segments. Segmenting the linear survey areas will provide a reasonable means of recording data that are representative of the entire site and will allow for detection probability analyses to be calculated. Surveys should be conducted during the time of greatest pond turtle activity, typically during the breeding season (May - July), and when pond turtles have not left the water to aestivate or overwinter in the uplands. Southern populations of pond turtles may remain active and in the water year-round, if the conditions are suitable (enough water, warm temperatures); however, this is not well studied.

In this protocol we assume that prior to conducting a survey, surveyors have familiarized themselves with background information and the biology of the pond turtle in order to form a good search image and know where to look for this species. For information on the key characteristics, natural history, and biology of the pond turtle we suggest referring to Stebbins (2003) and "A Field Guide to the Reptiles and Amphibians of Coastal Southern California" (http://www.werc.usgs.gov/fieldguide/). A brief summary of pond turtle natural history is included in this protocol.

2.0 POND TURTLE NATURAL HISTORY

The pond turtle, a member of the Emydidae family, is the only turtle native to coastal California. Pond turtles are cryptically colored and vary from brown to olive-brown to dark brown (Figure 1). The scutes on their carapace have a radiating marbled pattern that are sometimes only visible in sunlight and their head and body have a mottled appearance (Figures 1 & 2). Males and females have slight morphological differences. Males tend to have thicker tails and their cloacal opening falls posterior to the posterior edge of their carapace (Figure 3). Females have thinner tails and their cloacal opening falls at or anterior to the posterior edge of their carapace (Figure 3). Males tend to have concave plastrons (to aid in mating), while females tend to have flat or slightly convex plastrons. The carapaces of females are also taller to allow room for eggs.



Figure 1. Western pond turtle.

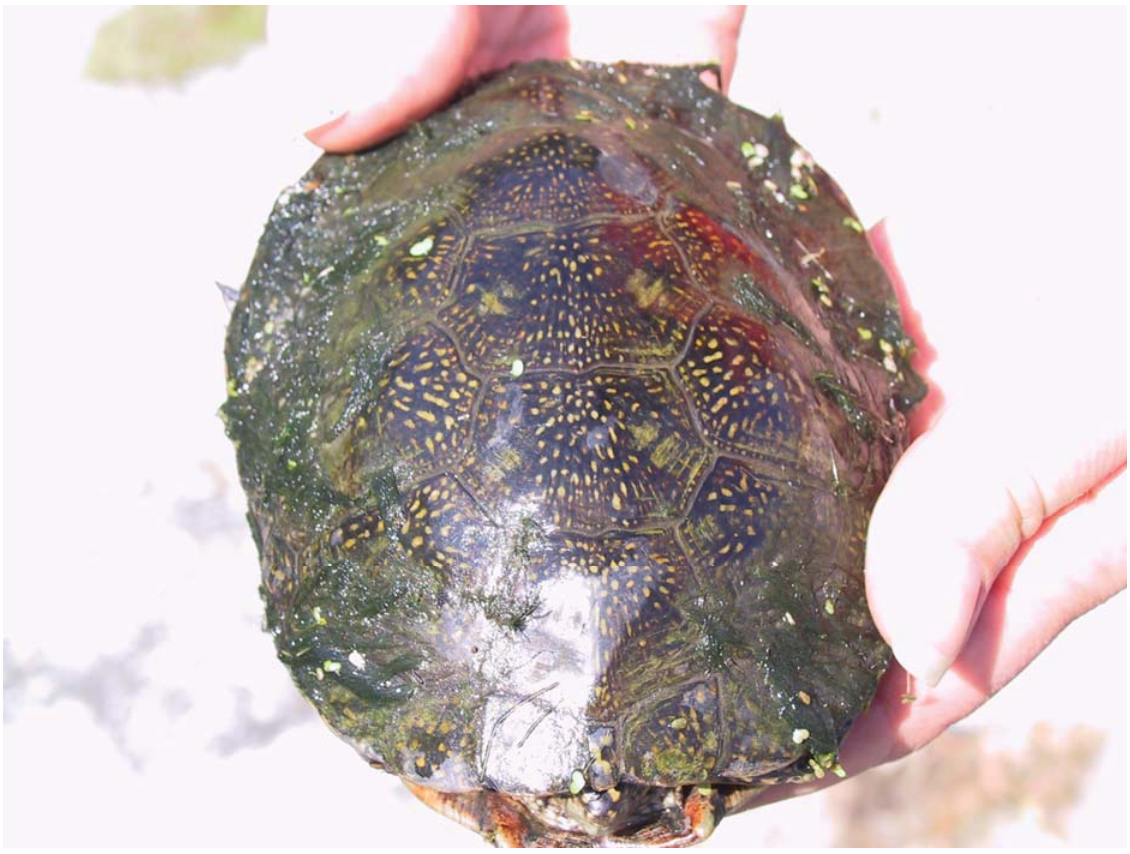


Figure 2. Western pond turtle carapace.

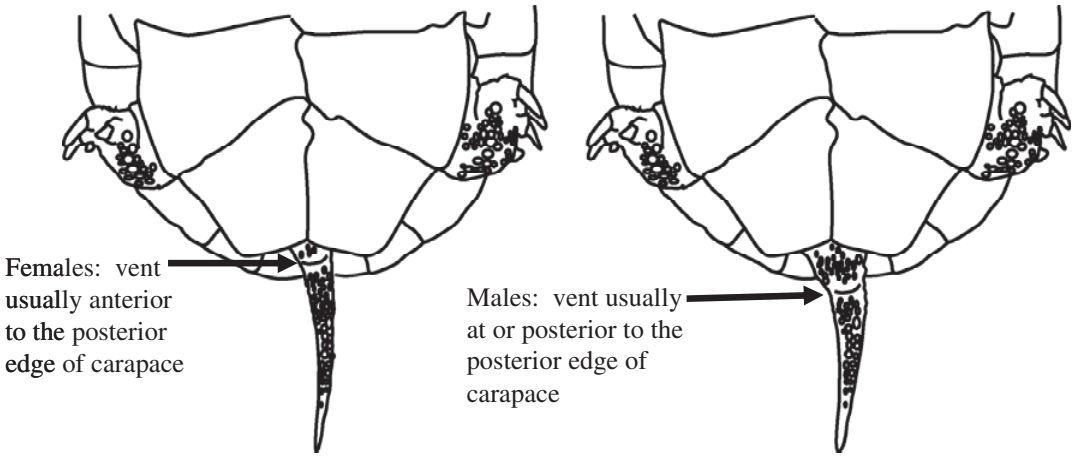


Figure 3. Sexing and measuring guidelines for western pond turtles.

In southern California, pond turtles reach sexual maturity at about 100 - 105 mm in carapace length and 4 - 6 years of age (Holland, 1992; Bury et al., 2001). In southern populations, females typically produce eggs yearly and sometimes double clutch (Goodman, 1997a, 1997b; Lovich & Meyer, 2002; Bury, in press). Clutch size ranges from about 1 to 13 eggs and is positively correlated with body size (Holland, 1991, 1994; Hays et al., 1999; Pires, 2001; Lovich & Meyer, 2002). Eggs are laid in excavated nests in upland habitat. Females will travel 100 m to just over 400 m perpendicular from wetland habitats to nest (Storer, 1930; Rathbun et al., 1992; Holland, 1994; Goodman, 1997a; Reese & Welsh, 1997; Lovich & Meyer, 2002; Rathbun et al., 2002). Hatchling survivorship is low; under undisturbed conditions only 10 - 15% survive the first year (Hays et al., 1999).

Pond turtles can often be found thermoregulating on aquatic basking areas such as rocks, downed logs, or emergent vegetation. They have acute hearing and eyesight and are easily disturbed. You will often hear them as they splash into the water to take cover before you see them. Basking behavior may be witnessed year round in southern populations due to warmer year round temperatures.

Pond turtles are dietary generalists and locate food by either sight or smell. Aquatic invertebrates are the mainstay of the adult diet, but carrion, small fish, frogs and some plants are also consumed. The diet of young pond turtles is poorly understood, but they are thought to eat zooplankton (Jennings & Hayes, 1994; McAllister et al., 1996).

The pond turtle is considered a habitat generalist because it inhabits many types of water bodies ranging from permanent to intermittent and from freshwater to brackish environments (Holland, 1991, 1994; Buskirk, 2002). Pond turtles are known to inhabit creeks, slow moving rivers, marshes, ponds, lakes, reservoirs, vernal pools, canals and even sewage treatment plants (Stebbins, 2003; Holland, 1991; Ernst et al., 1994; Reese, 1996) and prefer habitats with slow flowing water with the presence of woody or rocky debris that provide emergent and underwater refugia sites (Reese, 1996; Reese & Welsh, 1998a; Buskirk, 2002).

Pond turtles are mostly aquatic, but will leave water to travel to surrounding upland habitats to nest, overwinter, bask and aestivate (Holland, 1991; Reese, 1996; Reese & Welsh, 1998b;

Lovich & Meyer, 2002; Rathbun et al., 2002). Although it is clear that pond turtles rely on these terrestrial environments to meet their life history requirements, the amount of time that they spend in these areas and the distance they travel from water is poorly known in the arid southern portion of its range (except see Goodman, 1997a).

Historically, this species was common in most major coast-facing drainages and had a relatively continuous distribution from Washington to northern Baja California, with a few scattered isolated populations elsewhere (Storer, 1930; Stebbins, 2003; Ernst et al., 1994; Jennings & Hayes, 1994). The pond turtle is in a general state of decline throughout much of its range (Brattstrom & Messer, 1988; Holland, 1991; Jennings & Hayes, 1994). In southern California, pond turtles were once widespread and common (Brattstrom, 1988; Brattstrom & Messer, 1988). The pond turtle is a Federal and California Department of Fish and Game Species of Concern. The principal cause of decline in the pond turtle is riparian and terrestrial habitat loss and degradation.

3.0 PURPOSE

Currently, pond turtle inventory and monitoring surveys are conducted regularly across the ecoregion by a large number of biologists from federal and state agencies, educational institutions, and non-governmental organizations throughout Los Angeles, San Bernardino, Riverside, Orange and San Diego Counties. Survey methods and data collection differ greatly among biologists and across sites. Therefore, we are often unable to establish detection probabilities, which require standard survey techniques, to analyze what factors influence probabilities of detection for pond turtles, or to build predictive or explanatory models in an area or region. The purpose of this protocol is to provide a standard means of taking measurements and recording data so that changes reflected in these data are the result of natural phenomena and not because of changes in the way different individuals collect and record these data (Oakley et al., 2003). Standardizing data collection methods will also allow for data comparisons to be made across all parties and agencies using these methods (Oakley et al., 2003). The specific data collection methods described herein are intended for the purpose of quantifying information on the location and biology of pond turtles throughout the southcoast ecoregion and on the habitat components at these survey locations. We attempted to include a full suite of standard measures that may be used to adequately describe and predict suitable habitat for pond turtles and other native and non-native aquatic species. Our goal is to then use these measures as covariates in statistical analyses to determine probability of detection and predict species (MacKenzie et al., 2002, 2003).

4.0 PROTOCOL ORGANIZATIONAL OVERVIEW

This protocol is arranged in chronological order using a step-by-step procedure of what to do before, during and after a survey. We begin with pre-survey preparation, including making a survey map, preparing a field kit, and navigating to a site. We then describe which data are to be collected, the techniques used to collect them, and recording data. We follow with post-survey procedures such as disinfecting and storing equipment, and correcting and storing data. Appendices have been added at the end of this document to provide more detailed information on data definitions (Appendices 1 & 2), southcoast ecoregion vegetative communities (Appendix 3), an example of a paper data form (Appendix 4), and additional references and resources (Appendix 5). When performing certain procedures and measurements within this protocol special equipment may be needed. For care, use and methods for implementing these special

procedures and using required instruments we refer the reader to additional protocols found in the USGS Vertebrate Sampling Protocols for Basic Procedures and Equipment Use (U. S. Geological Survey, 2006b). This manual of basic procedures will be provided as supplementary material to this protocol for those requesting the information.

As procedures, equipment, and survey techniques improve, this protocol may be revised periodically to ensure that the most effective means of surveying and data collection are utilized.

5.0 PRE-SURVEY PROCEDURES

5.1 Preparing a Survey Map

Prior to each initial survey, the survey site must be "pre-defined" in the USGS database before you can collect data in a standardized manner. The term "pre-defined" in this protocol, when surveying a stream, means that the survey start and end points have been determined, that the linear stream area between the start and end points has been divided up into 250 m segments and all associated information (i.e., drainage, location name, datum, GPS, and elevation of each segment) has been linked to each segment and location name (hereafter referred to as segments). When surveying a pond, the term "pre-defined" in this protocol means that a central point is determined and all associated location information has been linked to each location name (hereafter referred to as polygons). Many sites within the southcoast ecoregion have already been pre-defined. Check with the individual project lead for the status of your site and request that it be pre-defined if it has not already been done. If you are a project lead and need to pre-define a 250 m segment or polygon, please refer to the U. S. Geological Survey (2006b) Module 4. Once a site is pre-defined, you should print a map of your survey site that shows the entire survey area. Depending on your survey site segment or polygon make sure your map shows your 250 m segments or central point. For repeated surveys, you will use the same 250 m segments or central point within each polygon for data collection, thus making it possible to standardize how our data are being collected and analyzed.

5.2 Preparing a Field Kit

Prepare or inspect the field kit. Make sure batteries are fresh and there are sufficient extras. Familiarize yourself with the GPS unit. Make sure coordinate system and datum are set appropriately. USGS recommends using the datum WGS84 (NAD83 is also acceptable). The coordinates should be recorded in decimal degrees or hddd.ddddd°. See Figure 4 for the basic contents of a pond turtle field kit.

Survey Kit:

1. Appropriate permits (if required)
2. Copy of protocol
3. Maps
4. GPS unit with accompanying list of coordinates
5. PDA (Personal Digital Assistant) with field forms (or paper data forms). *Note: bring backup paper data forms in case of PDA technical difficulties.*
6. Field guides: USGS field key for aquatic species and/or Stebbins (2003) (western reptile and amphibian species), Conant and Collins (1998) (central and eastern North American turtle species), and McGinnis (1984) (fish).
7. Digital camera

8. Binoculars
9. Thermometer (for air & water temp)
10. Calibrated dissolved oxygen (DO) meter
11. Calibrated conductivity (EC) meter
12. Calibrated pH meter
13. Metric ruler
14. Measuring tape and / or range finder (for stream and channel width measurements)
15. 50 ml vials of 95% ethanol (for collecting any dead specimens and cleaning small instruments). Bring enough to accommodate more than the anticipated number of specimens you intend to collect.
16. Re-sealable bags (1-gallon and 1-quart size). Bring enough to accommodate more than the anticipated number of animals you intend to examine.
17. Alcohol-proof indelible pens (we generally use VWR markers)
18. Extra batteries (AA, AAA, D) depending on equipment
19. Bleach and extra water (for disinfecting equipment that has come in contact with animals or water)
20. Dip net, waterscope, seine, etc., (as needed to detect turtles and non-target species)
21. Hiking boots, rubber boots, waders, or water shoes (depending on the terrain and/or water levels)
22. Safety and first-aid kit
23. Cell phone (optional)

Additional equipment needed to process turtles

24. Pesola® spring scales
25. Passive Integrated Transponder (PIT) tags (optional)
26. PIT-tag reader (optional)
27. 1.5 ml tissue vials (optional)
28. Surgical scissors for taking tissue sample from turtle tails (optional)
29. Small dial calipers (small turtles) and large slide calipers (large turtles) for measuring carapace
30. Triangular file (for notching shell)



Figure 4. Basic equipment needed for pond turtle surveys.

5.3 Navigating to a Site

Use your GPS unit to navigate the vehicle(s) closest to the beginning of the site by selecting the "GO TO" button. On foot, navigate to the start point or edge of the site. Since the coordinates are typically figured using a topographical mapping program (TOPO!®) you can expect there to be some positioning error and you may need to adjust your position accordingly to place yourself in or adjacent the stream channel or pond. When surveying a stream by walking, whenever possible, start downstream and work your way upstream. This prevents stirred up debris from traveling ahead of you, which may alert the animals to your presence before you approach and also decrease your visibility within the creek making it difficult to detect animals. At the beginning of each 250 m segment press the "GO TO" button and select the end point of that 250 m segment (also the start point of the next 250 m segment) and keep track of your distance walked as you survey so you do not overshoot that end point. When a polygon is surveys walk the perimeter of the water. If unable to walk the entire perimeter of the water walk as much as possible to survey the entire site. You may be unable to walk a stream or pond due to thick vegetation or deep water, if this is the case a water craft may be used to survey. Different habitat and site data will be recorded at the beginning and the end of each 250 m segment or perimeter walk of the polygon while animals encountered will be recorded throughout the survey.

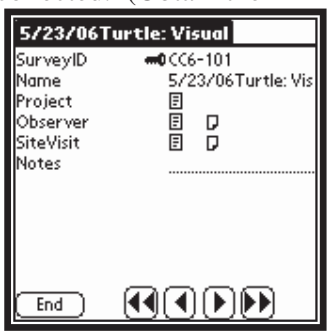
6.0 VISUAL SURVEY PROTOCOL

6.1 Initial Survey Data for Visual Surveys

At the start of each site, 250 m segment or polygon, during a visual survey, data need to be collected before surveying for animals and habitat characteristics. Initial survey data include; block name (study site name), site name, weather, site photo, and water measurements. Data fields are presented in the digital PDA forms format. If using paper data forms, you will be manually recording these data fields.

At the start of each survey (250 m segment or polygon) start a new "StreamSurvey" form. The data fields at the top of the form relate to when, who, why, and how.

1. Survey ID: Self generating with the unique identifier for the survey.
2. Date: Self generating.
3. Survey Type: Select from the drop down menu the option "Turtle: Visual"
4. Name: Self generating with the date and survey type (i.e., 5/8/06Turtle: Visual).
5. Project: Record the project code for which the data are being collected. (Obtain the correct project code from the project lead).
   a) Field Project Notes: Record any pertinent information related to the project code
6. Observer: Hit "add" to open to a new form to begin entering observers. Record the names of each person on the survey.
   a) Observer ID#: Select the observer from the drop down menu; if the name does not appear in the list write the name in.
   b) Observer Order: Self generating field.
   c) Task: Select from the drop down menu the task each observer will do in the field. The options are; Both Observer/Recorder, Observer, Recorder, and Processor.
   d) Note: Enter any additional relevant information about the observer.
7. Site Visit: Hit "add" to open to a new form to begin entering site visit data.



8. Notes: Enter any additional relevant information about the site.

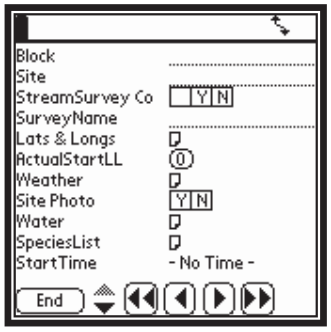
6.1.1 Site Visit Form

The next section of the "StreamSurvey" Form includes site location information, along with several additional site descriptors. Project leads will relay this information to the survey team once the site has been predefined. If using the PDA, some of these variables will be predefined for the survey site and will automatically populate when you choose your site name and segment.

Open the "SiteVisit" form. The data fields at the top are related to the survey location.

1. Block: Chose the block name (= the name of your site) from the drop down menu.
2. Site: If your survey site is a stream select the name of the 250 m segment from the pre-defined list (scroll to the name in your PDA or write down the name that was assigned to the site when it was pre-defined). If your site is a polygon, the "Site" name may be the same as the "Block" name.

Note: At this point the "Block" and "Site" you entered become the "Survey Name" and the predefined latitude/longitude, elevation, datum, drainage, and site length are populated for that record. If using the paper form these fields must be entered by hand.



3. Stream Survey Completed: Y/N. If a stream survey was completed during the current season select Yes (Y), if not select No (N). This will hide fields where data have already been collected.
4. Latitudes/Longitudes/Elevations: If you have correctly pre-defined the site, the start and end coordinates and elevations for each 250 m segment or central point coordinates and elevations for each polygon will be generated by the PDA. If you do not have a PDA, enter data by hand in the fields for latitude, longitude, elevation, and datum on your paper data sheet.
5. ActualStartLL: Select ActualStartLL and add a new record. Hit "GPS Grab" in the form that pops up. This will generate your GPS location, elevation, estimated positioning error (EPE) and datum for where you are recording water quality data. Make sure your GPS is connected to your PDA. If you do not have a GPS cable to connect to your PDA you may enter data by hand in the fields for lat, long, elevation, EPE, and datum.

6.1.1.1 Weather Data

Weather data need to be recorded at the start of the survey. Record the current weather condition, air temp, and wind speed. Data fields are presented in the digital PDA forms format. If using paper data forms, you will be recording these data fields manually.

The following fields appear when you select "Weather" in the form, record all of the weather information (described above).

1. Weather Conditions: Select the general sky conditions. The options are: clear or few clouds, partly cloudy or variable, cloudy or overcast, fog, mist or drizzle, showers or light rain, heavy rain, sleet or hail, snow.
2. Air Temperature: Measure air temperature (in degrees Celsius). Record temperature 1 m off the ground in the shade.



3. Wind: Report the general wind speed based on the Beauford scale. The options are: <1 mph - calm, smoke rises vertically; 2~3 mph - light air movement, smoke drifts; 4~7 mph - light breeze; 8~12 mph - gentle breeze leaves/small twigs in constant motion, raises dust; 13~18 mph - moderate breeze, small branches move; 19~24 mph - fresh breeze, small trees begin to sway; 25~31mph - strong breeze, large branches move; 32~38 mph - near gale, large trees begin to sway, noticeably difficult to walk; >39 mph - gale and above; and no data.
4. Weather Notes: Enter any additional relevant weather information here (i.e., if there were any changes in the weather patterns such as rain during the middle of the survey).
5. Show All: The show all button brings up additional fields that are not required for this protocol. Ask your project lead if you need to record any additional data for your specific project.

Hit "End" to close out the "Weather" form and continue the "SiteVisit" form.

6. Site Photo: Y/N. Indicate whether or not a photo was taken of the study site, Yes (Y) or No (N). Photos should be taken facing upstream at the beginning of each 250 m segment of stream or facing the pond.
    a) Number of Photos: If photos were taken of the site, enter in the number of photos taken. This will later help identify the correct photos for the respective survey sites.

6.1.1.2 Water Quality Measurements

The first time water is encountered, usually (but not always) at the start of the survey site, you will measure and record a number of water quality variables. Before taking measurements, look for any aquatic species within or next to the water. Document the species before recording water quality and stream/pond measurements. If animal species are recorded and the water is affected by the search (i.e., increased turbulence, substrate is disturbed in water, etc.), take water quality in an unaffected area upstream (if surveying a 250 m segment) or away from the disturbance, if possible.

The following fields appear when you select "Water" in the form, record all of the water information (described above).

1. Water Present: Y/N, is water present along the study site? Yes (Y) or No (N). If yes, then report the rest of the water quality measurements. If you select no, the below fields 2-6 will remain hidden fields.
2. Water Temperature: Measure water temperature (in degrees Celsius). Place your thermometer 10 cm below the surface of the water (if possible) in an area that is representative of the creek or pond, (i.e., not in a backwater pool or side channel where temperatures would be expected to be warmer). Leave the thermometer under water for a minute or so and record the temperature once the thermometer reading has stabilized.
3. Latitude/Longitude/Elevation: Select Lat/Long field and hit "GPS Grab" in the form that pops up. This will generate your GPS location, elevation, estimated positioning error (EPE) and datum for where you are recording water quality data. (Make sure your GPS

is connected to your PDA. If you do not have a GPS cable to connect to your PDA you may enter data by hand in the fields for lat, long, elevation, EPE, and datum).

4. pH: Immerse the electrode of the pH meter below the surface of the water in an area that is representative of the creek, (i.e., not in a backwater pool or side channel). Leave the meter under water for a minute or so and record the pH once the reading has stabilized. See USGS, (2006b) Module 12 for more information.
5. Conductivity (µS): Immerse the electrode of the conductivity meter below the surface of the water in an area that is representative of the creek, (i.e., not in a backwater pool or side channel). Leave the meter under water for a minute or so and record the conductivity once the reading has stabilized. Specific conductance should be recorded in microsiemens (µS). See USGS, (2006b) Modules 10 and 11 for more information.

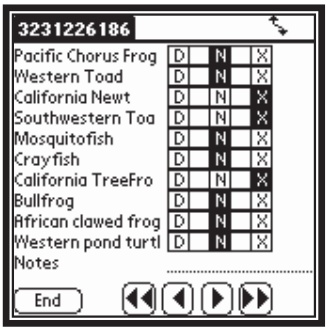


6. Dissolved Oxygen mg/L and % Saturation: Be sure to set the D.O. meter to the appropriate elevation prior to taking each reading. Remove the probe from the body and put it in the water in an area that is representative of the creek, (i.e., not in a backwater pool or side channel). If the water is still or stagnant you will need to slowly and steadily move the probe back and forth through the water while taking the reading. Wait until the reading has stabilized before recording it. D.O. should be recorded in percent saturation and also in milligrams per liter. See USGS, (2006b) Module 13 for more information.
7. Transparency: Do a visual estimate of water transparency of the water at mid-channel (if possible), and chose a category from the lookup table in the PDA. An easy method is to set a penny in the bottom of the pool. Choose one of the following options: "Clear" = can see the year on penny clearly in bottom of pool, "Moderate / Translucent" = cannot see year, but can see outline of penny, or "Opaque" = cannot see year or outline of penny.
8. Remarks: Enter any additional relevant water information here.
9. Show All: The show all button brings up additional fields that are not required for the general pond turtle survey protocol.

When you have completed the water measurements click "End" to return to the main "SiteVisit" form and continue to fill in the following fields.

6.1.1.3 Species List

This list documents negative data and insures common species are accounted for during a survey. A list of the most common species will appear when you select the "Species List" form. Check the appropriate box for each species. If you are going to survey for that specific species, select surveyed and not detected (N). If you are not surveying for that species select not surveyed and not detected (X). Once an animal record is created for a species encounter, the checked boxes will automatically change to detected (D).



Hit "End" to close out the "SpeciesList" form and continue the "SiteVisit" form.

7. Start Time: Record your start time. Click on the "-No Time-" next to start time and the PDA will generate the current time for you, click "OK". You are able to manually adjust this time if this was not the actual start time of the survey.

Once a start time is recorded, begin visually searching the survey reach.

6.2 Visual Survey Techniques

Visual surveys are conducted to determine pond turtle presence, to make an assessment of habitat quality, to determine whether a site is trappable for pond turtles, and to select future trapping locations. Pond turtles are habitat generalists and can occupy a wide range of aquatic habitats, thus the most limiting factor of habitat suitability is the presence of water. Based on literature (Bury, 1972; Holland, 1991; Jennings & Hayes, 1994; Reese, 1996; Reese & Welsh, 1998b; Hays et al., 1999), in addition to the presence of deep pools and slow moving water, the following general characteristics are associated with pond turtle habitat: 1) basking sites, 2) aquatic refugia, 3) streamside refugia, and 4) upland nesting habitat. These characteristics should be kept in mind while conducting a visual survey. Once a site has been determined as potentially suitable pond turtle habitat and conditions are right for trapping, refer to the USGS Western Pond Turtle (*Emys marmorata*) Trapping Survey Protocol for the Southcoast Ecoregion, to conduct trapping (U. S. Geological Survey, 2006c).

As you search for animals, pay attention to the substrate and riparian vegetative and upland communities. Also note any non-native vegetation in the water or along the watercourse. Some common non-native plants include arundo (*Arundo donax*), tamarisk (*Tamarix sp.*), watercress (*Rorripa nasturtium aquaticum*), and mustard (*Brassica nigra*). Please bring and refer to a plant field guide if you are unfamiliar with the common native and non-native plants in southern California. As you conduct the visual survey, point out non-native plants and abrupt habitat changes to other members of the survey, this will help with documenting the vegetation at the end of the survey. Also look around every so often (USGS suggests every 50 m) and make a mental note about the dominant substrate on the banks and in the water, riparian vegetation types, vegetative cover in the channel and on the banks, and amount of potential basking areas and aquatic refugia (see Appendices 1 & 2 for definitions). This information will be recorded at the end of the segment so you want to obtain a representative mental picture of the proportions of these habitat components as you walk through them. It may take some practice to make a good estimate of all of the habitat components and their proportions within each 250 m segment or polygon so you may want to conduct a few mock-surveys to get accustomed to these methods. It is best if each member of the survey team makes their own individual mental notes and estimations, and compares these to the estimates of other team members at the end of each 250 m segment or polygon.

Start slowly walking up the stream channel, either in the water or immediately adjacent to the water. If you are unable to walk the site due to habitat features the visual survey can be conducted by water craft. If you come across an area that looks like it is suitable for trapping or a good location to place a trap, mark the point in your GPS unit. Saving points will help save time searching for trap locations during a trapping survey. In addition to looking for pond turtles and pond turtle habitat you need to document any other native and non-native aquatic species observed. For example, include all life stages of other amphibians, turtles, snakes, fish, crayfish, Asian clams, beavers, and beaver sign (see expected species list in PDA or paper data form for

common species and field guides for proper identification). Use the following techniques to search for aquatic species.

1. Visual encounter: Search aquatic habitat with and without binoculars for the presence of basking or underwater pond turtles. Open pools or possible basking areas should first be observed from a distance and then approached slowly and quietly to help prevent disturbing basking turtles. Listen for the splash of water, possible unseen turtles entering the water. If you should hear a splash, spend additional time observing the area for a turtle to resurface. The length of time open pools or basking areas should be observed and searched depends on your research goals. If trapping surveys will not be conducted, due to difficult terrain, inadequate water depths, insufficient funding, etc., visual surveys may provide estimates of abundance and size classes.

2. Dip netting and seining: Pond turtles can be found at the edge or in the bottom of pooled water, in aquatic vegetation and under ledges along the perimeter of stream refugia and pools. When encountering deep pools and aquatic refugia, first visually search for turtles and any other aquatic animals and egg masses. If no eggs are seen, you may take long sweeps with the dip net or seine through the area. Gently sweep the net along the bottom and sides of the pool or refugia, then check the net for aquatic species by carefully sifting through any mud and debris brought up from the bottom. We recommend using two sizes of nets, a large fish net with a long handle for turtles and deep pools; and a small aquarium size net for small pond turtle hatchlings, fish and tadpoles. Do not disturb any egg masses with dip nets. Capturing turtles, tadpoles and fish with a net is useful method to observe animals more carefully, take voucher photos, and make positive identification. Special state and federal permits may be required for capturing and handling listed species.

6.3 Visual Survey Animal Records

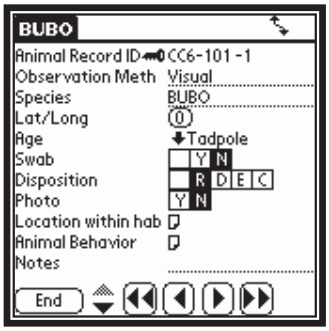
6.3.1 Non-turtle Animal Records

The first time you encounter any species or different species age class within a site, the encounter must be recorded in the animal record. With the exception of turtles, once a species and each age class has been documented one time in the animal record additional encounters do not need to be recorded. Every single turtle encountered must be entered in the animal record. If you have specific questions pertaining to a non-turtle species you may want to record it more than once per site depending on your research goals. The first time you encounter a species within the site take a photo and record the species, age class, coordinates, and disposition in the animal form. If a turtle is actually captured on a visual survey refer to the USGS Western Pond Turtle (*Emys marmorata*) Trapping Survey Protocol for the Southcoast Ecoregion, to process and record the animal data (U. S. Geological Survey, 2006c).

The following fields appear when you select “Animals” and “Add” in the form with all of the site information (described above).

1. Animal Record ID: Self generating with the unique identifier for the animal.
2. Observation Method: Select the method of observation. The options are: Audio, Hand Capture, Trap, or Visual. Although Trap appears in the lookup list, it does not apply while conducting a visual survey.
3. Type: Select from the drop down menu whether the animal is a fish, frog, turtle, bird, invertebrate, etc.

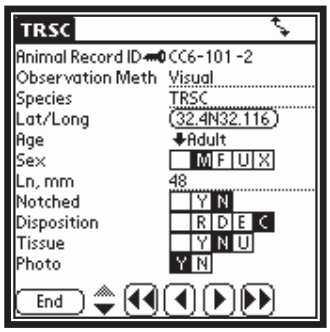
4. Species: During a visual survey, record each species the first time it is encountered within the 250 m segment or polygon by selecting that species from the drop down list. During a trapping survey, record all species captured and record each visually encountered species the first time it is seen during each trapping day.
5. Latitude/Longitude/Elevation: Select Lat/Long field and hit "GPS Grab" in the form that pops up. This will generate your GPS location, elevation, estimated positioning error (EPE) and datum for where you are recording animal data. Make sure your GPS is connected to your PDA. If you do not have a GPS cable to connect to your PDA you may enter data by hand in the fields for lat, long, elevation, EPE, and datum.
6. Age: Select the age. The options are: Adult, Juvenile, Metamorph, Tadpole, 2nd Year Tadpole, and Hatchling.
7. Swab: Y/N. This field will only show up if you are documenting an amphibian record. Refer to Geological Survey (2006b) Module 7 for the swab protocol.
8. Disposition: Select the appropriate checkbox according to if the animal was Released (R), Dead (D), Escaped (E), or Collected (C).
9. Photo: Select Yes (Y) if you took a photo of the animal or No (N) if you did not.
    a) Number of Photos: If photos were taken of the animal, enter in the number of photos taken.
10. Notes: Record any pertinent information that does not fit into one of the other data fields.
11. Show All: The show all button brings up additional fields that are not required for the visual survey protocol. Ask your project lead if you need to record any additional data for your specific project.



6.3.2 Non-native Turtle Animal Records

If you choose non-native turtle from the species drop down menu the fields for Sex, Length, and Notched appear and must be filled in. Refer to the USGS Western Pond Turtle (*Emys marmorata*) Trapping Survey Protocol for the Southcoast Ecoregion for instructions on the additional turtle data collection (U. S. Geological Survey, 2006a).

1. Animal Record ID: Self generating with the unique identifier for the animal.
2. Observation Method: Select the method of observation. The options are: Audio, Hand Capture, Trap, or Visual.
3. Type: Select turtle from the drop down menu.
4. Species: During a visual survey, record each species the first time it is encountered within the 250 m segment or polygon by selecting that species from the drop down list. During a trapping survey, record all species captured and record each visually encountered species the first time it is seen during each trapping day.
5. Latitude/Longitude/Elevation: Select Lat/Long field and hit "GPS Grab" in the form that pops up. This will generate your GPS location, elevation, estimated positioning error (EPE) and datum for where you are recording water quality data. Make sure your GPS is connected to your PDA. If you do not have a GPS cable to connect to your PDA you may enter data by hand in the fields for lat, long, elevation, EPE, and datum.
6. Age: Select the age. The options are: Adult, Juvenile, Metamorph, Tadpole, 2nd Year Tadpole, and Hatchling.



7. Sex: Record the sex of the turtle; Male (M), Female (F), Unknown (U), Not Checked (X).
8. Length: Record the carapace length in mm.
9. Notched: Chose Yes (Y) or No (N) depending on if the turtle has had the plastron notched or you will be notching it.
10. Disposition: Select the appropriate checkbox, Released (R), Dead (D), Escaped (E), or Collected (C).
11. Tissue: Check Yes (Y), No (N), or Unknown (U) depending on if turtle tissue was taken.
12. Photo: Select Yes (Y) if you took a photo of the animal or No (N) if you did not.
    b) Number of Photos: If photos were taken of the animal, enter in the number of photos taken. All turtles captured should have three photos taken; the top of the carapace, the plastron, and the head.
13. Notes: Record any pertinent information that does not fit into one of the other data fields.
14. Show All: The show all button brings up additional fields that are not required for the visual survey protocol. Ask your project lead if you need to record any additional data for your specific project.

6.3.3 Pond Turtle Animal Records

If you chose pond turtle from the species drop down menu the fields for Sex, Length, Carapace Width, Carapace Height, Plastron Length, Weight, Recap, ID Number, Notched, Shell Damage, and Other ID Markings appear and must be filled in. Refer to the USGS Western pond turtle (*Emys marmorata*) Trapping Survey Protocol for the Southcoast Ecoregion for instructions on the additional pond turtle data (U. S. Geological Survey, 2006a).

1. Animal Record ID: Self generating with the unique identifier for the animal.
2. Observation Method: Select the method of observation. The options are: Audio, Hand Capture, Trap, or Visual.
3. Type: Select turtle from the drop down menu.
4. Species: During a visual survey, record each species the first time it is encountered within the 250 m segment or polygon by selecting that species from the drop down list.
5. Latitude/Longitude/Elevation: Select Lat/Long field and hit "GPS Grab" in the form that pops up. This will generate your GPS location, elevation, estimated positioning error (EPE) and datum for where you are recording water quality data. Make sure your GPS is connected to your PDA. If you do not have a GPS cable to connect to your PDA you may enter data by hand in the fields for lat, long, elevation, EPE, and datum.
6. Age: Select the age. The options are: Adult, Juvenile, Metamorph, Tadpole, 2nd Year Tadpole, and Hatchling.



7. Sex: Record the sex of the turtle; Male (M), Female (F), Unknown (U), Not Checked (X).
8. Length: Record the carapace length in mm.
9. Carapace Width: Record the carapace width in mm.
10. Carapace Height: Record the carapace height in mm.
11. Plastron Length: Record the plastron length in mm.
12. Weight: Record the weight in grams.
13. Recap: Record if the animal is a recap Yes (Y) if it has a previous plastron notch or is PIT tagged. If the animal is

not a recap record No (N). If you are unsure, record Unknown (U). Or if you forgot to check record Not Checked (X).

14. ID Number: All pond turtles should be tagged with a passive integrated transponder (PIT) tag, encoded with a unique identification number. The PIT tag is inserted inside the body cavity anterior to the rear right leg following methods of Rathbun et al. (1993) and Buhlmann & Tuberville (1998). If this is a recapture, enter the number in this field as well.
15. Notched: Plastron Notched: Select Yes (Y) or No (N). Indicate whether the turtle's plastron has been marked or will be marked with a single triangular notch on the right femoral scute indicating that the turtle has been PIT tagged. This combined with PIT-tagging will assist in future recognition of individual turtles.
15. Shell Damage: Select Yes (Y) or No (N). If yes is selected enter the following information:
    a. Type of Shell Damage: Describe the severity and location of any shell damage.
16. Other ID Markings: Select Yes (Y) or No (N). This is the unique identification number given to turtles by notching the marginal scutes of the carapace. This method is not used by USGS. Check with landowners/regulatory agencies before initiating a trapping survey to determine if pond turtles have been previously captured and marked in the area.
    a. Record the ID Markings on the scutes of the carapace.
17. Disposition: Select the appropriate checkbox according to if the animal was Released (R), Dead (D), Escaped (E), or Collected (C).
18. Tissue: Check Yes (Y), No (N), or Unknown (U) depending on if turtle tissue was taken.
19. Photo: Select Yes (Y) if you took a photo of the animal or No (N) if you did not.
    a) Number of Photos: If photos were taken of the animal, enter in the number of photos taken. All turtles captured should have three photos taken; the top of the carapace, the plastron, and the head.
20. Notes: Record any pertinent information that does not fit into one of the other data fields.
21. Show All: The show all button brings up additional fields that are not required for the visual survey protocol. Ask your project lead if you need to record any additional data for your specific project.

Hit "End" then "Done" to close out the "Animals" form and continue the "SiteVisit" form.

6.4 Ending a Site

6.4.1 Documenting Non-native Vegetation

Once a visual survey is complete, the non-native vegetation in the water or along the watercourse needs to be recorded.

The following fields appear when you select "Plants" and "add" in the form with all of the site information (described above).

1. Plant Species: Document the species of non-native vegetation detected. Select from the drop down menu.
2. Size Class: For each species report the abundance class of that species across the site by selecting a category from the drop down menu. The options are: few plants, scattered small patches, or large contiguous stands.
3. Notes: Record any other information that is pertinent to non-native vegetation in the field.

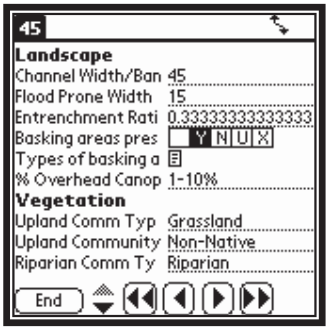
Hit "End" then "Done" to close out the "Plants" form and continue the "SiteVisit" form.

6.4.2 Documenting Landscape and Vegetation

Once a visual survey is complete, riparian vegetative and upland communities in the water and along the watercourse need to be recorded. Mental notes about the dominate substrate on the banks and in the water, riparian vegetation types, vegetative cover in the channel and on the banks, and amount of potential basking areas and aquatic refugia (see Appendix 2 for definitions) will be recorded in this section. If there are drastic differences in the estimations from each team member it is best to take an average of the two estimates or to re-estimate the proportion of the habitat components in that segment if you plan on passing through again on your way back to the vehicle.

The following fields appear when you select "Landscape & Veg" in the form with all of the site information (described above). If surveying a polygon, some fields described in the section below may be hidden.

1. Landscape:
    a. Channel Width / Bankful (m): Measure and record the channel width using a measuring tape or rangefinder. See Appendices 1 & 2 for definitions of landscape variables.
    b. Flood Prone Width (m): Measure and record the flood prone width using a measuring tape or rangefinder. See Appendices 1 & 2 for definitions of landscape variables.
    c. Entrenchment Ratio: If using the PDA this field will be generated for you automatically, otherwise divide the flood plain width by the channel / bankful width to determine the entrenchment ratio. See Appendices 1 & 2 for definition.
    d. Basking Areas Present: Were basking areas present? See Appendix 2 for definition. Record Yes (Y), No (N), Unknown (U), or Not recorded (X).
        i. If Yes, identify the type(s) of basking areas observed within the segment. The choices are sunny rocks, open banks, other. Select all that apply. If you choose "other," indicate what that is.
    e. Percent Overhead Canopy: Estimate the percent of canopy cover over the channel in the 250 m segment or polygon by looking straight up from where you are standing. Look at the proportion of the creek or pond and immediate riparian area that is open to the sky and estimate a percentage for this field. This would be cover growing in the channel and on the bank, shading the channel. The options are 0%, 1 - 10%, 11 - 25%, 26 - 50%, 51 - 75%, 76 - 100%.



2. Vegetation
    a. Upland Community Type: Record the dominant upland vegetative community type from the drop down menu. This may be the habitat in the terrace or upland. The options for upland community types are: Chaparral, Desert, Forest, Grassland, Meadow/Marshes, Riparian, Scrub, Urban/Invasive, and Woodland. See Appendix 3 for definitions and a list of southern California vegetative communities.

b. Upland Community: Record the dominant vegetative community along the 250 m segment outside of the main channel by selecting a community from the dropdown menu. This may be the vegetative community in the terrace or upland. See Appendix 2 for definition and Appendix 3 for a list of southern California vegetative communities. The selection in "Upland Community Type" will determine the options in the drop down list in "Upland Community".
c. Riparian Community Type: Record the dominant riparian vegetative community type from the drop down menu. This is typically the habitat adjacent to the channel on the bank and in the floodplain. The options for riparian community types are: Chaparral, Desert, Forest, Grassland, Meadow/Marshes, Riparian, Scrub, Urban/Invasive, and Woodland. See Appendix 2 for definition and Appendix 3 for a list of southern California vegetative communities.
d. Riparian Community: Record the dominant riparian community along the 250 m segment or polygon by selecting one from the dropdown menu. This is typically the habitat adjacent to the channel on the bank and in the floodplain. See Appendix 2 for definition and Appendix 3 for a list of southern California vegetative communities. The selection in "Riparian Community Type" will determine the options in the drop down list in "Riparian Community".
e. Dominant Riparian Plant: Record the top three dominant riparian plant species seen along the 250 m segment or polygon. Each plant should represent at least 10% of the riparian community or it should not be included. For example, if the segment is largely a monotypic stand of willow, with no other co-dominants ≥ 10%, record willow only.
f. Dominant Riparian Plant 1 (2, 3): Choose from the drop down menu the riparian plant(s) that is most abundant. To be dominant it must comprise at least 10% of the overall vegetation in the area.
g. % Submergent Veg: Choose a category from the drop down menu that best corresponds with the percentage of submergent vegetation along the waterway.
h. % Emergent Veg: Choose a category from the drop down menu that best corresponds with the percentage of emergent vegetation along the waterway.

3. Dominate Bank Substrate
    a. Substrate 1 (2, 3): Estimate and record the top 3 dominant substrate types on the bank and the relative percentage of each along the site by selecting a type and percentage range from the drop down menu. The choices for substrate are clay, silt, sand, pebbles, cobble, boulders/bedrock, leaf-litter, and fallen logs/trees. See Appendix 2 for definitions.
        i. % Substrate 1 (2,3): The options for dominate bank substrate percentage are 0%, 1-10%, 11-25%, 26-50%, 51-75%, 76-100%.

6.4.2.1 Documenting Water and Habitat Characteristics

In the section labeled "PTAquaticRefuge/Disturbance" estimate and record characteristics of the wetted portion of the site. Data fields are presented in the digital PDA forms format. If using paper data forms, you will be recording these data fields manually.

The following fields appear when you select "PTAquaticRefuge/Disturbance" form.

1. End Time: Enter the time that you finished surveying the segment.
2. End Water:

a. Percent Wet Length of Survey: Record the percentage of the length of the 250 m segment or polygon that was wetted by selecting a range from the drop down menu.
b. Percent Reach With Shallow Pooling Water: Estimate the percentage of the 250 m segment or polygon containing shallow pooling water (water less than 10 cm deep with little or no water movement). Include side pools, pooling water along side of the channel, within main channel, and isolated pools when making this estimate. Select the percentage range from the drop down menu.
c. Percent Reach With Medium Pooling Water: Estimate the percentage of the 250 m segment or polygon containing medium pooling water, (water depth greater than 10 cm and less than 1 m). Include side pools, pooling water along side of channel, within main channel, and isolated pools when making this estimate. Select the percentage range from the drop down menu.
d. Percent Reach With Deep Pooling Water: Estimate the percentage of the 250 m segment or polygon containing deep pooling water, (water depth greater than 1 m deep). Include side pools, pooling water along side of channel, within main channel, and isolated pools when making this estimate. Select the percentage range from the drop down menu.



e. Plunge Pools Present: Record whether or not plunge pools were present. See Appendix 2 for definition. Record Yes (Y), No (N), Unknown (U), or Not recorded (X). If "Yes," record the estimated number of plunge pools.
    i. Number of Plunge Pools: If "Yes" to above, estimate the number of plunge pools that occurred along the site. The options are 1 - 5, 6 - 10, 11 - 20, 21 - 30, 31 - 50, and 51 - 100.
f. Aquatic Refugia Present: Record whether or not aquatic refugia were present along the site. See Appendix 2 for definition. Record "Yes" or "No". If "Yes," identify the type(s) of refugia observed within the segment. The options for types of refugia are undercuts, tree roots, woody debris, rock crevices, aquatic submerged vegetation, emergent vegetation, and floating material (dead and live plant matter and / or algae). Select all that apply.

3. Dominate Aquatic Substrate:
    a. Substrate 1 (2, 3): Estimate and record the top 3 dominant aquatic substrate types and the relative percentage of each along the site by selecting a type and percentage range from the drop down menu. The choices for substrate are clay, silt, sand, pebbles, cobble, boulders/bedrock, leaf-litter, and fallen logs/trees. See Appendix 2 for definitions.
        i. % Substrate 1 (2,3): The options for dominate aquatic substrate percentage are 0%, 1-10%, 11-25%, 26-50%, 51-75%, 76-100%.
4. Recent Disturbance:
    a. Disturbance Type: Document any disturbance seen and record the nature of the disturbance that was at the study site. Check all that apply (e.g., heavy foot traffic, trash, road / vehicle crossings, fire, etc.)
    b. Intensity of Disturbance: Estimate the level of the disturbance across the 250 m segment or polygon. The options are light, moderate, and heavy.

c. Notes: Add any relevant information on the stream properties that have not yet been recorded.

6.5 End of Survey

Now that the site has been visually surveyed and animals, habitat, vegetation, substrate and disturbances are recorded in the "StreamSurvey" form, the end site location information needs to be recorded.

Close out the "PT Aquatic Refuge/Disturbance" form by clicking "End" and close out the "Landscape & Vegetation" form by clicking "End." You will now be looking at the "SiteVisit" form. Scroll down to the bottom of this form and be sure to click on "Actual End LL."

8. ActualEndLL: Select "ActualEndLL" and add a new record. Hit "GPS Grab" in the form that pops up. This will generate your GPS location, elevation, estimated positioning error (EPE) and datum for where you have finished your survey. Make sure your GPS is connected to your PDA. If you do not have a GPS cable to connect to your PDA you may enter data by hand in the fields for lat, long, elevation, EPE, and datum.
9. End Time: Record your end time. Click on the "-No Time-" next to end time and the PDA will generate the current time for you, click "OK". You are able to manually adjust this time if this was not the actual end time of the survey.
10. Notes: Record any pertinent information that does not fit into one of the other data fields.
11. Show All: The show all button brings up additional fields that are not required for the visual survey protocol. Ask your project lead if you need to record any additional data for your specific project.

The visual survey is complete. Using the data collected during this survey and communication with the survey team, the project lead can determine if the site is suitable for trapping. Any pictures and possible trap location points taken by the survey team should be downloaded, saved, and transferred to the project lead. If the site is suitable for trapping refer to the USGS Western Pond Turtle (*Emys marmorata*) Trapping Survey Protocol for the Southcoast Ecoregion (U. S. Geological Survey, 2006c).

7.0 POST-SURVEY PROCEDURES

When you are finished with your field survey there are several post survey procedures that must be completed to 1) prevent the spread of biological pathogens and 2) to ensure that your data are correct and can be read by anyone requesting it.

1. Immediately after returning from the field, all equipment coming in contact with water or mud (i.e., boots, dip nets, seine nets, plastic specimen containers) must be thoroughly disinfected in a 16:1 water/bleach solution to prevent moving pathogens between study sites. Turtle traps can be soaked in the solution in a plastic child's pool or large garbage can. Traps can also be sprayed down with a higher concentration of bleach (using a spray bottle) and rinsed with a hose after a few minutes. The traps should then be placed in the sun to dry; see U. S. Geological Survey (2006b) Module 1.
2. Review and check the quality assurance/quality control (QA/QC) of the data from your surveys. Correct any mistakes.
3. Enter data into the USGS database. (This entails hotsyncing your PDA or hand entering data from your paper form).
4. Label photographs and send to project lead.

5. Get positive species identifications from experts if needed.
6. Make sure pH, conductivity and DO meters are calibrated and properly stored; see U. S. Geological Survey (2006b) Modules 10 - 13.

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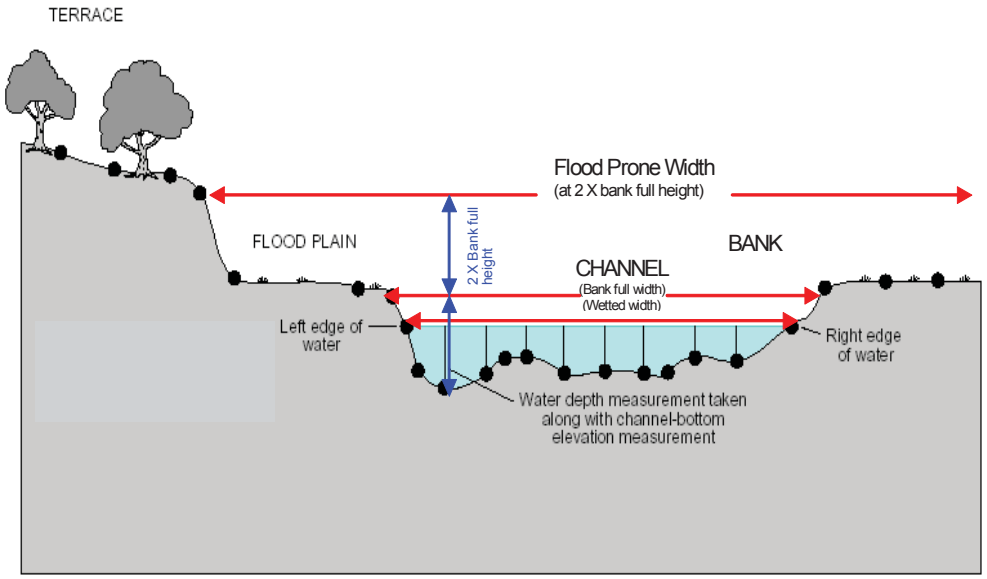
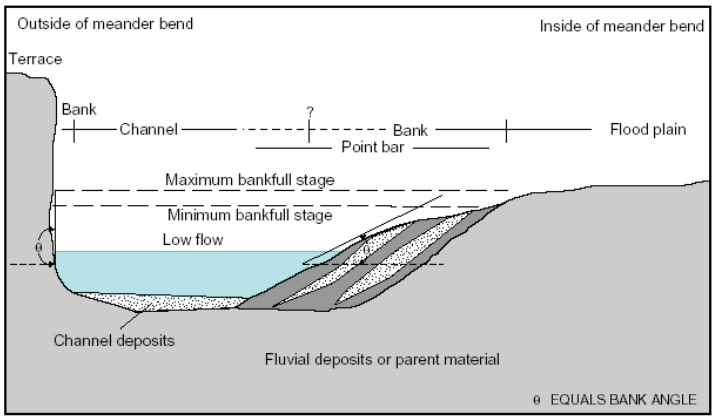
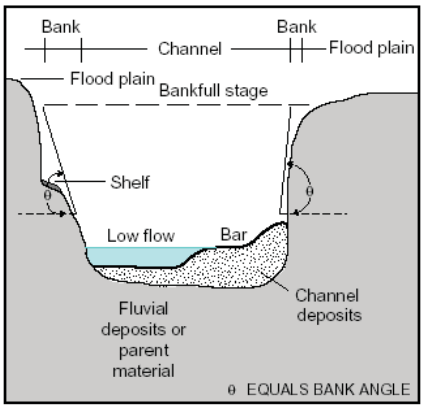
Appendix 1: Landscape figures. (Most material in this section is directly taken or adapted from Fitzpatrick et al., 1998).







Appendix 2: Data definitions (many landscape definitions in this section are taken directly taken or adapted from Fitzpatrick et al., 1998).

Aquatic Refugia: Any material within the water or on the surface that provides shelter, cover, or hiding place, (i.e., rocks, downfall in the form of logs, branches, woody debris, and artificial materials, undercuts of banks, tree roots, rock crevices, aquatic submerged vegetation, emergent vegetation, and other floating material).

Bank: The sloping ground that borders a stream and confines the water in the natural channel when the water level, or flow, is normal. It is bordered by the flood plain and channel.

Basking Area: Area above the surface of the water where sunny space is available for animals to rest and sun themselves (i.e., rocks, sunny banks).

Carapace: The dorsal, convex part of the shell structure of a turtle, consisting of an external layer of horny material, divided into large plates known as scutes, which overlie a layer of interlocking bones.

Channel: The channel includes the thalweg and streambed. Bars formed by the movement of streambed are included as part of the channel.

Conductance: A measure of the dissolved solids content of water supply by means of determining the capacity of a water sample to carry an electrical current. Conductivity is a measure of the ability of a solution to carry electrical current. (www.environmentalencyclopedia.com)

Disconnected Pools: Any pool that is completely disconnected from the main channel.

Dissolved Oxygen: The concentration of oxygen dissolved in water, expressed in mg / l or as percent saturation, where saturation is the maximum amount of oxygen that can theoretically be dissolved in water at a given altitude and temperature. (www.biology-online.org)

Disturbance: Any natural or artificial destruction and / or alteration of the habitat (e.g., flood, fire, beaver dams, vehicle, trail, trash, etc.).

Downfall: Any forest material that has fallen (downfall in the form of logs, branches).

Drainage: The area of land that drains water, sediment, and dissolved materials to a common outlet at some point along a stream channel (www.environmentalencyclopedia.com).

Emergent Vegetation Cover: This is cover from plants that emerge from the water (i.e., cattails, sedges, bulrush).

Flood Plain: The relatively level area of land bordering a stream channel and inundated during moderate to severe floods. The level of the flood plain is generally about the stage of the 1 to 3 year flood.

Overhead Canopy: The area of the stream covered by the topmost vegetative cover. Can be calculated by estimating the average percent of the sky visible between 45 degree upward angles of the bank.

Plastron: The ventral, nearly flat part of the shell structure of a turtle, similar in composition to the carapace; with an external layer of horny material divided into plates called scutes and an underlying layer of interlocking bones.

Permanency: For this protocol, an estimate of how permanent or transitory the water source is (based on prior knowledge or maps). Choices include permanent, semi-permanent, or ephemeral.

pH: An expression of the intensity of the basic or acid condition of a liquid; may range from 0 to 14, where 0 is the most acid and 7 is neutral. Natural waters usually have a pH between 6.5 and 8.5.

Project Code: A unique alpha-numeric code assigned by USGS BRD, San Diego to each of our projects for the purpose of organizing projects, billing project accounts and retrieving data.

Riparian: Areas adjacent to rivers and streams with a differing density, diversity, and productivity of plant and animal species relative to nearby uplands (www.environmentalencyclopedia.com).

Scute: A horny, chitinous, or bony external plate or scale, as on the shell of a turtle.

Side Pool: Any still water area that adjoins or is part of the main area channel.

Slope: A measure of the angle of the ground with respect to the plane of the horizon. Also called "inclination". Measured by dividing the "rise" (difference in elevation between point A and point B) by the "run" (the length of the distance between point A and point B).

Streamside Refugia: Any material outside of the water that provides shelter, cover, hiding place, (i.e., tree roots, woody debris, rock crevices, streamside vegetation).

Submergent Vegetation Cover: This is cover from plants growing mostly under water (i.e., algae, waterweed).

Substrate: The surface composition of the ground. (Aquatic substrate = the ground composition under the water, usually cobble, gravel, silt, etc.; Terrestrial substrate = the ground composition on the banks and upland, usually boulder, cobble, leaf litter, etc.)

Terrace: An abandoned flood-plain surface. A terrace is a long, narrow, level or slightly inclined surface that is contained in a valley and bounded by steeper ascending or descending slopes, and it is always higher than the flood plain. A terrace may be inundated by floods larger than the 1 to 3 year flood.

Upland: The area or habitat outside of the riparian corridor.

Appendix 3. Vegetation communities commonly found in southern California (Holland, 1986; Sawyer and Keeler-Wolfe, 2003; SANDAG, 2006).

Vegetative Community	Abbreviated List	Description	Name that Populates Database	Element Code
Chaparral				
	Mixed Chaparral	general chap	chaparral	37000
	Chamise Chaparral	chamise dominate	chamise chaparral	37200
	Scrub Oak Chaparral	scrub oak dominate	scrub oak chaparral	37900
	Manzanita Chaparral	manzanita dominate	upper sonoran manzanita chaparral	37B00
Desert				
	Creosote Bush Scrub	creosote dominate	mojave creosote bush scrub	34100
	Wash Scrub	sandy canyon bottom with shrubs	mojave wash scrub	34250
	Blackbush Scrub	blackbush dominate	blackbush scrub	34300
	Tamarisk Scrub	tamarisk dominate	tamarisk scrub	63810
	Sonoran Cottonwood-Willow Riparian	desert	sonoran cottonwood-willow riparian forest	61810
	Fan Palm Oasis	fan palm dominate	desert fan palm oasis woodland	62300
	Mojave Riparian Forest	cottonwood and willow	mojave riparian forest	61700
	Joshua Tree Woodland	Joshua tree dominate	Joshua tree woodland	73000
	Desert Mountain White Fir	desert - white fir dominate	desert mountain white fir	85330
Forest				
	Knobcone Pine	1000-5000 ft	knobcone pine forest	83210
	Coulter Pine	4000-5000 ft	coulter pine forest	84140
	Bigcone Spruce-Canon Oak	douglas fir and live oak dominate	bigcone spruce-canon oak forest	84150
	Westside Ponderosa Pine	2000-5000 ft	westside ponderosa pine porest	84210
	Jeffrey Pine	5500-8000 ft	Jeffrey pine forest	85100
	Jeffrey Pine-Fir	6000-8000 ft	Jeffrey pine-fir forest	85210
	White Fir	7500-9500 ft	southern California white fir forest	85320
	Lodgepole Pine	9000-11000 ft	lodgepole pine forest	86100
	Subalpine	9500-11200 ft	southern California subalpine forest	86500
	Cypress	cypress dominated	southern interior cypress forest	83230
Grassland				
	Non-Native	non-native grasses	non-native grassland	42200
	Native	bunchgrass dominate	native grassland	42100
Meadows/Marshes				
	Coastal Salt Marsh	salt tolerant plants	southern coastal salt marsh	52120
	Brackish Marsh	salt marshes with freshwater input	coastal brackish marsh	
	Montane Freshwater Marsh	permanently flooded by fresh water	montane freshwater marsh	52430
	Montane Meadow	herb grass dominated opening in	montane meadow	45100
	Pavement Plain	Jeffrey pine forest	pavement plain	47000
Riparian				
	Cottonwood Willow	non-desert	southern cottonwood willow riparian forest	61330
	Coast Live Oak	live oak dominate	southern coast live oak riparian forest	61310
	Alder	alder dominate	white alder riparian forest	61510
	Sycamore-Alder	sycamore, alder dominate	southern sycamore-alder riparian woodland	62400
	Mule Fat Scrub	mule fat dominate	mule fat scrub	63310
	Willow Scrub	willow dominate	southern willow scrub	63320
	Tamarisk Scrub	tamarisk dominate	tamarisk scrub	63810
	Arundo	arundo dominate	arundo	RNF01
Scrub				
	Sage Scrub	low soft-woody subshrubs (to 1 m high)	coastal scrub	32000
Urban/Invasive				
	Arundo Scrub/Forest	arundo dominate	arundo scrub / forest	RNF01
	Tamarisk Scrub	tamarisk dominate	tamarisk scrub	63810
	Eucalyptus Woodland	eucalyptus dominate	eucalyptus woodland	11100
	Other Non-Native Community		other non-native community	11000
	Urban/Developed		urban / developed	12000
	Agriculture		general agriculture	18000
	Field/Pasture		field / pasture	18310
	Unvegetated	no vegetation present	unvegetated habitat	13000
Woodland				
	Oak	oak dominate	oak woodland	71100
	CA Walnut	CA walnut dominate	California walnut woodland	71210
	Pinon/Juniper	pinon / juniper dominate	pinon and juniper woodland	72000

Appendix 3a. Vegetation communities commonly found in southern California (Holland, 1986; Sawyer and Keeler-Wolfe, 2003; SANDAG, 2006).

SCRUB

SAGE SCRUB

Element Code: 32000

Combined several sage scrub vegetation communities – description from the Diegan Coastal Sage Scrub community, element code – 32500.

Description: Low, soft-woody subshrubs (1 m tall) that is most active in winter and early spring. Many taxa are facultatively drought-deciduous. Dominated by CA sagescrub (*Artemisia californica*) and CA buckwheat (*Eriogonum fasciculatum*) together with laurel sumac (*Malosma laurina*) and white sage (*Salvia apiana*). Stem and leaf succulents, while present, are not nearly as conspicuous as in Maritime Succulent scrub (32400).

Site Factors: Typically on low moisture-availability sites: steep, xeric slopes or clay-rich soils that are slow to release stored water. Intergrades at higher elevation s with several chaparrals (37000) or, in drier more inland areas with Riversidean Sage Scrub (32700).

Characteristic Species: CA sagebrush (*Artemisia californica*), CA buckwheat (*Eriogonum fasciculatum*), bush-snapdragon (*Galvesia speciosa*), isocoma (*Haplopappus venetus*), CA tree mallow (*Lavatera assurgentiflora*), CA broom (*Lotus scoparius*), chaparral mallow (*Malacothamnus fasciculatus*), laurel sumac (*Malosma laurina*), lemonadeberry (*Rhus integrifolia*), white sage (*Salvia apiana*), foothill stipa (*Stipa lepida*).

Distribution: This is a wide-spread coastal sage scrub in coastal southern CA from LA into Baja CA.

DESERT

CREOSOTE BUSH SCRUB

Element Code: (34100)

Description: Shrubs, 0.5 - 3 m tall, widely spaced, usually with bare ground between. Growth occurs during spring (or rarely in summer or fall) if rainfall is sufficient. Growth is prevented by cold in winter and limited by drought at other seasons. Many species of ephemeral herbs may flower in late March and April if the winter rains are sufficient. Other, less numerous species of annuals appear following summer thundershowers. This is the basic creosote scrub of the Mojave Desert, dominated by creosote bush (*Larrea tridentate*) and white bur-sage (*Ambrosia dumosa*).

Site Factors:
Well-drained secondary soils with very low available water holding capacity on slopes, fans, and valleys rather than upland sites with thin residual soils or sites with high soil salinity. Winter

temperatures often below freezing. Intergrades at higher elevations with Shadscale Scrub (36140), or Joshua Tree Woodland (73000), at lower elevations or more osmotic sites with Desert Chenopod Scrub (36100).

Characteristic Species: white bur-sage (*Ambrosia dumosa*), desert senna (*Cassia armata*), Mormon tea (*Ephedra nevadensis*), burrobush (*Hymenoclea salsola*), creosote bush (*Larrea tridentata*), box thorn (*Lycium* spp.).

Distribution: Extensive from the Death Valley region southward across the Mojave Desert to the little San Bernardino Mountains, eastward to northwestern Arizona and southern Nevada. The dominate plant community below 3,000 or 4,000 feet (910 - 1210 m) in this region.

WASH SCRUB

Element Code: (34250)

Description: A low, open community with a scattered to locally dense overstory of microphyllous trees.

Site Factors: Sandy bottoms of wide canyons, incised arroyos of upper bajadas, and sandy, braided, shallow washes of the lower bajadas, usually below about 5,000 feet.

Characteristic Species: catclaw (*Acacia greggii*), alkali saltbush (*Atriplex polycarpa*), desert willow (*Chilopsis linearis*), rabbitbrush (*Chrysothamnus paniculatus*), smoke tree (*Dalea spinosa*), cheesebush (*Hymenoclea salsola*), desert fir (*Peucephyllum schottii*), honey mesquite (*Prosopis glandulosa torreyana*), screwbean mesquite (*P. pubescens*), Desert Almond (*Prunus fasciculata*), Skunk bush (*Rhus trilobata anisophylla*).

Distribution: Washes, arroyos, and canyons of intermittent streams throughout the Mojave Desert region.

BLACKBUSH SCRUB

Element Code: (34300)

Description: Low, often intricately branched shrubs, 0.5 - 1 m tall, with crowns usually not touching and with bare ground between plants. Most growth and flowering occurs in late spring. Dormant in winter (from cold) and probably in summer and fall (from drought).

Site Factors: On dry, well-drained slopes and flats with shallow often calcareous soils of very low water holding capacity, often intergrading with Great Basin Sagebrush Scrub (35210), Joshua Tree Woodland (73000), or Pinyon Juniper Woodlands (72000), but typically at somewhat lower elevations, warmer, and drier.

Characteristic Species: Utah agave (*Agave utahensis*), shadescale (*Artemisia spinescens*), rabbitbrush (*Atriplex confertifolia*), rubberbush (*Chrysothamnus teretifolius*), blackbush (*Coleogyne ramosissima*), Mormon tea (*Ephedra nevadensis*), CA buckwheat (*Eriogonum fasciculatum polifolium*), winterfat (*Eurotia lanata*), big galleta (*Hilaria rigida*), hop-sage

(*Grayia spinosa*), spiny desert olive (*Menodora spinescens),* Mexican bladder sage (*Salazaria mexicana*), Dorr's sage (*Salvia dorrii*), squirreltail (*Sitanion longifolium*), desert globmallow (*Spheralcea ambigua*), turpentine-broom (*Thamnosma Montana*), Joshua tree (*Yucca baccata*).

Distribution: From the Owens Valley region (Inyo and southern Mono Counties to the Mojave Desert (Kern and San Bernardino Counties). Typically between 4000 and 7000 feet.

TAMARISK SCRUB

Element Code: (63810)

Description: A weedy, virtual monoculture of any of several tamarisk (*Tamarix*) species, usually supplanting native vegetation following major disturbance.

Site Factors: Sandy or gravelly braided washes or intermittent streams, often in areas where high evaporation increases the streams saltiness. Tamarisk is a strong phreatophyte and a prolific seeder, attributes which predispose the species to be aggressive competitors in disturbed riparian corridors.

Characteristic Species: big saltbush (*Atriplex lentiformis*), Palmer's coldenia (*Coldenia palmeri*), salt grass (*Distichlis spicata*), arrow-weed (*Pleuchea sericea*), sandbar willow (*Salix exiqua*), tamarix (*Tamarix chinensis*), (*T. ramosissima*).

Distribution: Widely scattered and increasing its range, throughout the drier parts of CA from the rain shadow east of the Inner North Coast Ranges south through the Great Valley to southern CA and across the deserts to Nevada, Arizona and beyond.

SONORAN COTTONWOOD-WILLOW RIPARIAN
Element Code: (61810)

Description: Winter-deciduous, broad-leafed streamside forests to about 60 feet tall, dominated by cottonwood (*Populus fremontii macdougallii*) with dense understories of several *Salix* species. There appear to be virtually no compositional data available for this type.

Site Factors: Deep well-watered, loamy alluvial soils along the near-channel floodplains of perennial desert rivers. This forest intergraded on sites slightly higher above and farther away from the river channels with Mesquite Bosques (61820) before these were cut down for fence posts and fuel.

Characteristic Species: arundo (*Arundo donax*), devil-weed (*Aster spinosus*), big saltbush (*Atriplex lentiformis*), sticky baccharis (*Baccharis glutinosa*), (*B. glutinosa*), (*B. sarothroides)*, common reed (*Phragmites australis*), arrow-weed (*Pleuchea sericea*), cottonwood (*Populus fremontii macdougallii*), willow species *(Salix exiqua*), (*Salix gooddingii gooddingii*), (*Sesbania macrocarpa*), tamarix (*Tamarix* spp).

Distribution: Formerly extensive along the lower Colorado River buy now virtually eliminated by flood control projects, agriculture, or by tamarisk invasion.

FAN PALM OASIS

Element Code: (62300)

Description: Open to dense groves dominated by fan palms (*Washingtonia filifera*) to 75 - 100 feet tall. The understory is sparse in dense groves (where the ground is mulched by fallen fronds) or in more alkaline areas. More open or favorable sites may have a dense understory reminiscent of Mojave or Colorado Riparian Forests (61700, 61800) or Riparian Scrubs (62700, 62800).

Site Factors: Restricted to sites with high water tables in regions with high summer temperatures, mild winters, and little rain. The largest groves are in steep-sided canyons with permanent streams, or adjacent to large springs. Smaller groves occur in canyon bottoms with intermittent surface water, moist canyon sides, or seeps. Oases often have alkaline soils due to high evaporation. Intergrades (often abruptly) wit h Mojave Riparian Forest (61700), Mojave Mixed Scrub (32400), Desert Dry Wash Woodland (62200), or Sonoran Creosote Bush Scrub (33100).

Characteristic Species: southern maidenhair fern (*Adiantum capillus-veneris*), desert columbine (*Aquilegia shockleyi*), squaw waterweed (*Baccharis sergiloides*), netleaf hackberry (*Celtis reticulata*), thistle sp. (*Cirsium nidulum*), stream orchid (*Epipactis gigantean*), smooth horsetail (*Equisetum laevigatum*), velvet ash *(Fraxinus velutina*), alkali goldenbush (*Haplopappus acradenius*), common reed (*Phragmites australis*), CA sycamore (*Platanus racemosa*), arrowweed (*Pleuchea sericea*), western cottonwood (*Populus fremontii*), mesquite (*Prosopis gladulosa*), canyon live oak (*Quercus chrysolepis*), willow Sp. (*Salix exiqua*), (*S. gooddingii*), (*S. lasiolepis*), blue elderberry (*Sambucus mexicana*), alkali dropseed (*Sporobolis airoides*), tamarisk (*Tamarix* spp.), cat-tail (*Typha domingensis*), and nettle (*Urtica dioica*).

Distribution: Scattered in the canyons of the western edge of the Colorado Desert from near Twenty-nine Palms south into Baja CA, usually below 3000 feet.

MOJAVE RIPARIAN FOREST

Element Code: (61700)

Description: A relatively open, broad-leafed, winter-deciduous streamside forest dominated by western cottonwood (*Populus fremontii*), willow (*Salix gooddingii*), and (*S. laevigata*). The open canopy allows a dense shrubby understory of Torrey's saltbush (*Atriplex torreyi*), rabbitbrush (*Chrysothamnus nauseosus*), Woods' rose (*Rosa woodsii*), and sandbar willow (*Salix exiqua*) to prosper. Similar to and intergrading in the lower elevations of Inyo County with Modoc-Great Basin Cottonwood-Willow Riparian Forest (61610).

Site Factors: Flat, fine-grained, subirrigated alluvium along perennial desert rivers.

Characteristic Species: shadescale (*Atriplex confertifolia*), (*A. parryi*), (*A. torreyi*), rabbitbrush (*Chrysothamnus nauseosus*), Russian olive (*Eleagnus angustifoli*a), desert olive (*Forestiera neomexicana*), western cottonwood (*Populus fremontii*) (and var. *macdougallii*), Woods' rose

(*Rosa woodsii*) willow (*Salix exiqua*), (*S. gooddingii*), (*S. Laevigata*), greasewood (*Sarcobatus vermiculatus*), and tamarix (*Tamarix* spp.).

Distribution: Along the larger desert rivers (Owens, Mojave, Colorado) where the vegetation has not been cleared for irrigated agriculture or been dewatered by upstream diversions. Generally below about 4000 feet.

JOSHUA TREE WOODLAND

Element Code: (73000)

Description: An open woodland with Joshua trees (*Yucca brevifolia*) usually as the only arborescent species (to 12 m high) and numerous shrub species between 1 and 4 m tall. Little or no herbaceous understory during most of the year. The dominate species display a diversity of life forms: sclerophyllous evergreen trees and shrubs Yucca (*Yucca* spp.), microphyllous evergreen shrubs juniper (*Juniperus* spp.), semideciduous shrubs buckwheat, horsebrush (*Eriogonum, Tetradymia*), semi-succulents box thorn (*Lycium* spp.), and succulents prickly pear (*Opuntia* spp.). The main growing season is spring, with most growth limited by cold in winter and brought in summer and fall. Many species of ephemeral herbs may germinate following sufficient late fall or winter rains and flower in mid-spring.

Site Factors: Typically on sandy, loamy, or gravelly, well-drained gentle alluvial slopes. Transitional climatologically and biologically between low and high elevation desert regions. Intergrades at lower elevations with Mojave Creosote Bush Scrub (34100) (poorer soil drainage, colder winters from cold air drainage). At higher elevations, intergrades with Mojavean Pinyon-Juniper Woodland (72200) (cooler and moister, but better drained).

Characteristic Species: buckwheat (*Eriogonum fasciculatum*), (spp. *polifolium*), juniper sp. (*Juniperus californica*), (*J. osteosperma*), box thorn (*Lycium* spp.), prickly pear (*Opuntia* spp.), longspine horsebrush (*Tetradymia axillaris*), Joshua tree (*Yucca brevifolia*), Mojave yucca (*Y. schidigera*), banana yucca (*Y. baccata*), Great Basin sagebrush (*Artemisia tridentata*), (*Coreogyme ramossissina*), spiny hopsage (*Grayia spinosa*), juniper (*Juniperus californica*), creosote bush (*Larrea divaricata*), Anderson box thorn (*Lycium andersonii*), stipa (*Stipa speciosa*), Mormon tea (*Ephedra nevadensis*), big galleta (*Hilaria ridida*), spiny menodora (*Menodora spinescens*), branched pencil cholla (*Opuntia ramosissima*), and bladder sage (*Salazaria mexicana*).

Distribution: Desert slopes of the Southern Sierra Nevada, Tehachapi, and Transverse Ranges of Inyo, Kern, LA, San Bernardino, and northern Riverside Counties. Eastward across the Mojave Desert to southwestern Utah, mostly on the slopes of mountains and mesas. Extensive stands in the vicinity of Halloran Summit and Mountain Pass in northeastern San Bernardino County. One extensive stand west of the Sierran Crest on the watershed of the South fork of Kern River. Elevation from 2500 – 5000 feet (760 – 1520 m). Many of the characteristics species (but not Joshua trees (*Yucca brevifolia*) occur southward into San Diego County and northern Baja CA, on the Desert slopes of the Peninsular Ranges.

DESERT MOUNTAIN WHITE FIR

Element Code: (85330)

Description: Fairly low (to 50 feet) open forests dominated by the Rocky Mountain race of white fir (*Abies concolor*) and single leaf pinyon pine (*Pinus monophylla*). Understories are fairly open, shorter than 8 - 10 feet, characterized by several shrubs with affinities to the southern Rocky Mountains.

Site Factors: Steep, mesic, north-facing canons and slopes near mountain ridges and summits, mostly between 6200 and 7500 feet. Occurs on both granite and limestone parent materials.

Characteristic Species: Rocky Mountain maple (*Acer glabrum diffusum*), Coville's service-berry (*Amelanchier utahensis covillei*), sedge (*Carex brevipes*), rabbitbrush (*Chrysothamnus viscodiflorus*), Mormon tea (*Ephedra utridis*), Utah fendlerbush (*Fendlerella utahensis*), Utah fendlerella (*Franxinus anomala*), goldenbush (*Haplopappus cuneatus*), Mojave halimolobos (*Halimolobos diffusa jaegeri*), pink alumroot (*Heuchera rubescens pachypoda*), (*Holodiscus microphyllous*), juniper (*Juniperus osteosperma*), matted prickly-phlox (*Leptodactylon pungens hallii*), canyonlands biscuitroot (*Lomatium parryi*), (*Oryzopsis micrantha*), (*Philadelphus microphyllous stramineus*), singleleaf pinyon (*Pinus monophylla*), current (*Ribes cereum*), (*R. velutinum*), and desert snowberry (*Symphoricarpos longiflorus*).

Distribution: Limited to the higher ranges of the eastern Mojave Desert: Kingston, Clark, and New York Mountains.

CHAPARRAL

MIXED CHAPARRAL

Element Code: (37000)

Combined several chaparral vegetation communities – description from the Southern Mixed Chaparral community (37120)

Description: Similar to Northern Mixed Chaparral (37110) but typically not quite so tall (1.5 – 3 m) or dense. Occasionally with patches of bare soil or forming a mosaic with Venturan Coastal Sage Scrub (32300) or Riversidean Sage Scrub (32700). Divisible into Granitic (37121) and Mafic (37122) subtypes based on substrate, but floristic distinctions between these two subtypes remain unknown.

Site Factors: Similar to Northern Mixed Chaparral (37110) but somewhat lower precipitation and more moderate temperatures. Often adjacent to and on moister sites than Chamise Chaparral (37200). Transitional from the chaparral habitats of California to the coastal semi-desert of Baja CA Norte.

Characteristic Species: chamise (*Adenostoma fasciculatum*), manzanita sp. (*Arctostaphylos gladulosa*), (*A. pennisularis*), Mariposa lily (*Calochortus albus*), ceanothus (*Ceanothus tomentosus olivaceus*), (*C. verrucosus*), mountain mahogany (*Cercocarpus minutiflorus*),

bushrue (*Cneoridium dumosum*), chocolate lily (*Fritillaria biflora*), toyon (*Heteromeles arbutifolia*), honeysuckle (*Lonicera subspicata*), scrub oak (*Quercus dumosa*), laurel sumac (*Malosma laurina*), spiny redberry (*Rhamnus crocea*), lemonadeberry (*Rhus ovata*), gooseberry (*Ribes indecorum*), mission manzanita (*Xylcoccus bicolor*), Mojave yucca (*Yucca schidigera*), and our lord's candle (*Y. whipplei*).

Distribution: Coastal foothills of San Diego County and Northern Baja CA, usually below 3000 feet (910 m).

CHAMISE CHAPARRAL

Element Code: (37200)

Description: A 1 - 3 m tall chaparral overwhelmingly dominated by chamise. Associated species contribute little to cover. Adapted to repeated fires by stump sprouting. Mature stands are densely interwoven with very little herbaceous understory or litter.

Site Factors: Similar to Upper Sonoran Mixed Chaparrals (37100), but on shallower, drier soils or at somewhat lower elevations. Often on xeric slopes and ridges, with adjacent more mesic sites mantled by Upper Sonoran Mixed Chaparrals.

Characteristic Species: chamise (*Adenostoma fasciculatum*), manzanita sp. (*Arctostaphylos glauca*), (*A. tomentosa*), *(A. viscida*), mariposa lily (*Ceanothus cuneatus*), (*C. papillosus*), birch-leaf mountain mahogany (*Cercocarpus betuloides*), hairgrass (*Dendromecon rigida*), CA buckwheat (*Eriogonum fasciculatum*), yerba santa (*Eriodictyon californicum*), deerweed (*Lotus scoparius*), holly-leaf cherry (*Prunus ilicifolia*), scrub oak (*Quercus dumosa*), sugar bush (*Rhus ovata*), lemonadeberry (*R. laurina*), white sage (*Salvia apiana*), black sage (*S. mellifera*), ashy spike-moss (*Selaginella cinerascens*), Mojave yucca (*Yucca schidigera*), and our lord's candle (*Y. Whipplei*).

Distribution: General distribution similar to Northern Mixed Chaparral (37110) but relatively infrequent in the north compared to its abundance in the south. The predominate chaparral type in Ventura, LA, San Bernardino, Riverside, and San Diego Counties.

SCRUB OAK CHAPARRAL

Element Code: (37900)

Description: A dense, evergreen chaparral to 20 feet tall, dominated by scrub oak (*Quercus dumosa*) with considerable birch-leaf mountain mahogany (*Cercocarpus betuloides*).

Site Factors: Somewhat more mesic than many chaparrals, and often occurring at slightly higher elevations (to 5000 feet). These more favorable sites recover from fire more quickly than other chaparrals. Substantial leaf litter accumulates.

Characteristic Species: Del Mar manzanita (*Arctostaphylos glandulosa*), deerbrush (*Ceanothus integerrimus*), CA whitethorn (*C. leucodermis*), blueblossom (*C. thrysiflorus*), birch-leaf mountain mahogany (*Cercocarpus betuloides*), CA ash (*Fraxinus dipetala*), narrow-leaved

bedstraw (*Galium angustifolium*), canyon silktassel (*Garrya veatchii*), toyon (*Heteromeles arbutifolia*),honeysuckle (*Lonicera* spp.), chaparral pea (*Pickeringia montana*), holly-leaved cherry (*Prunus ilicifolia*), scrub oak (*Quercus dumosa*), live oak (*Q. wislizenii frutescens*), spiny redberry (*Rhamnus californica*), holly-leaved redberry (*R. ilicifolia*), poison oak (*Toxicodendron diversilobum*).

Distribution: Western Sierran foothills and North Coast ranges from Tehama County south through the southern California mountains to Baja California.

MANZANITA CHAPARRAL

Element Code: (37B00)

Description: A dense chaparral to 15 feet in which dominance is shared by chamise and various species of Manzanita.

Site Factors: Most stands appear to be disturbance followers, establishing after fire, logging, hydraulic mining, or other disruptions. Young conifers (especially white fir (*Abies concolor*) or ponderosa pine (*Pinus ponderosa*) often can be found beneath the shrub canopy in these seral stands.

Characteristic Species: chamise (*Adenostoma fasciculatum*), Del Mar manzanita (*Arctostaphylos gladulosa*), manzanita (*A. glauca*), big berry manzanita (*A. mariposa*), Indian manzanita (*A. mewukka*), pinemat manzanita (*A. nevadensis*), greenleaf manzanita (*A. patula*), sticky white-leaf manzanita (*A. viscida*), and whitethorn chaparral (*Ceanothus leucodermis*).

Distribution: Widespread in the Sierran foothills and Coast Ranges, usually at elevations higher than Chamise Chaparral (37200), but lower than Montane Chaparral (37500). Somewhat more patchily distributed along the coastal side of the Transverse and Peninsular Ranges, typically between 2500 and 5000 feet.

GRASSLAND

NON-NATIVE

Element Code: (42200)

Description: A dense to sparse cover of annual grasses with flowering culms 0.2 - 0.5 (1.0) m high. Often associated with numerous species of showy-flowered, native annual forbs ("wildflowers"), especially in years of favorable rainfall. Germination occurs with the onset of the late fall rains; growth, flowering, and seed-set occur from winter through spring. With a few exceptions, the plants are dead through the summer-fall dry season, persisting as seeds.

Site Factors: On fine-textured, usually clay soils, moist or even waterlogged during the winter rainy season and very dry during the summer and fall. Oak Woodland (71100) is often adjacent on moister, better drained.

Characteristic Species: slender wild oats (*Avena barbata*), wild oats (*A. fatua*), Brome sp. (*Bromus mollis*), (*B. rigidus*), red brome (*B. rubens*), Fillaree (*Erodium botrys*) red stem fillaree (*E. cicutarium*), CA poppy (*Eschscholtzia californica*), gilia sp. (*Gilia* spp.), tarweed (*Hemizonia* spp.), goldfields (*Lasthenia* spp.), tidytips (*Layia* spp.), Italian ryegrass (*Lolium multiflorum*), lupine sp. (*Lupinus* spp.), pepperweed (*Lepidium dictyotum*), CA burclover (*medicago hispida*), (*Namophila manziesii*), owl's clover (*Orthocarpus* spp.), Phacelia (*Phacelia* spp.), Mediterranean schismus grass (*Schismus arabicua*), fescue sp. (*Vulpia megalura*), and (*V. microstachys*).

Distribution: Valleys and foothills of most of California except for the north coastal and desert regions. Usually below 3000 feet, but reaching 4000 feet in the Tehachapi Mountains and interior San Diego County. Intergrades with Coastal Prairie (41000) along the central coast. Formerly occupied large portions of the Sacramento, San Joaquin, and Salinas Valleys as well as the LA basin, areas that are now agricultural or urban.

NATIVE

Element Code: (42100)

Combined several native vegetation communities – description is a combination of the Valley Needlegrass Grassland (42110) and the Serpentine Bunchgrass (42130) vegetation communities.

Description: Open grassland dominated by perennial bunchgrasses or a mid-height (to 2 feet) grassland dominated by perennial, tussock-forming Needlegrass (*Stipa pulchra*). Cover typically is low, but is markedly dominated by native species (usually much more so than Non-native Grasslands (42200) or Native and introduced annuals occur between the perennials, often actually exceeding the bunchgrasses in cover.

Site Factors: Serpentine Bunchgrass is restricted to serpentine sites. While Valley Needlegrass Grasslands usually on a fine-textured (often clay) soils, moist or even waterlogged during winter, but very dry in summer. Often interdigitates with Oak Woodlands (71100) on moister, better drained sites.

Characteristic Species: blow wives (*Achyrachaena mollis*), bentgrass (*Agoseris heterophylla*), wild oats (*Avena fatua*), goldenstar (*Bloomeria crocea*), brodiaea (*Brodiaea lutea*), ripgut brome (*Bromis diandrus*) brome sp. (*Bromis mollis*), red brome (*Bromis rubens*), serpentine reedgrass (*Calamagrostis ophitidis*), soap plant (*Chlorogalum pommeridianum*), farwell-to-spring (*Clarkia purpurea*), shooting star (*Dodecatheon jefferyi*), CA poppy (*Eschscholtzia californica*), fescue sp. (*Festuca grayii*), tarweed (*Hemizonia luzulaefolia*), trefoil (*Lotus subpinnatus*), oniongrass (*Melica californica*), (*M. imperfecta*), owl's clover (*Orthocarpus attenuatus*), plantain (*Plantago hookeriana californica*), bluegrass (*Poa scabrella*), stipa sp. (*Stipa cernua*), (*S. lepida*), (*S. pulchra*), fescue (*Vulpia microstachys*).

Distribution: Scattered widely through the Coast Ranges, less common in the Sierra Nevada and southern CA mountains.

RIPARIAN

COTTONWOOD WILLOW

Element Code: (61330)

Description: Tall, open, broad-leafed winter-deciduous riparian forests dominated by cottonwood sp. (*Populus fremontii*), (*P. trichocarpa*), and several tree willows. Similar to Central Coast Cottonwood-Sycamore Riparian Forest (61210), although apparently with less coast live oak (*Quercus agrifolia*) or white alder (*Alnus rhombifolia*) (this merits further study). Understories usually are shrubby willows.

Site Factors: Sub-irrigated and frequently overflowed lands along rivers and streams. The dominate species requires moist, bare mineral soil for germination and establishment. This is provided after flood waters recede, leading to uniform-aged stands in this seral type.

Characteristic Species: mugwort (*Artemisia douglasiana*), mule fat (*Baccharis viminea*), wild cucumber (*Marah macrocarpus*), western sycamore (*Platanus racemosa*), western cottonwood (*Populus fremontii*), cottonwood sp. *(P. trichocarpa*), willow sp. (*Salix gooddingii*), (*S. hindsiana*), (*S. lasiandra*), (*S. lasiolepis*), stinging nettle (*Urtica holosericea*).

Distribution: Along perennially wet steam reaches of the Transverse and Peninsular Ranges, from Santa Barbara County south to Baja California north and east to the edge of the deserts.

COAST LIVE OAK

Element Code: (61310)

Description: Open to locally dense evergreen sclerophyllous riparian woodlands dominated by coast live oak (*Quercus agrifolia*). This type appears to be richer in herbs and poorer in understory shrubs than other riparian communities. Similar to and questionably distinct from Central Coast Live Oak Riparian Forest (61220).

Site Factors: Bottomlands and outer floodplains along larger streams, on fin-grained, rich alluvium.

Characteristic Species: bigleaf maple (*Acer macrophyllum*), mugwort (*Artemisia douglasiana*), milkmaids (*Cardamine californica*), spotted hideseed (*Eucrypta chrysanthemifolia*), toyon (*Heteromeles arbutifolia*), keckiella (*Keckiella cordifolia*), honeysuckle (*Lonicera hispidula*), wild cucumber (*Marah macrocarpus*), fiesta flower (*Pholistoma auritum*), coast live oak (*Quercus agrifolia*), skunkbrush (*Rhus trilobata*), CA wild rose (*Rosa californica*), CA blackberry (*Rubus ursinus*), elderberry (*Sambucus Mexicana*), trip vine (*Symphoricarpos mollis*), poison oak (*Toxicodendron diversilobum*), CA laurel (*Umbellularia californica*).

Distribution: Canyons and valleys of coastal southern California, mostly south of Point Conception.

ALDER

Element Code: (61510)

Description: Medium-tall broad-leafed deciduous streamside forests dominated by (*Alnus rhombifolia*), with a shrubby, deciduous understory. Stands in the Coast Ranges have abundant (*Salix* spp.), (*Baccharis viminea*), (*Symphoricarpos* spp.), CA wild rose (*Rosa californica*), and poison oak (*Toxicodendron diversilobum*), while Sierran stands have understories rich in (*Cornus stolonifera*), (*Fraxinus latifolia*), and (*Rhododendron occidentale*). These two types probably should be separated. Riparian alder forests in southern CA need study – these too may be separable.

Site Factors: Best developed along rapidly flowing, well aerated perennial streams with coarse bedloads that reflect high stream power during spring runoff. These streams typically flow in bedrock-constrained, steep sided canyons, so the riparian corridor typically is rather narrow.

Characteristic Species: bigleaf maple (*Acer macrophyllum*), white alder (*Alnus rhombifolia*), mule fat (*Baccharis viminea*), blackfruit dogwood (*Cornus sessilis*), dogwood sp. (*C. stolonifera*), Oregon ash (*Fraxinus latifolia*), western azalea (*Rhododendron occidentale*), willow sp. (*Salix* spp.), and poison oak (*Toxicodendron diversilobum*).

Distribution: Perennial streams in incised canyons of the lower Sierra Nevada, Coast, Transverse, and Peninsular ranges, usually below about 6000 feet.

SYCAMORE-ALDER

Element Code: (62400)

Description: A tall, open, broad-leafed, winter-deciduous streamside woodland dominated by western sycamore (*Platanus racemosa*), (and often also white alder (*Alnus rhombifolia*)). These stands seldom form closed canopy forests, and even may appear as trees scattered in a shrubby thicket of sclerophyllous and deciduous species. Lianas include CA blackberry (*Rubus ursinus*) and poison oak (*Toxicodendron diversilobum*). Distinctions between this type and Sycamore Alluvial Woodland (62100) merit additional study.

Site Factors: Very rocky streambeds subject to seasonally high-intensity flooding. (*Alnus*) increases in abundance on more perennial streams, while (*Platanus*) favors more intermittent hydrographs.

Characteristic Species: bigleaf maple (*Acer macrophyllum*), white alder (*Alnus rhombifolia*), mugwort (*Artemisia douglasiana*), CA spikenard (*Aralia califo*rnica), scouring rush *(Equisetum hyemale*), smilo grass (*Oryzopsis miliacea*), coast live oak (*Quercus agrifolia*), CA blackberry (*Rubus ursinus*), elderberry (*Sambucus Mexicana*), poison oak (*Toxicodendron diversilobum*), CA laurel (*Umbellularia californica*), and stinging nettle (*Urtica holsoericea*).

Distribution: Transverse and Peninsular ranges from Point Conception south into Baja California Norte

MULE FAT SCRUB

Element Code: (63310)

Description: A depauperate, tall herbaceous riparian scrub strongly dominated by mule fat (*Baccharis viminea*). This early seral community is maintained by frequent flooding. Absent this, most stands would succeed to cottonwood- or sycamore-dominated riparian forests or woodlands.

Site Factors: Intermittent stream channels with fairly coarse substrate and moderate depth to the water table. Frequently occurs as a patchy understory in light gaps in Sycamore Alluvial Woodlands (62100), especially under heavy grazing.

Characteristic Species: mule fat (*Baccharis viminea*), sedge sp. (*Carex barbarae*), willow sp. *(Salix exiqua*), (*S. hindsiana*), (*S. lasiolepis*), stinging nettle (*Urtica holosericea*).

Distribution: Widely scattered along intermittent streams and near larger rivers from about Tehama County south through the Coast Ranges and Sierra Nevada to San Diego and northwestern Baja California Norte, usually below about 2000 feet.

WILLOW SCRUB

Element Code: (63320)

Description: Dense, broad-leafed, winter-deciduous riparian thickets dominated by several willow sp. (*Salix*), with scattered emergent western cottonwood (*Populus fremontii*) and (*Plantanus racemosa*). Most stands are too dense to allow much understory development.

Site Factors: Loose, sandy or fine gravelly alluvium deposited near stream channels during flood flows. This early seral type requires repeated flooding to prevent succession to Southern Cottonwood-Sycamore Riparian Forest (61330).

Characteristic Species: arrowweed (*Pluchea sericea*), western cottonwood (*Populus fremontii*), willow sp. (*Salix gooddingii*), (*S. hindsiana*), (*S. laevigata arauipa*), (*S. lasiandra*), (*S. lasiolepis*), (*S. hindsiana*), (*S. leucodendroides*), others?

Distribution: Formerly extensive along the major rivers of coastal southern CA, but now much reduced by urban expansion, flood control, and channel “improvements”.

TAMARISK SCRUB

Element Code: (63810)

Description: A weedy, virtual monoculture of any of several *Tamarix* species, usually supplanting native vegetation following major disturbance.

Site Factors: Sandy or gravelly braided washes or intermittent streams, often in areas where high evaporation increases the streams saltiness. Tamarisk is a strong phreatophyte and a prolific

seeder, attributes which predispose the species to be aggressive competitors in disturbed riparian corridors.

Characteristic Species: big saltbush (*Atriplex lentiformis*), Palmer's coldenia (*Coldenia palmeri*), salt grass (*Distichlis spicata*), arrow-weed (*Pleuchea sericea*), sandbar willow (*Salix exigua*), tamarix (*Tamarix chinensis*), (*T. ramosissima*).

Distribution: Widely scattered and increasing its range, throughout the drier parts of CA from the rain shadow east of the Inner North Coast Ranges south through the Great Valley to southern CA and across the deserts to Nevada, Arizona and beyond.

ARUNDO SCRUB/FOREST

Element Code: (RNF01)

Description: A dense monoculture dominated by arundo also known as the giant reed (*Arundo donax*). This is a very invasive grass that was introduced to CA in the 1880's. This species persist in riparian areas, and reduces or replaces native species

WOODLAND

OAK

Element Code: (71100)

Combined several oak woodland vegetation communities – description from the Coast Live Oak Woodland community, element code – 71160

Description: Very similar to Oregon Oak Woodland (71110) within only one dominate tree, coast live oak (*Quercus agrifolia*), which is evergreen and reaches 10 - 25 m in height. The shrub layer is poorly developed, but may include toyon (*Heteromeles arbutifolia*), gooseberry (*Ribes* spp.), laurel sumac (*Rhus laurina*), or elderberry (*Sambucus mexicana*). The herb component is continuous and dominated by ripgut brome (*Bromis diandrus*) and several other introduced taxa.

Site Factors: Typically on north-facing slopes and shaded ravines in the south and more exposed sites in the north. Intergrades with Coastal Scrub (32000) and Upper Sonoran Mixed Chaparral (37100) on drier sites and with Coast Live Oak Forest (81310) or Mixed Evergreen Forest (81100) on moister sites.

Characteristic Species: CA buckeye (*Aesculus californica*), saniclle (*Sanicula laciniata*), toyon (*Heteromeles arbutifolia*), coast live oak (*Quercus agrifolia*), coffee berry (*Rhamnus californica*), elderberry (*Sambucus mexicana*), poison oak (*Toxicodendron diversilobum*), orange monkey flower (*Diplacus aurantiacus*), pacific pea (*Lathyrus vestitus*), CA sagebrush (*Artemisia californica*), pacific madrone (*Arbutus menziesii*), CA laurel (*Umbellularia californica*), gooseberry (*Ribes* spp.), ripgut brome (*Bromus diandurs*), chickweed (*Stellaria media*), bedstraw (*Galium apartine*), thistle (*Cirsium vulgare*), knotted hedgeparsley (*Torilis nodosa*).

Distribution: Outer south Coast Ranges, and coastal slopes of Transverse and Peninsular Ranges, usually below 4000 feet (1220 m). Intergrades with Blue Oak Woodland (71120) in inner South Coast Ranges and with Engelmann Oak Woodland (71180) in interior southern CA.

CA WALNUT

Element Code: (71210)

Description: Similar to and intergrading with Interior Live Oak Woodland (71150) or Coast Live Oak Woodland (71160), but with a more open tree canopy locally dominated by CA walnut (*Juglans californica*). The open tree canopy allows development of a grassy understory. In most sites, this understory is comprised of introduced winter-active annuals that complete most of their growth cycle before the deciduous walnut (*Juglans*) leafs out in spring.

Site Factors: On relatively moist, fine-textured soils of valley slopes and bottoms, as well as encircling rocky outcrops. These drier, rocky sites often support Venturan (32300) or Riversidean Sage Scrub (32700). Intergrades with Coast Live Oak Woodland (71160) or Coast Live Oak Forest (81310) on more mesic sites, especially in canyons.

Characteristic Species: CA walnut (*Juglans californica*), coast live oak (*Quercus agrifolia),* Engelmann oak (*Quercus engelmannii*), sugar bush (*Rhus ovata*), skunkbrush (*R. trilobata*), red brome (Bromus rubens), horehound (*Marrubium vulgare*).

Distribution: South side of San Gabriel Mountains to the Santa Ana Mountains, mostly between 500 and 3000 feet.

PINON/JUNIPER

Element Code: (72000)

Combined several Pinon and/or Juniper vegetation communities – description from the Great Basin Pinon-Juniper Woodland community, element code – 72121

Description: Very similar to Northern Juniper woodland (72110), but lacking the occasional taller trees and having Utah juniper (*Juniperus occidentalis*) and singleleaf pinyon pine (*Pinus monophylla*) as conspicuous canopy components. Shrub and herb species typically are those seen in adjacent non-forested stands of Great basin Scrub (35000 series).

Site Factors: Very similar to Northern Juniper Woodlands (72110) but receiving slightly more moisture. Intergrades at higher elevations with Jeffrey Pine Forest (85100) or Montane Chaparral (37500) in the Sierra Nevada; and with Bristlecone Pine Forest (86400) or Subalpine Sagebrush Scrub (35200) in the White, Inyo, and Panamint Ranges.

Characteristic Species: wheat grass (*Agropyron spicatum*), big sagebrush (*Artemisia tridentata*), curled-leafed mountain-mahogany (*Cercocarpus ledifolius),* Utah juniper (*Juniperus osteosperma*), singleleaf pinyon pine (*Pinus monophylla*), desert bitterbrush (*Purshia glandulosa*), and antelope bush (*P. tridentate*).

Distribution: Desert mountains from the first range east of the Sierra Nevada from Alpine County to Kern County, east through the Basin Ranges of Nevada. Abundant in the White Mountains, Inyo Mountain, and Panamint Range, from 6000 - 9000 feet (1830 - 2745 m). Intergrades in Kern County (on both sides of the Sierran crest) with Mojavean Pinon-Juniper Woodland (72210).

FOREST

KNOBCONE PINE

Element Code: (83210)

Description: A fire-maintained, variable forest dominated by knobcone pine (*Pinus attenuate*) that may reach 25 - 30 m, though usually closer to 15 m tall. Stands usually are even-aged except on relatively "fire-proof", rocky sites. Understories usually are sparse scatters of chaparral shrubs whose composition varies greatly over the type's range.

Site Factors: Shallow, dry, stoney sites, often on serpentine or other magnesium-rich ultramafics that limit effective conifer competition. Adapted to frequent fires by means of very early and abundant production of seeds, which are retained in the closed cones until released by the heat of a fire. Similar to Bishop Pine Forest (83121), but in more interior, hotter and drier localities, where growth is probably more limited by drought in summer. Often associated with Serpentine Chaparral (37600), Chamise Chaparral (37200) or Californian Mixed Chaparral (37110). On better-developed or non-serpentine soils, may intergrade with Broadleaved Evergreen Montane Coniferous forest (84000).

Characteristic Species: chamise (*Adenostoma fasciculatum*), Saskatoon serviceberry (*Amelanchier alnifolia*), Del Mar manzanita (*Arctostaphylos gladulosa*), whitethorn ceanothus (*Ceanothus cordulatus*), wart-stemmed ceanothus (*C. velutinus*), cypress sp. (*Cupressus abramsiana*), bush poppy (*Dendromecon rigi*da), tarweed (*Holodiscus discolor*), knobcone pine (*Pinus attenuate*), Coulter pine (*P. coulteri*), Monterey pine (*P. radiata*), deer oak (*Quercus sadleriana*), huckleberry oak (*Q. vaccinifolia*), interior live oak (*Q. wislizenii*).

Distribution: Abundant in the Siskiyou, Klamath and North Coast Ranges away from the immediate coast, from southwestern Oregon to southern Sonoma and Napa Counties. On Mt. Diablo, Contra Costa County. Abundant in the Santa Cruz Mts. in Santa Cruz and Santa Clara Counties. In the Santa Lucia Mountains of Monterey County near San Luis Obispo. Eastward from the Klamath Mountains across the southern Cascade Range to Modoc County on the west slope of the Sierra Nevada. From Sierra to El Dorado Counties and Mariposa County. Also in the San Bernardino and Santa Ana Mountains in southern CA, and near Ensenada, Baja CA. Elevation usually between 1000 to 5000 feet (300 and 1500 m), occasionally to 6000 feet (1800 m).

COULTER PINE

Element Code: (84140)

Description: An open forest (or more accurately, woodland) of scattered Coulter pine (*Pinus coulteri*) and CA black oak (*Quercus kelloggii*) over shrubs typically associated with Upper Sonoran Mixed Chaparral (37100). Some stands are dense enough to suppress the shrubby layer. Most growth occurs in spring and early summer

Site Factors: Typical on dry, rocky soils of slopes and ridges. Most frequent on south-facing slopes, frequently intermixing there with Californian Mixed Chaparral (37110) or Lower Montane Chaparral (37510). Subject to fairly frequent fires on these sites. In the Coast Ranges intergrades with Coast Range Mixed Conifer Forest (84110), Coast Range Ponderosa Pine Forest (84130), or Mixed Evergreen Forest (81100) on moist sites; Blue Oak Woodland on low-elevation, dry sites; Knobcone Pine Forest (83210) on dry, sterile soils. In southern CA, frequently merges into Sierran Mixed Conifer Forest (84230) at its upper limits. Fire exclusion may be facilitating conversion of some oak woodlands to Coulter pine stands as in the Gabilan Range.

Characteristic Species: bristlecone fir (*Abies bracteata*), Zaca's manzanita (*Arctostaphylos glandulosa*), pringle manzanita (*A. pringlei drupacea*), pointleaf manzanita (*A. pungens*), deerbrush (*Ceanothus integerrimus*), mountain mahogany (*Cercocarpus betuloides*), Coulter pine (*Pinus coulteri*), ponderosa pine (*P. ponderosa*), CA foothill pine (*P. sabiniana*), bigcone Douglas-fir (*Pseudotsuga macrocarpa*), coast live oak (*Quercus agrifolia*), canyon live oak (*Q. chrysolepis*), and CA black oak (*Q. kelloggii*).

Distribution: Widely scattered, through fragmented, throughout the south Coast Ranges from Contra Costa County south into Baja CA. Elevations vary from 2500 - 5000 feet in the north, to 4000 - 6500 feet in the south. Best developed in San Gabriel, San Bernardino, and San Jacinto Mountains.

BIGCONE SPRUCE-CANON OAK

Element Code: (84150)

Description: An open (on steep slopes) to dense (on flats) forest dominated by (*Pseudotsuga macrocarpa*) 50 - 80 feet tall over a dense sub-canopy of (*Quercus chrysolepis*) and a very sparse herb layer. Most stands are fairly small within a chaparral matrix.

Site Factors: Largely on rocky sites with little soil development. Restricted to mesic exposures and canon sides at low elevations (1000 feet), but on mesic exposures and canyon sides at low elevations (1000 feet), but on warmer aspects at upper altitudinal limit (8000 feet). Fires appear to be frequent, though perhaps less intense than in surrounding chaparrals. Mature (*Pseudotsuga*) is capable of trunk-sprouting after fire. Intergrades in canyon bottoms Southern Riparian Forest (62130), with Upper Sonoran Mixed Chaparral (37000) on more xeric sites, and with Coulter Pine Forest (84140) or Sierran Mixed Conifer Forest (84200) at higher elevations.

Characteristic Species: bigleaf maple (*Acer macrophyllum*), incense cedar (*Calocedrus decurrens*), mountain mahogany (*Cercocarpus betuloides*), big cone Douglas fir (*Pseudotsuga macrocarpa*), coast live oak (*Quercus agrifolia*), canyon live oak (*Q. chrysolepis*), gooseberry (*Ribes californicum*), poison oak (*Toxicodendron diversilobum*), CA laurel (*Umbellularia californica*), wild grape (*Vitis girdiana*).

Distribution: Transverse and Peninsular Ranges from the Mt. Pinos region south to near Banner in San Diego County, mostly on coastal (rather than desert-facing) slopes.

WESTSIDE PONDEROSA PINE

Element Code: (84210)

Description: An open, park-like forest of coniferous evergreens to 70 m tall, dominated by ponderosa pine (*Pinus ponderosa*). The understory typically is sparse, consisting of scattered chaparral shrubs and young trees. There is often considerable accumulation of needle litter and pine cones on the ground. Growth occurs mostly from late spring to midsummer and is probably limited by summer and fall drought. Cones mature in the early autumn. All plants are essentially dormant in the winter.

Site Factors: Well-developed in areas with warm, dry summers and cool, moist winters with considerable snow accumulation at the higher elevations. Often on south-facing slopes, except near lower elevational margins. Usually on coarse, well-drained soils; often granite or basaltic, very rarely serpentine. Probably maintained by occasional ground fires. Crown fires may result in temporary replacement of the forest by dense Montane Chaparral (37500). At its lower limits, intergrades with Coast Range Ponderosa Pine Forest (84130) in the North Coast Ranges, with Blue Oak Woodland (71210) on non-rocky soils in the interior North Coast Ranges and Cascade-Sierra foothills, with Coulter Pine Forest (84140) in southern CA, with Knobcone Pine Forest (83210) on rocky, often serpentine soils; with Lower Montane Chaparral (37510) on dry, rocky soils in the Cascades and northern Sierra Nevada; with Californian Mixed Chaparral (37110) in the southern Sierra and extensively in southern CA. Within its elevational range, intergrades with Montane Chaparral (37500) or Mixed Conifer Forest (84230) on moist sites. At its upper limits, intergrades with Sierran Mixed Conifer Forest (85100) on dry slopes.

Characteristic Species: white fir (*Abies concolor*), manzanita sp. (*Arctostaphylos patula*), incense cedar (*Calocedrus decurrens*), deerbrush (*Ceanothus integerrimus*), whitethorn ceanothus (*C. cordulatus*), mountain misery (*Chamaebatia foliosa*), tanoak (*Lithocarpus densiflorus*), knobcone pine (*Pinus attenuata*), Coulter pine (*P. coulteri*), sugar pine (*P. lambertiana*), ponderosa pine (*P. ponderosa*), canyon live oak (*Quercus chrysolepis*), CA black oak (*Q, kelloggii*), coffee berry (*Rhamnus californica*).

Distribution: Higher elevations of the interior North Coast ranges and Siskiyou Mountains. From Lake County to Siskiyou County and northward into Oregon. Abundant on the west side of the Cascade Range and Sierra Nevada from the Siskiyou Mountains to northern Kern County. Also on the coastal side of the eastern San Gabriel Mountains, LA-San Bernardino Counties; the San Bernardino Mountains, San Bernardino County; and the San Jacinto Mountains, Riverside County. Sparingly presenting the San Rafael-San Emigdio Mountains, Santa Barbara-Ventura Counties; Tehachapi Mountains, Kern County/ Palomar and Cuyamaca Ranges, San Diego

County. Elevation from 2000 - 5000 feet (900 -1500 m) in the north and 4500 - 6500 feet (1300 – 2000 m) in the south. The lowest-occurring montane forest type over most of its range.

JEFFREY PINE

Element Code: (85100)

Description: A tall, open forest dominated by Jeffrey pines (*Pinus jeffreyi*), with sparse understories of species drawn from Montane Chaparral (37500) or Sagescrub Scrub (35200). Very similar in aspect to Ponderosa Pine Forest (84210, 84220). Pure stands are best developed on desert-facing slopes.

Site Factors: Dry, cold sites, especially on well-drained slopes, ridges, or cold air accumulation basins. West of the Sierran crest, it intergrades at its lower elevational limit (5000 - 65000 feet) with Montane Chaparral (37500), Coulter Pine Forest (84140) or Westside Ponderosa Pine Forest (84210). East of the Crest it passes to Pinon-Juniper Woodlands (72000), Great Basin Scrub (35000) or Eastside Ponderosa Pine Forest (84220). Passes in more mesic sites or higher elevations (7000 - 9000 feet), into Upper Montane Mixed Conifer Forest (85200) or Subalpine Forest (86000).

Characteristic Species: Great Basin sagebrush (*Artemisia tridentata*), rabbitbrush (*Chrysolepsis sempervirens*), Jeffrey pine (*Pinus jeffreyi*), antelope bitterbrush (*Purshia tridentata*), huckleberry oak (*Quercus vaccinifolia*), snowberry (*Symphoricarpus parishii*), prostrates ceanothus (*Ceanothus prostrates*), snowbush ceanothus (*C. velutinus*), whitethorn ceanothus (*C. cordulatus*), greenleaf manzanita (*Arctostaphylos patula*), curled-leaf mountain mahogany (*Cercocarpus ledifolius*), manzanita sp. (*Arctostaphylos nevadensis*).

Distribution: Similar to Sierran Mixed Conifer Forest (84230) but typically at higher elevations and more extensive toward the south and east. Scattered through the higher North Coast Ranges and Klamath Mountains. Abundant from Shasta and Lassen Counties southward through the Sierra Nevada to Kern County. Best developed on the east side of the central Sierra Nevada, especially south of Mono Lake. Relatively abundantly in the higher portions of the Transverse and Peninsular Ranges of southern CA and Baja California, including the Mt. Pinos region, the eastern San Gabriel Mountains, and the Sierra San Pedro Martir. Elevation usually 5500 - 7500 feet (1650 -2700 m) in the north and 6500 - 9000 feet (2000 - 2700 m) in the south. Stands at lower elevations probably are on ultramafic substrates.

JEFFREY PINE-FIR

Element Code: (85210)

Description: Very similar to Sierran Mixed Conifer Forest (84230), but not quite so tall (to 60 m). The understory is open, primarily of scattered Montane Chaparral (37500) and small trees, lacking the mesophytic components of the Sierran Mixed Conifer Forest. Growth is most active in early and midsummer, about the same as in Jeffrey Pine Forest (85100) and a little later than in Sierran Mixed Conifer Forest (84230).

Site Factors: Similar to and probably the high-elevation equivalent of Sierran Mixed Conifer Forest (84230). Similar to Jeffrey Pine Forest (85100) but moister. On well-drained slopes, usually avoiding the driest and moistest sites. Typically occurs above Sierran Mixed Conifer Forest and intergrades broadly with Jeffrey Pine Forest on dry slopes and ridges, with Upper Montane Fir Forest (85300) on moist, north-facing slopes and with Lodgepole Pine Forest (86100) in cold, wet sites and stream valleys. Replaced at its upper limit by Subalpine Coniferous Forest (86000), usually Lodgepole Pine Forest.

Characteristic Species: White fir (*Abies concolor*) mostly in southern CA, (*A. magnifica*) lacking in southern CA, whitethorn ceanothus (*Ceanothus cordulatus*), rabbitbrush (*Chrysolepis sempervirens*), Jeffery pine (*Pinus Jeffreyi*), (*P. monticola*) lacking in southern CA, (*P. murrayana*), huckleberry oak (*Quercus vaccinifolia*).

Distribution: Abundant from Mt. Lassen southward along the west side of the Sierra Nevada to Tulare County. More scattered on the east side of the Sierra Nevada from Lake Tahoe to the Mt. Whitney region and in the higher portions of the North Coast Ranges and Klamath Mountains. Occurs with fewer trees species in the southern Sierra Nevada in Kern County, and the higher portions of the Tehachapi Mountains, the Mt. Pinos region, the eastern San Gabriel Mountains, San Bernardino Mountains, and San Jacinto Mountains. Elevation usually 6000 - 8000 feet (1800 - 2420 m) in the north and 7000 - 9000 feet (2100 - 2700 m) in the south.

WHITE FIR

Element Code: (85320)

Description: Very similar to Sierran White Fire Forest (84240) and Red Fir Forest (85310) but not so tall or dense. Typically consists of nearly pure stands of white fir (*Abies concolor*) which grows to about 30 m tall. The southern CA stands of this species, especially the Mojave Desert disjuncts, show some affinity to the Rocky Mountain form. The understory is sparse, with moderate accumulation of needles litter and downed branches. Growth is most active from early to midsummer, probably limited by drought in late summer and by low temperature.

Site Factors: Similar to Sierran White Fir Forest (84240), but higher, colder and probably drier. Similar to Red Fir Forest (85310) and probably its southern equivalent, but drier. Usually confined to steep, north-facing slopes where snow lingers until late spring. The soil is usually rocky and well drained. Intergrades at its lower elevation limit or on drier sites with Jeffrey Pine-Fir Forest (85210). Replaced at its upper limit by Lodgepole Pine Forest (86100).

Characteristic Species: white fir (*Abies concolor*), rabbitbrush (*Chrysolepis sempervirens*), sugar pine (*Pinus lambertiana*), gooseberry (*Ribes* spp.), snowplant (*Sarcodes sanguinea*), snowberry (*Symphoricarpos* spp).

Distribution: Scattered in the southern Sierra Nevada and the highest parts of the Tehachapi Mountains, Kern County; on Mt. Pinos, Ventura-Kern County line; common in the higher portions of the eastern San Gabriel Mountains, LA and San Bernardino Counties; the San Bernardino Mountains, San Bernardino County and the San Jacinto -Santa Rosa Mountains, Riverside County. Elevation usually 7500 - 9500 feet (2300 -2880 m).

LODGEPOLE PINE

Element Code: (86100)

Description: Typically form dense forests of slender trees up to 40 m tall, often in nearly pure stands of (*Pinus murrayana*). More open stands up to 20 m tall occur on dry sites or near timberline. May form krummholz at timberline. The trees in the moister, denser stands are relatively short-lived, and if the stand has not burned for a long time, fallen trees, branches and needles cover the ground. The understory is normally spars in these dense stands, but low shrubs and perennial herbs occur abundantly in forest openings.
There is much less litter in the drier, more open stands; other tree species occur occasionally and understory plants are scattered throughout the stand. Flowering of most plants is concentrated in the early summer; growth of at least the smaller plants may be limited by drought in late summer. Most plants are dormant from fall through spring.

Site Factors: Typically occurs at elevations with long, snowy winters and cool, dry summers; colder in winter and usually drier than Red Fir Forest (85310). Often best developed in the transitional elevations between the Upper Montane Coniferous Forest (85000) and the true Subalpine Coniferous Forest (86000). At its lower limit it occupies cold, moist sites within the Upper Montane Coniferous Forest; at its upper limits it occupies dry, exposed sites at timberline, especially in the southern Sierra Nevada and in southern CA. Apparently tolerates large variations in soil and moisture factors, but most commonly occurs on rocky, well drained soils. Where is forms dense forests, it is subject to devastation by fire or epidemic outbreaks of Lodgepole Pine Needle Miner (*Coleothechnites milleri*). Reseeding is relatively rapid following fires, and Lodgepole Pine Forest is often successional in areas that are eventually dominated by other species. However, this fire succession is more universal in the moister forests of the Cascades and northern Rockies.

Characteristic Species: purple mountainheath (*Phyllodoce breweri*), Sierra lodgepole pine (*Pinus contorta murrayana*), quaking aspen (*Populus tremuloides*), cinquefoil (*Potentilla breweri*), wintergreen (*Pyrola* spp.), mountain hemlock (*Tsuga martensiana* from Yosemite North), blueberry (*Vaccinium* spp).

Distribution: Scattered and poorly developed in the Klamath Mountains. More extensive stands occur east of Mt. Shasta on the Modoc Plateau of eastern Siskiyou and Shasta Counties. Scattered in the higher parts of the Warmer Mountains in eastern Modoc County. Abundant in the vicinity of Mt. Lassen. Scattered in the northern most part of the Sierra Nevada, then very abundant from Sierra County to southern Tulare County. Scattered in the highest portions of the San Gabriel Mountains, LA-San Bernardino Counties; abundant on the upper slopes of the San Bernardino Mountains, San Bernardino County; locally abundant near the summit of Mt. San Jacinto, Riverside County; the southern limit is on the summit plateau of the Sierra San Pedro Martir, Baja CA. Extensively developed on the east side of the Cascade Range in Oregon and in the northern Rockies. Elevation 6000 - 8000 feet (1800 - 2420 m) in the north, 9000 - 11000 feet (2700 - 3330 m) in the south. Common as much as 2000 feet (610 m) lower in cold, moist sites such as stream valleys and meadow margins.

SUBALPINE

Element Code: (86500)

Description: Very similar to Whitebark Pine-Lodgepole Forest (86220) and to Foxtail Pine Forest (86300), but dominated by (*Pinus flexilis*) and (*P. murrayana*). The former species is most important on exposed high slopes and ridges, where it may form small pure stands. The trees are rarely over 10 m high even in the lower portions of the forest and form very scattered, low krummholz at timberline. The understory is typically very spars. Growth is concentrated in early summer, probably limited by drought in late summer and by low temperature the rest of the year.

Site Factors: Similar to Whitebark Pine-Lodgepole Pine Forest (86220), but drier and probably not quite so cold. Very similar to Foxtail Pine Forest (86300), but possibly with more variable precipitation and / or faster runoff. Usually occurs on dry, rocky slopes and ridges subject to very strong winds in winter. These winds, rather than other factors associated with high altitude, may determine the upper timberline of this forest. At its lower limit may intergrade with Jeffrey Pine Forest (85100) on south-facing slopes, Southern CA White Fire Forest (84320) on north-facing slopes, or Lodgepole Pine Forest (86100) in various situations. Lodgepole Pine Forest may also occur to timberline. Replaced above timberline by Southern California Alpine Fell-Fields (91130).

Characteristic Species: whitethorn ceanothus (*Ceanothus cordulatus*), rabbitbrush (*Chrysoleris sempervirens*), manzanita (*Arctostaphylos patula platyphylla*), limber pine (*Pinus flexilis*), Sierra lodgepole pine (*P. contorta murrayana*), western juniper (*Juniperus occidentalis australis*), curl-leaf mountain mahogany (*Cercocarpus ledifolius*), white fir (*Abies concolor*), Kern buckwheat (*eriogonum kennedyi alpigenum*).

Distribution: Confined to the highest peaks in southern CA: the upper slopes of Mt. Baden-Powell and San Antonio Mountain in the San Gabriel Mountains; Mt. San Jacinto in the San Jacinto Mountains; most abundant in the vicinity of Mt. San Gorgonio in the San Bernardino Mountains. Outliers of (*Pinus flexilis*) occur on Mt. Pinos, southwestern Kern County and on Toro Peak, Riverside County. Elevation usually 9500 - 11200 feet (2880 - 3390 m) but occasionally as low as 8500 feet (2580 m).

CYPRESS

Element Code: (83230)

Description: A fairly dense, fire-maintained, low forest dominated by either (*Cupressus nevadensis*), (*C. forbesii*), or (*C. stephensonii*). This forest often occurs as isolated groves within a matrix of Chaparral or Pinon Juniper Woodland. Many stands are even-aged due to fire density, and spacing within the stands vary in relation to site factors and fire history.

Site Factors: Similar to but in a drier climate than Northern Interior Cypress Forests (83220), but not usually associated with ultramafic substrates. Most often found on northern exposures.

Characteristic Species: (*Adenostoma fasciculatum*), (*Arctostaphylos gladulosa*), (*Cercocarpus betuloides*), (*Cupressus forbesii*), (*C. nevadensis*), (*C. stephensonii*), (*Eriogonum fasciculatum*), (*Heteromeles arbutifolia*), (*Juniperus californica*), (*Pinus coulteri*), (*P. monophylla*).

Distribution: Southern Sierra Nevada (Kern River watershed, *C. nevadensis*) and Peninsular Ranges south into Baja CA. Elevations vary with species: 1000 - 4500 feet for (*C. forbesii*), 5500 feet for (*C. stephensonii*), and 4000 - 6000 feet for (*C. nevadensis*).

MEADOWS/MARSHES

COASTAL SALT MARSH

Element Code: (52120)

Description: Similar to Northern Coastal Salt Marsh (52110) but with longer growing season and a greater abundance of suffrutescent species in the higher, drier sites. Southern "specialties" include (*Atriplex watsonii*), (*Batis maritima*), (*Lucium californicum*), (*Monanthochloe littoralis*), (*Sueda californica*), and (*Salicornia subterminalis*).

Site Factors: Very similar to Northern Coastal Salt Marsh but with warmer water and air temperatures. (*Frankenia*), (*Suaeda*), and/or (*Salicrnia subterminalis*) often occur along the upper, landward edges of the marshes; (*Salicornia bigelovii*), (*S. virginica*), and (*Batis maritima*) at middle elevations; and (*Spartina*) closest to open water.

Characteristic Species: dwarf coastweed (*Amblyopappus pussilus),* Watson's saltbush (Atri*plex watsonii*), turtleweed (*Batis maritima*), spreading alkaliweed (*Cressa truxillensis*), saltmarsh dodder (*Cuscuta salina*), saltgrass (*Distichlis spicata*), buckthorn (*Frankenia grandifolia*), salt heliotrope (*Heliotropium curassavicum*), marsh jaumea (*Jaumea carnosa*), spiny rush (*Juncus acutus sphaerocarpus*), heliotrope (*Heliotropium limonium californicum*), fig (*Carpobrotus aequilateralis*), icepant (*Mesembryanthemum crystalinum*), slenderleaf iceplant (*M. nodiflorum*), shoregrass (*Monanthochloe littoralis*), dwarf saltwort (*Salicornia bigelovii*), saltwort (*Salicornia* spp.), CA cordgrass (*Spartina foliosa*), wooly seablite (*Suaeda californica*).

Distribution: Bays, lagoons, and estuaries along the coast from about Point Conception to the Mexican border. Intergrades broadly with Northern Coastal Salt Marsh (52110) along the south central coast. Nowhere as extensive as the larger northern marshes, and now considerably reduced by land development activities. Good to fair examples occur at Goleta Slough and near Carpentaria, Santa Barbara Counties; Point Mugu, Ventura County; Upper Newport Bay, Orange County; and several small areas in San Diego County.

BRACKISH MARSH

Element Code: (52200)

Description: Dominated by perennial, emergent, herbaceous monocots to 2 m tall. Cover is often complete and dense. Similar to Salt Marshes (52100) and to Freshwater Marshes (52400) with some plants characteristics of each.

Site Factors: Similar to Coastal Salt Marshes, but brackish from freshwater input. Salinity may vary considerably, and may increase at high tide or during seasons of low freshwater runoff or both. Usually intergrades with Coastal Salt Marshes toward the ocean and occasionally with freshwater Marshes (52400) at the mouths of rivers, especially in the Sacramento-San Joaquin River Delta.

Characteristic Species: Harford's sedge (*Carex harfordii*), slough sedge (*Carex obnupta*), sedge spp. (*Carex* spp), saltgrass (*Distichlis spicata*), rush (*Juncus* spp.), saltwort (*Salicornia* spp.) bogrush (*Scirpus* spp.), cattail (*Typha latifolia*).

Distribution: Usually at the interior edges of coastal bays and estuaries or in coastal lagoons. Adjacent to several Salt Marshes (52110 and 52120). Most extensively developed around Suisun Bay at the mouth of the Sacramento-San Joaquin Delta.

MONTANE FRESHWATER MARSH

Element Code: (52430)

Description: Similar to Coastal and Valley Freshwater Marsh (52430) and to Bogs and Fens (51000), with which many species are shared.

Site Factors: Similar to Coastal and Valley Freshwater Marsh but with a shorter growing season due to cold winters. Less acidic and nutrient-rich than Bogs or Fens.

Characteristic Species: slenderbeak sedge (*Carex athrostachya*), Nebraska sedge (*C. nebracensis*), cottongrass (*Eriophorum*), bogrush (*Scirpus acutus*), (*S. americanus*), others?

Distribution: Widely scattered throughout Montane CA, though less frequent in the Transverse and Peninsular ranges.

MONTANE MEADOW

Element Code: (45100)

Description: Dense growth of sedges and other perennial herbs, usually from 0.5 – 1 m high, but with some taller herbs to 2 m. Main growth period from late spring through summer (summer only at higher elevations); flowering mostly in summer; dormant in winter (from fall through spring at higher elevations). Montane Meadows are subdivided into Wet (45110) and Dry (45120) subtypes. Wet Montane Meadows have soils that remain saturated throughout the year.

Site Factors: On fine-textured, more or less permanently moist or wet soils. May be associated with Bogs (51100), Fens (51200) or Freshwater Swamps (52600) in more extremely waterlogged soils. Adjacent forest or scrub are on coarser, better drained soil, and characterized by young trees encroaching from the margins. On seasonally driers, but still fine-textured Valley and foothill Grasslands (42000) in the North Coast Ranges, Great Basin Grassland (43100) or Great Basin Sagebrush (35200) in northeastern CA. Both Wet and Dry types may occur in a given meadow.

Characteristic Species: small camas (*Camassia guamash*), sedge (*Carex bolanderi*), (*C. rostrata*), (*C. vesicaria*), Sierra shootingstar (*Dodecatheon jeffreyi*), mannagrass (*Glyceria elata*), needle spikerush (*Eleocharis acicularis bella*), cowparsnip (*Heracleum sphondylium* spp. *montanum*), Sierra rush (*Juncus nevadensis*), bigleaf lupine (*Lupinus polyphyllus* ssp. *superbus*), pullup muhly (*Muhlenbergia filiformis*), western brackenfern (*Pteridium aguilinum*), scirpus (*Scrirpus congdonii*), (*S. Criniger*), CA false hellebore (*Veratrum californicum*), (*V. fimbriatum*, in North Coast Ranges).

Distribution: Scattered within the North Coast Coniferous forests (8200), Lower Montane Forests (84000), and Upper Montane Forest (85000) of the North coast ranges, Klamath Ranges, Cascade Ranges, Sierra Nevada, Transverse and Peninsular Ranges. Elevation from 1000 - 7000 feet (300 - 2130 m) in the north to 5000 – 9000 feet (1520 -2740 m) in the south.

PAVEMENT PLAIN

Element Code: (47000)

Description: Herb and grass-dominated openings in Jeffrey Pine Forests (85100) or Pinyon-Juniper Woodland (72300). Total cover usually is low (CA 35%), composed of scattered, short, cushion-forming plants, and dominated by several taxa endemic to the San Bernardino Mountains.

Site Factors: Dense, clay soils armored by a lagg-gravel of quartzite pebbles. Frost action, and wind and water action, prevent large, woody vegetation from establishing.

Characteristic Species: low pussytoes (*Antennaria dimorpha*), Bear Valley sandwort (*Arenaria ursine*), black sagebrush (*Artemisia nova*), Kern buckwheat (*eriogonum kennedyi*), silverhair mousetail (*Ivesia argyrocoma*), (*Poa incurva*).

Distribution: Restricted to about 30 pavements in the area around Big Bear Lake and Holcomb Valley in San Bernardino County. Elevation about 6500 - 7000 feet.

URBAN/INVASIVE

ARUNDO SCRUB/FOREST

Element Code: (RNF01)

Description: A dense monoculter dominated by arundo also known as the giant reed (*Arundo donax*). This is a very invasive grass that was introduced to CA in the 1880's. This species persist in riparian areas, and reduces or replaces native species.

TAMARISK SCRUB

Element Code: (63810)

Description: A weedy, virtual monoculture of any of several Tamarix species, usually supplanting native vegetation following major disturbance.

Site Factors: Sandy or gravelly braided washes or intermittent streams, often in areas where high evaporation increases the streams saltiness. Tamarisk is a strong phreatophyte and a prolific seeder, attributes which predispose the species to be aggressive competitors in disturbed riparian corridors.

Characteristic Species: big saltbush (*Atriplex lentiformis*), Palmer's coldenia (*Coldenia palmeri*), salt grass (*Distichlis spicata*), arrow-weed (*Pleuchea sericea*), sandbar willow (*Salix exigua*), tamarix (*Tamarix chinensis*), (*T. ramosissima*).

Distribution: Widely scattered and increasing its range, throughout the drier parts of CA from the rain shadow east of the Inner North Coast Ranges south through the Great Valley to southern CA and across the deserts to Nevada, Arizona and beyond.

EUCALYPTUS WOODLAND

Element Code: (11100)

Description: eucalyptus is the sole or dominate tree in the canopy; few other species present. Trees are greater than 50 m tall creating a continuous canopy. Shrubs are infrequent and ground layer is sparse.

OTHER NON-NATIVE COMMUNITY

Element Code: (11000)

Description: A dense monoculture dominated by an invasive species other than arundo, tamarix, or eucalyptus.

URBAN/DEVELOPMENT
Element Code: (12000)

AGRICULTURE
Element Code: (18000)

FIELD/PASTURE
Element Code: (18310)

UNVEGETATED
Element Code: (13000)

Appendix 4. Paper data form.

Turtle: Visual Survey Form

Date									
Project Code		Observer1		Obsv1 Task	observer/recorder/processor	Block			
Survey Type	visual/trapping	Observer2		Obsv2 Task	observer/recorder/processor	Site			
Start Time		Observer3		Obsv3 Task	observer/recorder/processor	Site Photo	Y	N	
End Time		Observer4		Obsv4 Task	observer/recorder/processor	# photos			

Start Lat		End Lat			
Start Long		End Long		Site	
Start Elev		End Elev		Length	
Datum		Drainage			

Weather:

Temperature	
Condition	clear or few clouds, partly cloudy or variable, cloudy or overcast, fog, mist or drizzle, showers or light rain, heavy rain, sleet or hail, snow, no data
Wind Speed	<1 calm, 2-3 light air movement, 4-7 light breeze, 8-12 gentle breeze, 13-18 moderate breeze, 19-24 fresh breeze, 25-31 strong breeze, 32-38 near gale, >39 gale and above, no data

Start Water Fields:

Water Present	Y/N
Latitude	
Longitude	
Water Temperature	
pH	
Conductivity	
DO % Saturation	
DO mg/L	
Remarks	

Expected Species List:

Pacific Chorus Frog	D		N		X
Western Toad	D		N		X
California Newt	D		N		X
Southweatern Toad	D		N		X
Mosquitofish	D		N		X
Crayfish	D		N		X
California Treefrog	D		N		X
Bullfrog	D		N		X
African Clawed Frog	D		N		X
Western pond turtle	D		N		X

Notes

All Animals:

	Observ Method	Lat./Long	Type	Species	Age Category	Disposition				Phot	# Photos
1	audio/hand/trap/vis				A,J,Mm,L1,L2,H,Em,U	R	D	E	C	Y/N	
2	audio/hand/trap/vis				A,J,Mm,L1,L2,H,Em,U	R	D	E	C	Y/N	
3	audio/hand/trap/vis				A,J,Mm,L1,L2,H,Em,U	R	D	E	C	Y/N	
4	audio/hand/trap/vis				A,J,Mm,L1,L2,H,Em,U	R	D	E	C	Y/N	
5	audio/hand/trap/vis				A,J,Mm,L1,L2,H,Em,U	R	D	E	C	Y/N	
6	audio/hand/trap/vis				A,J,Mm,L1,L2,H,Em,U	R	D	E	C	Y/N	
7	audio/hand/trap/vis				A,J,Mm,L1,L2,H,Em,U	R	D	E	C	Y/N	
8	audio/hand/trap/vis				A,J,Mm,L1,L2,H,Em,U	R	D	E	C	Y/N	
9	audio/hand/trap/vis				A,J,Mm,L1,L2,H,Em,U	R	D	E	C	Y/N	
10	audio/hand/trap/vis				A,J,Mm,L1,L2,H,Em,U	R	D	E	C	Y/N	

Additional Fields for Non-native Turtles:

	Trap Number (if applicable)	Sex				Length (mm)	Notched		Tissue		
1		M	F	U	X		Y	N	Y	N	U
2		M	F	U	X		Y	N	Y	N	U
3		M	F	U	X		Y	N	Y	N	U
4		M	F	U	X		Y	N	Y	N	U
5		M	F	U	X		Y	N	Y	N	U
6		M	F	U	X		Y	N	Y	N	U
7		M	F	U	X		Y	N	Y	N	U
8		M	F	U	X		Y	N	Y	N	U
9		M	F	U	X		Y	N	Y	N	U
10		M	F	U	X		Y	N	Y	N	U

Additional Fields for Pond Turtles:

	Carapace Width (mm)	Carapace Length (mm)	Plastron Length (mm)	Weight (g)	Shell Damag		Type of Shell Damage	Other ID Markings		
1					Y	N		Y	N	
2					Y	N		Y	N	
3					Y	N		Y	N	
4					Y	N		Y	N	
5					Y	N		Y	N	
6					Y	N		Y	N	
7					Y	N		Y	N	
8					Y	N		Y	N	
9					Y	N		Y	N	
10					Y	N		Y	N	

Appendix 4. Paper data form (continued).

Exotic Plants:

Plant Species		Size Class	few plants, scattered small patches, large contiguous stands
Plant Species		Size Class	few plants, scattered small patches, large contiguous stands
Plant Species		Size Class	few plants, scattered small patches, large contiguous stands

Landscape:

Channel width/bankfull (m)				
Flood prone width				
Entrenchment Ratio (flood plain wdth / bankfull wdth)				
Basking areas present (sunny rocks, banks, etc.)	Y	N	U	X

Vegetation:

Upland Community Type	
Upland Community	
Riparian Community Type	
Riparian Community	
Dominant Riparian Plant 1	
Dominant Riparian Plant 2	
Dominant Riparian Plant 3	
% Overhead Canopy	0%,1-10%,11-25%,26-50%,51-75%,76-100%
% Submergent Vegetation	0%,1-10%,11-25%,26-50%,51-75%,76-100%
% Emergent Vegetation	0%,1-10%,11-25%,26-50%,51-75%,76-100%

Bank Substrate:

Subst1	clay, dirt, sand, gravel, cobble, boulder, leaf litter, downfall	% Subst1	0%,1-10%,11-25%,26-50%,51-75%,76-100%
Subst2	clay, dirt, sand, gravel, cobble, boulder, leaf litter, downfall	% Subst2	0%,1-10%,11-25%,26-50%,51-75%,76-100%
Subst3	clay, dirt, sand, gravel, cobble, boulder, leaf litter, downfall	% Subst3	0%,1-10%,11-25%,26-50%,51-75%,76-100%

End Water Fields:

Wet Length of Survey	0%, 1-10%, 11-25%, 26-50%, 51-75%, 76-100%				
% shallow pools (<10cm)	0%, 1-10%, 11-25%, 26-50%, 51-75%, 76-100%				
% medium pools (>10cm, < 1m)	0%, 1-10%, 11-25%, 26-50%, 51-75%, 76-100%				
% deep pools (> 1m)	0%, 1-10%, 11-25%, 26-50%, 51-75%, 76-100%				
Plunge pools present	Y	N	U	X	Number of Plunge Pools: 1-5,6-10,11-20,21-30,31-50,51-100
Aquatic refugia present	Y	N	U	X	
Type of Aquatic Refugia: undercuts,tree roots,woody debris,rock crevices,aquatic submerged veg,emergent veg,floating material					

Dominant Aquatic Substrate:

Subst1	clay, dirt, sand, gravel, cobble, boulder, leaf litter, downfall	% Subst1	0%,1-10%,11-25%,26-50%,51-75%,76-100%
Subst2	clay, dirt, sand, gravel, cobble, boulder, leaf litter, downfall	% Subst2	0%,1-10%,11-25%,26-50%,51-75%,76-100%
Subst3	clay, dirt, sand, gravel, cobble, boulder, leaf litter, downfall	% Subst3	0%,1-10%,11-25%,26-50%,51-75%,76-100%

Recent Disturbance:

Disturbance Type	Intensity of Disturbance
	Light, Moderate, Heavy
	Light, Moderate, Heavy
	Light, Moderate, Heavy
	Light, Moderate, Heavy
	Light, Moderate, Heavy
	Light, Moderate, Heavy
	Light, Moderate, Heavy
	Light, Moderate, Heavy
	Light, Moderate, Heavy
	Light, Moderate, Heavy

Notes:

Wind Speed

ID	mph & indicator
0	<1 calm, smoke rises vertically
1	2-3 light air movement
2	4-7 light breeze
3	8-12 gentle breeze
4	13-18 moderate breeze
5	19-24 fresh breeze
6	25-31 strong breeze
7	32-38 near gale
8	>39 gale and above
9	No data

Sky Code

ID	Description
0	Clear or few clouds
1	Partly cloudy or variable
2	Cloudy or overcast
3	Fog
4	Mist or drizzle
5	Showers or light rain
6	Heavy rain
7	Sleet or hail
8	Snow
9	No data

Plant Size Class

Few Plants	
Scattered patches	
Large contiguous stands	

Animal Age Category

A	Adult
J	Juvenile
Mm	Metamorph
L	Larvae
H	Hatchling
Em	Egg/Egg Mass

Disposition

R	Release
D	Dead
E	Escape
C	Collected

General

Y	Yes
N	No
U	Unknown
X	Not Checked

Expected Species List

D	Detected
N	Surveyed For and Not Detected
X	Not Surveyed For and Not Detected

Appendix 5. Additional references and resources.

Contact Information:
For questions and comments on this protocol (including additional information, modular protocols, and supplementary materials): scompton@usgs.gov, chitchcock@usgs.gov, abacklin@usgs.gov

Additional Reference Material:

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Internet Resources:
USGS herp. field guide: http://www.werc.usgs.gov/fieldguide
California's Plants and Animals: http://www.dfg.ca.gov/hcpb/species/species.shtml
eNature Wildlife Field Guide: http://www.enature.com/home/
Western Pond Turtle (*Clemmys marmorata*) Library:
http://www.atlantismagazine.com/bettelheim/marmorata.html

USE OF ARTIFICIAL BASKING SUBSTRATE TO DETECT AND MONITOR PACIFIC POND TURTLES (*Emys marmorata*)

Alvarez, Jeff A. The Wildlife Project, P.O. Box 579805, Modesto, CA 95357, azoologist@SBCglobal.net

Key words: artificial, basking, construction, emydid, monitor, platform, turtle.

Many species of turtles, lizards, snakes, and crocodilians are known to bask diurnally. Cagle (1950) suggested that basking in emydid turtles is done in response to the need to thermoregulate, to condition the skin or shell, and to retard epizootic and epiphytic infestations. However, Boyer (1965) determined through field and laboratory study, that the basking response in turtles is driven primarily by the need to thermoregulate. Many semi-aquatic turtles are known to bask on rocks, logs, vegetation mats, and floating debris (Lindeman 1999, Bury and Wolfheim 1973, Boyer 1965, Cagle 1950). Petokas and Alexander (1979) developed a trap that utilized the basking behavior in semi-aquatic turtles in order to facilitate trapping them. Bury and Wolfheim reported on the aggressive interactions of basking Pacific pond turtles (*Emys marmorata*).

Because Pacific pond turtles are declining in number in the state of California, it has become increasingly important to detect them within their habitat (Jennings and Hayes 1994). The purpose of this study was to demonstrate that an artificial basking substrate (basking platform) could be easily constructed and deployed, and with this technique presence of aquatic turtles could be detected and monitored within simple and complex aquatic habitats.

The Los Vaqueros Watershed (watershed), which is part of the upper Kellogg Creek drainage, was located ca. 57 km east of San Francisco, California. Habitat consisted primarily of annual and perennial grassland, oak (*Quercus* spp.) woodlands, riparian woodland, perennial drainages, ephemeral and seasonal wetlands, chaparral, open water, and rock outcrops. Los Vaqueros Reservoir, Kellogg Creek and its tributaries, and 40 perennial stock ponds provided suitable habitat for aquatic turtles. Fifty additional ephemeral stock ponds and wetlands provided refuge for dispersing turtles.

Fourteen rectangular basking platforms were constructed in two different designs (Figure 1). One platform type was made primarily of wood with added floatation (n = 8). The second design was constructed using a foam panel and also included additional floatation, but to a lesser extent (n = 6). Platforms were floated at an oblique angle to the water surface by attaching one or more 60 cm capped polyvinyl chloride tubes (Figure 1).

Baseline surveys (prior to the placement of basking platforms) were conducted throughout the watershed in 1998 for southwestern pond turtles (*E. m. pallida*). Biologists surveyed ponds and creeks on foot by initially scanning the water surface and shoreline using binoculars from a distance. They also walked along the perimeter of ponds and creeks and noted were southwestern pond turtles were observed.

In early spring 1999, basking platforms were placed in nine ponds and two creeks where aquatic emydid turtles were known to occur historically, or where habitat appeared suitable but

where no turtles had previously been found. Platforms were placed in open water and each platform was anchored to the bottom with a length of nylon cord and a concrete weight. Turtles were given 2-7 days to acclimate to the new structures.

Surveys for turtles were made 5-6 times per year for up to five years beginning several days after basking platforms had been deployed. Additional observations of turtles using basking platforms were recorded coincident with mitigation monitoring survey efforts for California red-legged frogs (*Rana draytonii*) in ponds and creeks in the watershed.

Baseline surveys in 1998 indicated southwestern pond turtles occupied two ponds and two creeks in the watershed. A maximum of 11 southwestern pond turtles were observed basking on the bank of one of the two ponds; two southwestern pond turtles were detected in the second pond. Although southwestern pond turtles were observed in the two creeks, no attempt was made to determine their numbers.

Within 2-7 days after deployment of the basking platforms, southwestern pond turtles were detected in eight of the nine ponds and confirmed in both creeks. The maximum number of turtles detected in ponds was 49 (34 turtles in one pond). Moreover, southwestern pond turtles were detected in six ponds where they were not previously known.

Within occupied habitat, observations of basking emydid turtles are relatively common when appropriate basking substrate is present (Reese and Welsh 1998, Bury and Wolfheim 1973, pers. obs). However, complex aquatic habitats (i.e., ponds or creeks with dense emergent and/or riparian vegetation) may reduce or eliminate the ability of an observer to detect turtles. Prior to this study, emergent vegetation in five of the nine ponds where basking platforms were deployed was so dense that those ponds were considered impractical to survey and no southwestern pond turtles were believed to occur. However, after basking platforms were deployed, 3-11 southwestern pond turtles were observed in each of those eight ponds with a highly complex habitat.

In the State of Washington, the northwestern pond turtles (*E. m. marmorata*.) could be detected in lakes and ponds in Washington State by supplying the turtles with basking substrate (Nordby, unpublished report, Stringer, unpublished report). In my study, detection and observations of southwestern pond turtles increased dramatically through the use of basking platforms. Observational studies and surveys of basking southwestern pond turtles at the Los Vaqueros watershed were performed more efficiently after deployment of basking platforms. Timing and temperature relationships of basking (Alvarez, unpublished report), and length of basking time among different age classes (Wilkerson, unpublished report) were both studied using the basking platforms. Further, ongoing monitoring of the presence, distribution, and abundance of this population of southwestern pond turtles is conducted at the Los Vaqueros Watershed using the basking platforms described in this study. These platforms were also deployed in Los Vaqueros Reservoir as a means to attract and monitor non-native species of emydid turtle that may be introduced into the watershed. Species using basking platforms within the reservoir were identified using a spotting scope, and trapping was used to remove non-native species within areas where they were detected.

The basking platform designs described above have proven durable; platforms have lasted up to six years in the field. The designs offered here are inexpensive and easily transportable. Costs for materials used to construct basking platforms ranged from $9.00 to $19.00 depending upon the style selected. This technique can be used as part of a short-term presence-absence survey by deploying the basking platforms at least seven days prior to a survey

and returning to observe animals that may be basking during the day. Behavioral studies of basking turtles can also be facilitated through the use of this technique.

I thank M. A. Shea for assistance in the field setting up platforms and observing turtles, and for comments on the manuscript. I also thank J. L. Alvarez for constructive discussions and helpful comments on the manuscript. Valuable editorial comments were received from R. W. Baumann and two anonymous reviewers. The Contra Costa Water District provided access to the habitats within the Los Vaqueros watershed for which I am grateful.

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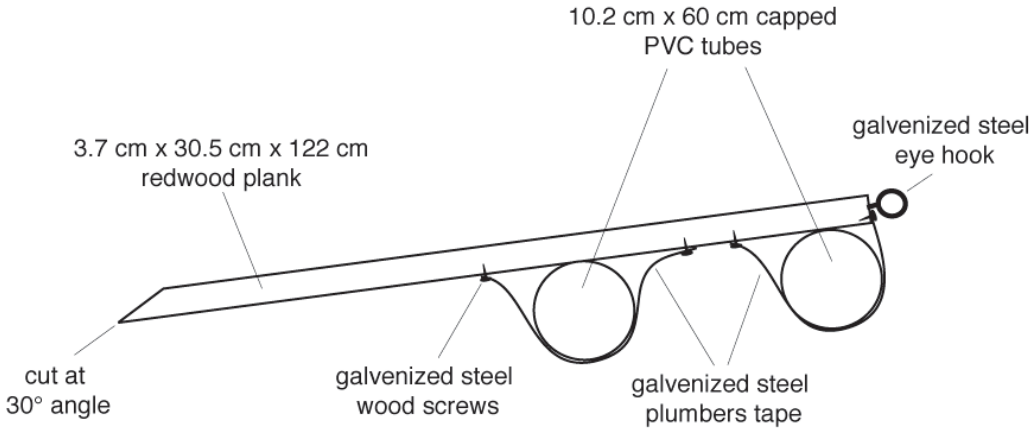
Figure 1. Design and floating position of 2 styles of basking platform used to detect and monitor Pacific pond turtles at the Los Vaqueros Watershed, east Contra Costa County, California. Design B was constructed from a foam panel that was covered by artificial grass (i.e. "astro-turf"). The artificial grass is glued to the top and 4 sides, and is folded over and glued along the bottom edge of the foam panel.

Design A.



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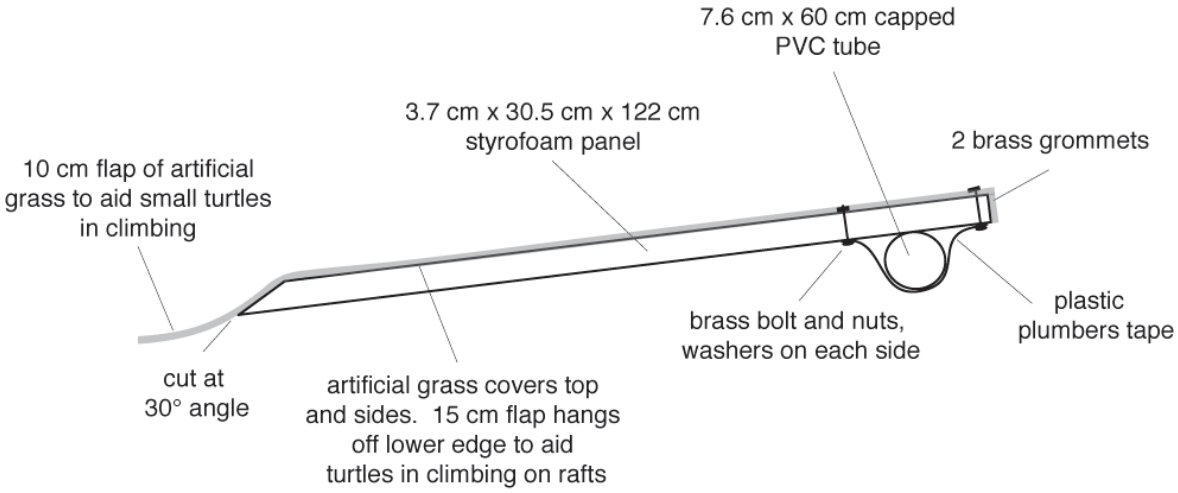

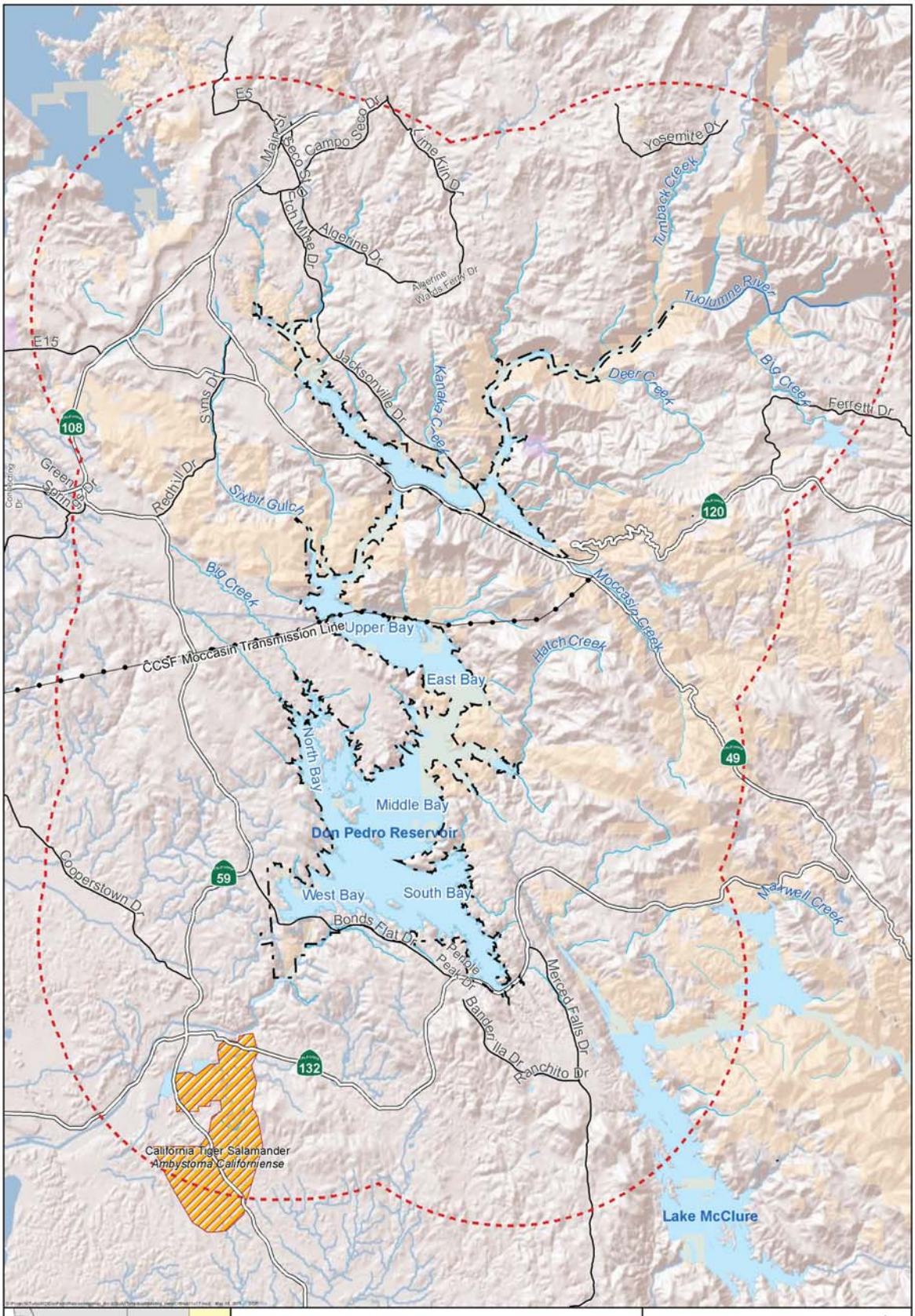
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Yosemite Dr
Turnback Creek
Tuolumne River
Algerine Dr
Algerine Wards Ferry Dr
Jacksonville Dr
Kanaka Creek
Deer Creek
Big Creek
Ferretti Dr
E15
108
Sims Dr
Greenley Springs Dr
Redhill Dr
Sixbit Gulch
120
Big Creek
Moccasin Creek
CCSF Moccasin Transmission Line
Upper Bay
Hatch Creek
East Bay
North Bay
49
Middle Bay
Don Pedro Reservoir
Cooperstown Dr
59
West Bay
South Bay
Maxwell Creek
Bonds Flat Dr
Pepple Peak Dr
Merced Falls Dr
Banderilla Dr
Ranchito Dr
132
California Tiger Salamander
Ambystoma Californiense
Lake McClure
Nevada
California
Tuolumne
USFWS Critical Habitat
California Tiger Salamander
FERC Project Boundary (No. 2299)
5 Mile Buffer of Project Boundary
Transmission Line
Highway
Road
Land Ownership
BLM
State
0 1 2 3 Miles
N
US Fish and Wildlife Service
Critical Habitat within 5 Miles
of the Project Boundary - Amphibians
Don Pedro Reservoir Project
FERC Project No. 2299
Map information was compiled from the best available sources.
No Warranty is made for its accuracy or completeness.
Data Sources: Critical Habitat - USFWS;
Roads, Streams - ESRI 9.3 Data; Ownership,
PLSS - CA BLM; FERC Boundary, Recreation, Facilities: TID/MID.
Data is CA SPCS, zone III, ft. Contour interval is 50 ft (NAVD 88).
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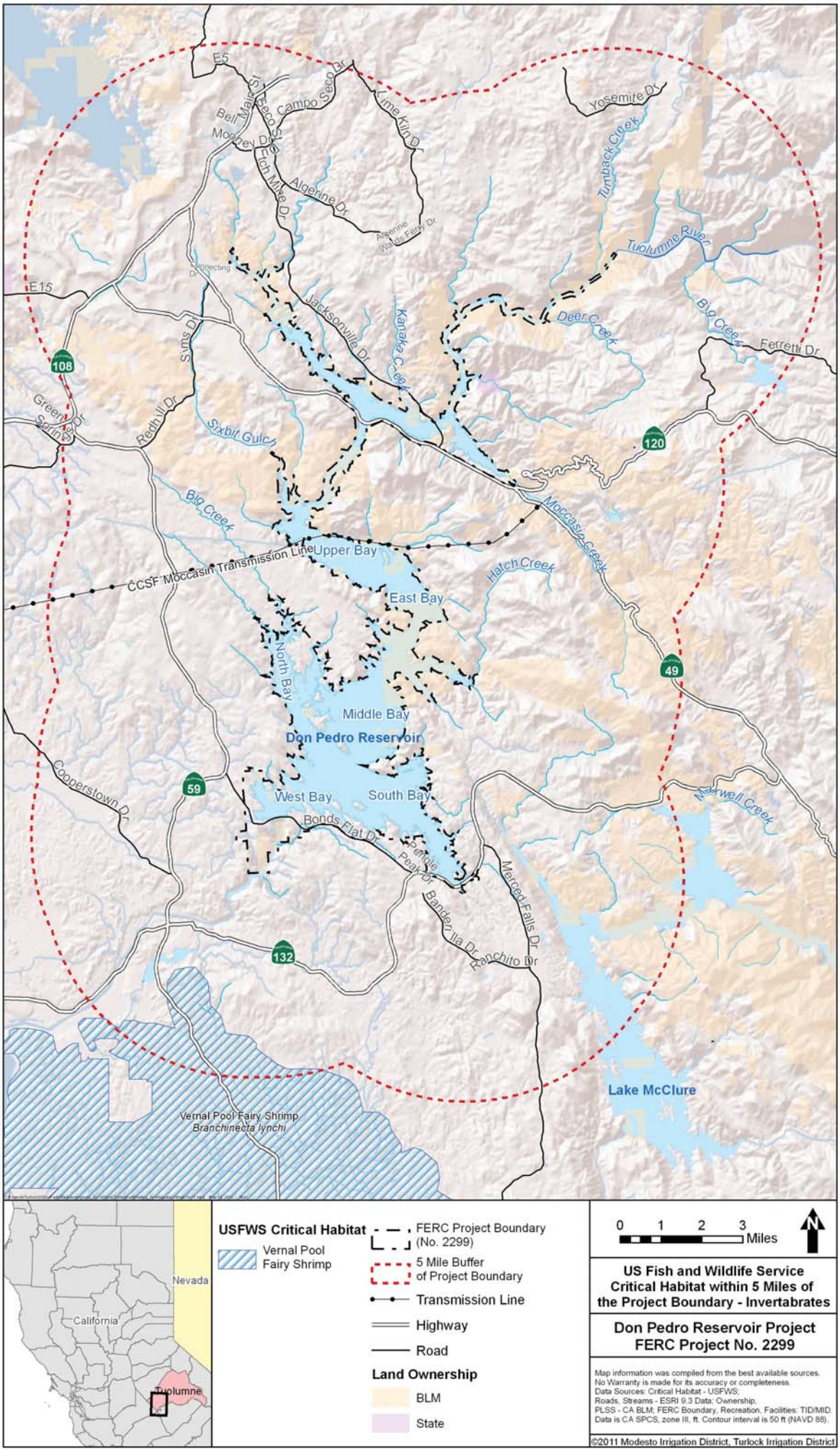
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West Bay
South Bay
Maxwell Creek
Bonds Flat Dr
Penole Peak Dr
Merced Falls Dr
Banderilla Dr
Ranchito Dr
132
Lake McClure
Vernal Pool Fairy Shrimp
Branchinecta lynchi
Nevada
California
Tuolumne
USFWS Critical Habitat
Vernal Pool Fairy Shrimp
FERC Project Boundary (No. 2299)
5 Mile Buffer of Project Boundary
Transmission Line
Highway
Road
Land Ownership
BLM
State
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US Fish and Wildlife Service Critical Habitat within 5 Miles of the Project Boundary - Invertabrates
Don Pedro Reservoir Project FERC Project No. 2299
Map information was compiled from the best available sources.
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Roads, Streams - ESRI 9.3 Data; Ownership,
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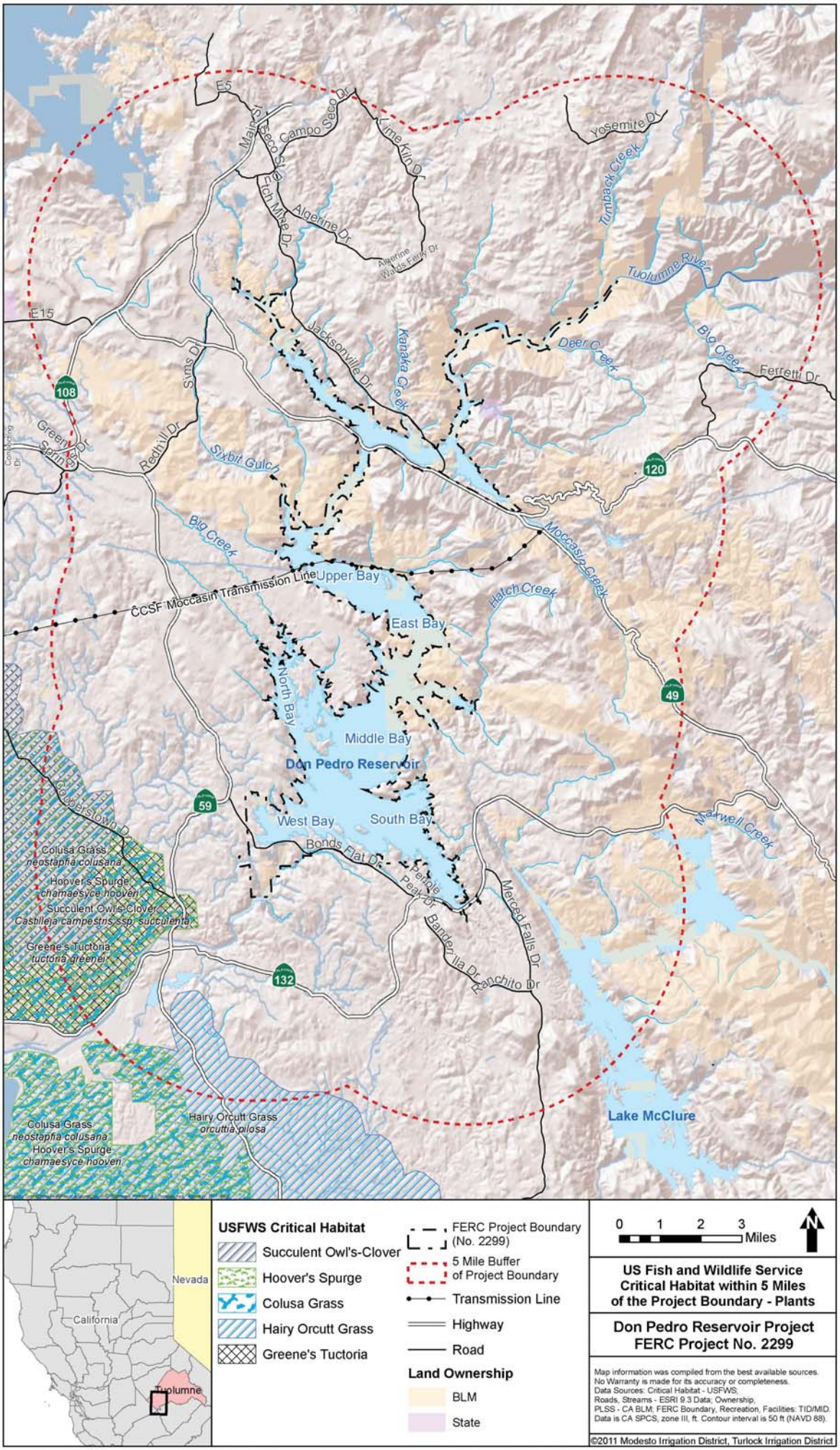
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Jacksonville Dr
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Deer Creek
Big Creek
Ferretti Dr
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Greenly Dr
Spring St
Redhill Dr
Sixbit Gulch
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Big Creek
Moccasin Creek
CCSF Moccasin Transmission Line
Upper Bay
Hatch Creek
East Bay
North Bay
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Middle Bay
Don Pedro Reservoir
59
Cooperstown Dr
West Bay
South Bay
Bonds Flat Dr
Maxwell Creek
Colusa Grass
neostapfia colusana
Hoover's Spurge
chamaesyce hooveri
Succulent Owl's-Clover
Castilleja campestris ssp. succulenta
Greene's Tuctoria
tuctoria greenei
Pepple Peak Dr
Merced Falls Dr
Bandarilla Dr
Ranchito Dr
132
Hairy Orcutt Grass
orcuttia pilosa
Lake McClure
Colusa Grass
neostapfia colusana
Hoover's Spurge
chamaesyce hooveri
Nevada
California
Tuolumne
USFWS Critical Habitat
Succulent Owl's-Clover
Hoover's Spurge
Colusa Grass
Hairy Orcutt Grass
Greene's Tuctoria
FERC Project Boundary (No. 2299)
5 Mile Buffer of Project Boundary
Transmission Line
Highway
Road
Land Ownership
BLM
State
0 1 2 3 Miles
N
US Fish and Wildlife Service
Critical Habitat within 5 Miles
of the Project Boundary - Plants
Don Pedro Reservoir Project
FERC Project No. 2299
Map information was compiled from the best available sources.
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Roads, Streams - ESRI 9.3 Data; Ownership,
PLSS - CA BLM; FERC Boundary, Recreation, Facilities: TID/MID.
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DRAFT

TURLOCK IRRIGATION DISTRICT
AND
MODESTO IRRIGATION DISTRICT

DON PEDRO HYDROELECTRIC PROJECT
FERC NO. 2299

Bathymetric and Surface Temperature Data Collection for Don Pedro Reservoir

May 2011

1.0 Project Nexus

Turlock Irrigation District and Modesto Irrigation District's (TID and MID or Districts) continued operation and maintenance (O&M) of the Don Pedro Hydroelectric Project (Project) has a potential to affect water temperature. In particular, stratification of the reservoir affects the amount of cold water stored in Don Pedro Reservoir.

The Districts plan to develop a 3-D water temperature model that requires bathymetry information as input. Bathymetric data will also provide a better understanding of the elevation-reservoir storage relationship of the reservoir.

2.0 Resource Management Goals of Agencies with Responsibility for the Resource to be Studied

The Districts believe that two agencies have jurisdiction over water temperature in the reservoir: (1) the California Department of Fish and Game (CDFG) and (2) the State Water Resources Control Board, Division of Water Rights (SWRCB). Each of these agencies and their jurisdiction and management direction, as understood by the Districts at this time, is described below.

CDFG's goal is to preserve; to protect; and, as needed, to restore habitat necessary to support native fish, wildlife and plant species.

SWRCB has authority under the federal Clean Water Act (33 U.S.C. §11251-1357) to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Throughout the relicensing process, the SWRCB maintains independent regulatory authority to condition the operation of the Project to protect water quality and the beneficial uses of stream reaches

consistent with Section 401 of the federal Clean Water Act, the Regional Water Quality Control Board Basin Plans, State Water Board regulations, CEQA, and any other applicable state law.

3.0 Study Goals and Objectives

This study is needed as input for the proposed 3-D water temperature model and to update the historical reservoir elevation-storage curve. Thermal data will support calibration efforts for the 3-D water temperature model.

4.0 Existing Information and Need for Additional Information

Previous detailed bathymetric data are not available for the Don Pedro Reservoir. It appears that the only data available to define the original reservoir bathymetry is USGS 15-minute quadrangle maps developed prior to the construction of the new Don Pedro Project. These are not of sufficient detail to define the current bathymetric characteristics of the reservoir.

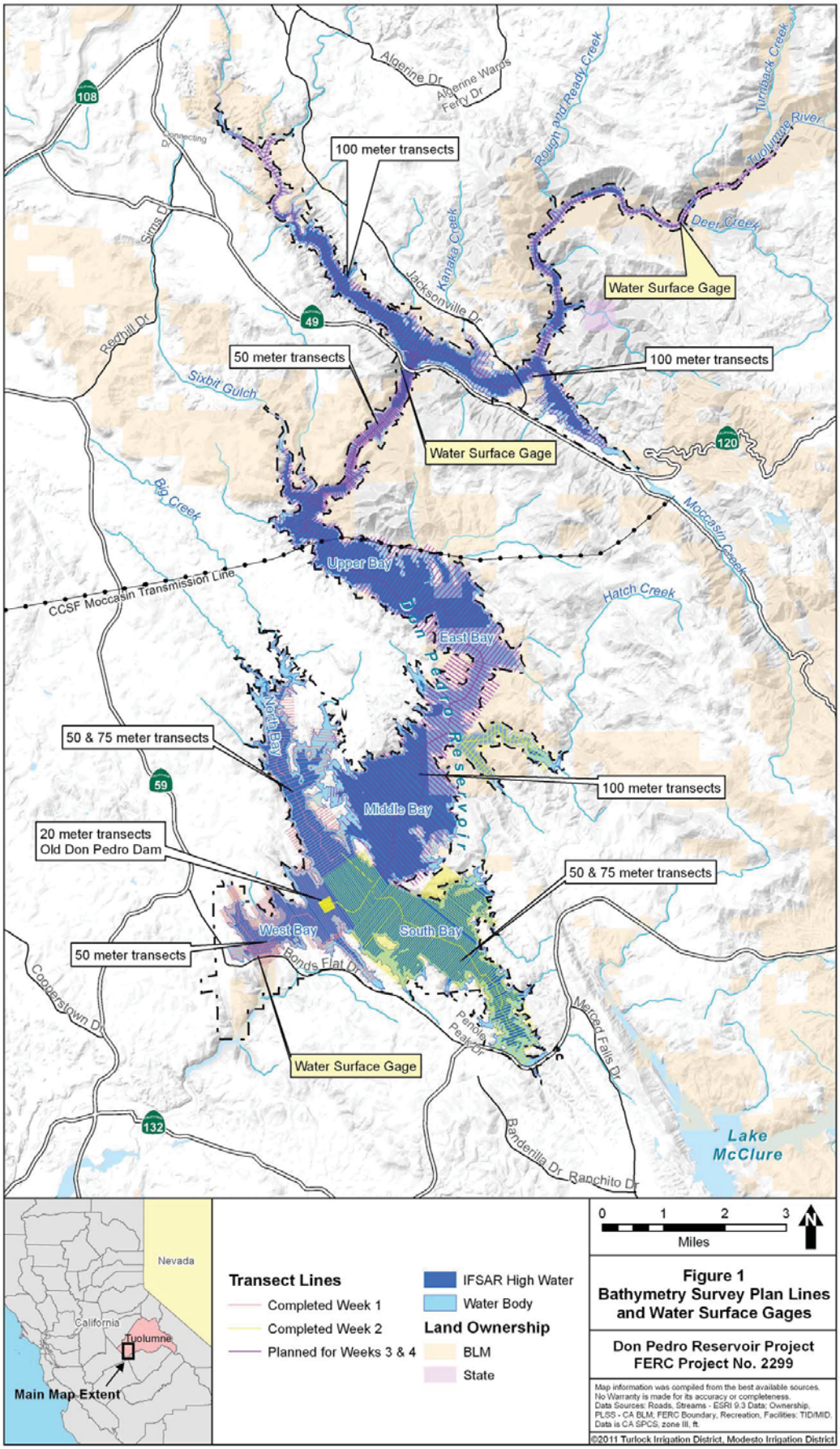
CDFG has collected monthly water temperature profiles from six locations in Don Pedro Reservoir for several years and profiles collected by CDFG, from 2004 through and including the present, effectively characterize Don Pedro Reservoir's thermal trends. A seventh profile location, upstream of the old Don Pedro Dam, would provide insight into temperature dynamics at this location. Profiles collected during the bathymetry fieldwork will provide a temperature-related link between the bathymetry data and CDFG's long term data-set.

5.0 Study Methods and Analysis

Bathymetry data collected with the reservoir water surface at approximately elevation 790 feet (ft) will be combined with IFSAR topographic mapping, obtained by the Districts' when the water surface elevation was at approximately 760 ft, to develop a full description of the reservoir geometry and depth-area-storage relationships of the entire Project Boundary.

5.1 Study Area

This study will take place at Don Pedro Reservoir in Tuolumne County, California. The study area consists of Don Pedro Reservoir below the Project Boundary at an elevation of approximately 860 ft, as depicted in Figure 1.


100 meter transects
Water Surface Gage
50 meter transects
100 meter transects
Water Surface Gage
50 & 75 meter transects
100 meter transects
20 meter transects
Old Don Pedro Dam
50 & 75 meter transects
50 meter transects
Water Surface Gage
Upper Bay
East Bay
Middle Bay
West Bay
South Bay
Don Pedro Reservoir
Lake McClure
CCSF Moccasin Transmission Line
Algerine Dr
Algerine Wards Ferry Dr
Rough and Ready Creek
Turnback Creek
Tuolumne River
Deer Creek
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Nevada
California
Tuolumne
Main Map Extent
Transect Lines
Completed Week 1
Completed Week 2
Planned for Weeks 3 & 4
IFSAR High Water
Water Body
Land Ownership
BLM
State
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Miles
N
Figure 1
Bathymetry Survey Plan Lines and Water Surface Gages
Don Pedro Reservoir Project
FERC Project No. 2299
Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness. Data Sources: Roads, Streams - ESRI 9.3 Data: Ownership, PLSS - CA BLM, FERC Boundary, Recreation, Facilities. TID/MID. Data is CA SPCS, zone III, ft.
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5.2 General Concepts and Procedures

The following general concepts apply to the study:

- Personal safety is an important consideration of each fieldwork team. The Districts and their consultants will perform the study in a safe manner.
- The Districts will make a good faith effort to obtain permission in advance of performance of the study to access private property where needed. Field crews may make minor modifications in the field to adjust to and to accommodate actual field conditions and unforeseeable events. Any modifications made will be documented and reported in the draft study reports.

5.3 Study Methods

The plan for developing the bathymetric model of Don Pedro Reservoir is presented below in five subsections: (1) preparation, (2) field data collection, (3) data processing, (4) quality assurance/quality control, and (5) documentation and reporting.

5.3.1 Preparation

Before data collection begins, transects spaced at 50, 75, 100 meter intervals oriented approximately perpendicular to the longitudinal axis of the reservoir will be established using the bathymetric data collection software, Hypack. In addition to the standard transects, at least one perpendicular "tie line", oriented approximately parallel to the longitudinal axis of the reservoir will be established to ensure inter-transect data consistency. Transects will cover the entire reservoir at the water elevations observed during the time of the field data collection.

The location of the Old Don Pedro Dam, inundated by the construction of the new dam, has been estimated using historical USGS topographic maps. A 20 meter transect spacing will be developed in the area of the Old Don Pedro Dam to establish the geometry and location of the old dam.

5.3.2 Field Data Collection

5.3.2.1 Bathymetric Data

The technique that will be used for data collection employs precision depth sounder and navigation systems aboard an outboard powered 19-ft Johnboat, in conjunction with vertical control to determine the elevation of the water surface at the time of the survey. Vertical control and water surface elevation data will be taken from the gages at the Don Pedro Dam, the Highway 120/49 Bridge and the Wards Ferry Bridge. The gages at the two bridges will be used to establish vertical control in the upstream portion of the Don Pedro Reservoir. Temporal and

spatial variations in water surface elevation throughout the bathymetric survey will be taken into account in the data processing as explained below.

Water depth will be measured using an Airmar B258 1kW dual frequency transducer and a Foruno FCV-585 digital depth sounder (or equivalent), with a vertical resolution of 0.1 ft. The depth sounder will be deployed aboard the Johnboat that will navigate along predetermined transects. Transect locations may be adjusted in the field to accommodate shallow water, in-water structures, marinas, and/or recreational activities.

Soundings will be taken at approximately 1 second intervals and the boat speed will be set to ensure that bottom features will be appropriately sampled (typically, at least 1 sounding is taken for every 2 linear meters along the vessel track). The boat will be navigated using a differential Global Positioning System (DGPS), and the position of each sounding will be determined using the DGPS system. The DGPS will provide better than 1 meter circular positioning accuracy. All depth and horizontal positioning data will be recorded digitally in the field as a series of points with x-y-z coordinates, using a rugged field notebook PC running Hypack Hydrographic Survey software (or equivalent).

5.3.2.2 Reservoir Temperature Data

Surface water temperature will also be recorded concurrently with the bathymetric data and recorded digitally using the Hypack software. Temperature data will be collected using a Falmouth Scientific Ocean Temperature Module (FSI OTM). The accuracy FSI OTM is -± 0.005 degree Celsius temperature.

Vertical temperature profiles will also be collected at the six CDFG profile stations and one additional location just upstream of old Don Pedro Dam, to capture any influence of the old dam on reservoir temperature. During each week of surveying, water temperature profiles (along with dissolved oxygen), will be taken at the nearest predetermined profile location. A weekly interval is sufficient because reservoir temperature is not dynamic enough to justify an increased frequency.

5.3.2.3 Water Surface Elevation Data

Reservoir water level elevations will be verified throughout the study. Water surface elevations near the dam of the reservoir are routinely measured and recorded by TID. Water surface elevation gages will be installed at two other locations, where benchmarks provide vertical control for combining all elevation data to a common datum: (1) Highway 120/49 Bridge and (2) Wards Ferry Bridge. All vertical control will be converted to match the vertical datum of the gage at Don Pedro Dam, which is NGVD 29. The three water surface gages will provide continuous data during the bathymetry survey for data processing.

5.3.3 Data Processing

5.3.3.1 Bathymetric Surface Development

The data will be processed using the Hypack software and exported to a table that can be imported into GIS. Elevation values for each point will be calculated in a spreadsheet by first correcting the depth of the reading to include the known submergence value of the transducer and then subtracting the depth of the sounding from the water surface elevation of the reservoir according to the nearest gage reading from the same day and time.

Remotely sensed data will be used to supplement the bathymetric data collected in the field. Previously obtained Digital Terrain Model (DTM) data will be integrated with the bathymetric model. These data were collected in August of 2004 by the vendor Intermap using interferometric synthetic aperture radar (IFSAR). The water surface of the reservoir at the time the DTM data were collected was 760 ft and extends upwards to well above the Project Boundary elevation. The DTM will assist with defining the reservoir geometry at water levels above that obtained by the bathymetric survey. In the instances of overlap in the topographical elevations of the DTM and elevations covered by the bathymetric survey, the DTM will provide information that may assist in the interpolation of the surface in between the transect points collected in the field.

A contour line at maximum water level will be generated using a GIS contouring tool with the DTM. It will be visually checked and modified as needed using a horizontally more accurate hi-resolution aerial image. The field collected points, the DTM surface data below the high water contour and the maximum water contour will then be used to interpolate a reservoir geometry model in GIS.

The bathymetric survey elevation data will be developed by the ESRI geoprocessing tool “Topo to Raster”. Contours will be developed from the surface using ESRI contouring tools and displayed at an appropriate resolution for the maps that will be included in the final report.

5.3.3.2 Temperature Data Processing

Surface water temperature data will be plotted and contoured using Surfer (by Golden Software). Temperature data collected during time intervals of two to four hours will be mapped separately to constrain the diurnal temperature variation. The resulting temperature contours will be shown on a series of maps of the reservoir.

Temperature data collected during time intervals of two to four hours will be mapped separately to constrain the diurnal temperature variation. The resulting temperature contours will be shown on a series of maps of the reservoir. Vertical temperature profiles will also be plotted and a map

showing the location of the vertical profiles will also be produced. Surface water temperature data and temperature profiles will be used to assist in the 3-D temperature model calibration.

5.3.4 Quality Assurance/Quality Control

Data quality will be assured through following manufacture's instructions and periodically verifying data values through an alternative measurement. Throughout the survey, the depth measured by the sounder will be periodically compared to the actual depth. The actual depth will be measured by either lowering a "bar" beneath the sounder or by direct measurement of the bottom with a lead line or pole. Measurement of the "draft" or the depth from the water surface to the face of the transducer will also be recorded. All measurements will be recorded in the field notebook.

Quality Assurance will be performed by an independent reviewer. A three step approach will be used for quality assurance of the bathymetric survey data. The first step is a review of the field methods and materials. The second step is checking the edited raw data. Finally, the methods used in the production of the final deliverable will be checked.

Review of field methods will include a check of any "bar checks" performed in the field. A bar check compares the depth measured by the sounder to the actual depth, measured physically. The specifications of the sounder and GPS used in the survey will be reviewed to confirm the accuracy of the data as reported. The water surface elevation data at the three gages will be checked for consistency.

The next step is to check the processing of the raw data. Any data with GPS error or sounding error that were flagged accordingly and deleted prior to contour plotting will be checked to confirm that the deletion was appropriate. Soundings will be spot checked for consistency. The crossing of transects and tie-lines will be reviewed to ensure that the sounder recorded similar depths at the intersection of survey lines. If any sharp differences in depth at adjacent points are present, they will be identified as either an error or a real feature.

The last step is a check of the final deliverable. Once the field methods and raw data have been reviewed, the production of contours or a bathymetric surface relative to a know datum will be checked. Calculation of the bottom elevation from sounding depths will be reviewed to ensure corrections for the draft and water surface elevation were properly accounted for. The method of interpolation and setting used to in the interpolation will be reviewed to ensure that reasonable contours are generated. Contours created using interpolation will be checked against actual soundings to verify that the interpolated surface is reasonable. Finally, contours will be checked against any previous studies for consistency.

5.3.5 Documentation and Reporting

A report will be developed that documents all methods and results. Contours derived from the use of the bathymetric and IFSAR data will be displayed in maps of appropriate scale. Maps showing coverage of the depth sounding points will also be included. In addition to the maps, a table showing area and storage volume for each two-feet of reservoir elevation will be developed and included in the report. Storage volume will be plotted against elevation and compared graphically to the reservoir area-capacity curve presented in the PAD. Vertical temperature profiles and sample surface temperature plots will also be provided.

6.0 Schedule

Surveys are planned to be completed during the month of May, 2011. IFSAR data has been obtained. Data compilation and mapping will occur from June through September, 2011. Final checking and review will occur in October and November, 2011 and final maps produced by the end of 2011.

7.0 Consistency of Methodology with Generally Accepted Scientific Practices

The methods presented in this study plan are consistent with those used in recent relicensings in California including most recently for the Merced Irrigation District's Lake McClure and McSwain Reservoir. Additional surveys with similar methodology include the Yuba-Bear/Drum-Spaulding Project's Lake Spaulding, Rollins Reservoir, Bowman Lake, Jackson Meadows Reservoir, Fordyce Lake, and Lake Valley Reservoir.

8.0 Deliverables

The Districts will make the draft report available to relicensing participants following internal quality assurance review. The final report will be provided along with the elevation and temperature data in GIS files. These GIS files will be used in developing the 3-D Temperature Model.

9.0 References

ESRI ArcGIS 10 http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html

Golden Software Surfer http://www.goldensoftware.com/products/surfer/surfer.shtml

Intermap http://www.intermap.com/

From: Staples, Rose
Sent: Tuesday, May 31, 2011 2:21 PM
To: Staples, Rose; Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Subject: RE: Proposed Draft Bathymetry Study Plan Conference Call Thursday June 2 at 10:30 a.m. PACIFIC

Based on the responses received (for which I thank you!), the date/time of the conference call regarding the proposed draft Bathymetry Study Plan will be Thursday, June 2, at 10:30 a.m. (Start) to 11:30 a.m. (End) PACIFIC.

Thursday, June 2 – 10:30 a.m. PACIFIC
Call-In Number 866-994-6437
Conference Code 5424697994

Thank you!

Rose Staples CPS CAP
HDR|DTA
Direct: 207-239-3857

From: Staples, Rose
Sent: Friday, May 27, 2011 6:37 PM
To: 'Alves, Jim - City of Modesto'; 'Asay, Lynette - N-R'; 'Aud, John - SCERD'; 'Barnes, James - BLM'; 'Beuttler, John - CSPA'; 'Bond, Jack - City of Modesto'; 'Boucher, Allison - TRC'; 'Boucher, Dave - Allison - TRC'; 'Bowes, Stephen - NPS'; 'Bowman, Art - CWRMP'; 'Brewer, Doug - TetraTech'; 'Brochini, Anthony - SSMN'; 'Buckley, John - CSERC'; 'Burt, Charles - CalPoly'; 'Carlin, Michael - SFPUC'; 'Catlett, Kelly - FOR'; 'Charles, Cindy - GWWF'; 'Cory, Philip - TNC'; 'Costa, Jan - Chicken Ranch'; 'Cowan, Jeffrey'; 'Cox, Stanley Rob - TBMWI'; 'Cranston, Peggy - BLM'; 'Cremeen, Rebecca - CSERC'; 'Day, P - MF'; Devine, John; 'Donaldson, Milford Wayne - OHP'; 'Dowd, Maggie-SNF'; 'Drekmeier, Peter - TRT'; 'Edmondson, Steve - NOAA'; 'Eicher, James - BLM'; 'Fety, Lauren - BLM'; 'Findley, Timothy - Hanson Bridgett'; 'Freeman, Beau - CalPoly'; 'Fuller, Reba - TMTC'; 'Furman, Donn W - SFPUC'; 'Ganteinbein, Julie - Water-Power Law Grp'; 'Giglio, Deborah - USFWS'; 'Goode, Ron - NFMT'; 'Gorman, Elaine - YSC'; 'Gutierrez, Monica - NOAA-NMFS'; 'Hastreiter, James L - FERC'; 'Hatch, Jenny - CT'; 'Hayat, Zahra - MF'; 'Hellam, Anita - HH'; 'Hersh-Burdick, Rachael - USACE'; 'Heyne, Tim - CDFG'; 'Holden, James '; 'Horn, Jeff - BLM'; 'Horn, Tini'; 'Hughes, Noah'; 'Hughes, Robert - CDFG'; 'Jackman, Jerry '; 'Jackson, Zac - USFWS'; 'Jennings, William - CSPA'; 'Jensen, Art - BAWSCA'; 'Jensen, Laura - TNC'; 'Johannis, Mary'; 'Johnson, Brian - CalTrout'; 'Kanz, Russ - SWRCB'; 'Keating, Janice'; 'Kempton, Kathryn - NOAA-MNFS'; 'Kinney, Teresa'; 'Koepele, Patrick - TRT'; 'Lein, Joseph'; 'Levin, Ellen - SFPUC'; 'Lewis, Reggie - PRCI'; 'Linkard, David - TRT /RH'; Loy, Carin; 'Lyons, Bill - MR'; 'Manji, Annie'; 'Marko, Paul '; 'Marshall, Mike - RHH'; 'Martin, Michael - MFFC'; 'Mathiesen, Lloyd - CRRMW'; 'McDaniel, Dan -CDWA'; 'McDevitt, Ray - BAWSCA'; 'McDonnell, Marty - SMRT'; 'McLain, Jeffrey - NOAA-NMFS'; 'Means, Julie - CDFG'; 'Mills, John - TUD'; 'Morningstar Pope, Rhonda - BVR'; 'Motola, Mary - CT'; 'O'Brien, Jennifer - CDFG'; 'Orvis, Tom - SCFB'; 'Ott, Bob'; 'Ott, Chris'; 'Pinhey, Nick - City of Modesto'; 'Porter, Ruth - RHH'; 'Powell, Melissa - CRRMW'; 'Puccini, Stephen - CDFG'; 'Raeder, Jessie - TRT'; 'Ramirez, Tim - SFPUC'; 'Rea, Maria - NOAA-NMFS'; 'Reed, Rhonda - NOAA-NMFS'; 'Richardson, Kevin - USACE'; 'Robbins, Royal'; 'Romano, David O - N-R'; 'Roos-Collins, Richard - Water-Power Law Grp for NHI'; 'Roseman, Jesse'; 'Rothert, Steve - AR'; 'Sandkulla, Nicole - BAWSCA'; 'Schutte, Allison - HB'; 'Sears, William - SFPUC'; 'Shumway, Vern - SNF'; 'Shutes, Chris - CSPA'; 'Slay, Ronn - CNRF/AIC'; 'Smith, Jim - MPM'; Staples, Rose; 'Steindorf, Dave - AW'; 'Stork, Ron - FOR'; 'Stratton, Susan - CA SHPO'; 'Taylor, Mary Jane - CDFG'; 'TeVelde, George A '; 'Thompson, Larry - NOAA-MNFS'; 'Verkuil, Colette - TRT/MF'; 'Walters, Eric - MF'; 'Wantuck, Rick - NOAA-NMFS'; 'Welch, Steve - ARTA'; 'Wesselman, Eric - TRT'; 'Wheeler, Dan'; 'Wheeler, Dave'; 'Wheeler, Douglas - RHH'; 'Williamson, Harry (NPS)'; 'Wilson, Bryan - MF'; 'Winchell, Frank - FERC'; 'Wood, Dave - FR'; 'Wooster, John -NOAA'; 'Workman, Michelle - USFWS'; 'Yoshiyama, Ron'; 'Zipser, Wayne - SCFB'
Subject: Proposed Draft Bathymetry Study Plan and Call for Availability for Conference Call Next Week

At the May 19 Aquatic and Water Resources Working Group meeting, the Districts were asked to share the attached proposed draft study plan for the Don Pedro bathymetry study. We would like to schedule

a conference call to discuss the draft plan, either on Thursday, June 2, at 1 pm or Friday, June 3, at 9 am. If you would like to participate on the call, please respond with your availability. We will then advise everyone of the final time selected. Thank you.

Rose Staples CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com

From: Loy, Carin
Sent: Friday, June 03, 2011 8:09 PM
To: Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Subject: Don Pedro: Draft Cultural and Recreation Study Plans Available

At the May 18 Cultural and Recreation Resources Working Group meeting, the Districts were asked to share the following draft study plans for the Don Pedro Hydroelectric Project:

- Historic Properties Study Plan

- Traditional Cultural Properties Study Plan
- Recreation Facility Condition and Public Accessibility Study Plan
- Visual Quality Study Plan

They are now posted on the Project web-site, under announcements, http://www.donpedro-relicensing.com/introduction.aspx.

All four study plans are provided in Microsoft Office Word. Both "red-line" and "clean" copies of the Historic Properties and Traditional Cultural Properties study plans are provided. As the Recreation Facility Condition and Public Accessibility study plans are new studies, only "clean" copies are provided.

Thank you.

Carin Loy
Senior Scientist
HDR|DTA
2379 Gateway Oaks Drive, Suite 200 | Sacramento, CA | 95833
Office: 916.564.4214 | Direct: 916.679.8737
Email: carin.loy@hdrinc.com

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DRAFT

ATTACHMENT 6-9

TURLOCK IRRIGATION DISTRICT
AND
MODESTO IRRIGATION DISTRICT

DON PEDRO PROJECT
FERC NO. 2299

Historic Properties Study Plan

February 2011
(Revised June 2011)

1.0 Project Nexus

Together, Turlock Irrigation District (TID) and Modesto Irrigation District (MID), both public agencies, own the Don Pedro Project (FERC Project No. 2299) located in Tuolumne County, California. Continued operation and maintenance (O&M) of the Don Pedro Project (Project) may affect historic properties that are listed on or eligible for listing on the National Register of Historic Places (NRHP). The effect may be direct (e.g., result of ground disturbing activities), indirect (e.g., public access to recreation areas) or cumulative (e.g., caused by a Project activity in combination with other non-Project activities). Certain Project ~~operations and maintenance (~~O&M~~)~~ activities may a~~e~~ffect historic properties within the Project Boundary or outside the Project Boundary if a result of Project-related activities.

Several terms used throughout this Study Plan warrant definition.

- **Historic Properties.** This term is defined under 36 CFR § 800.16(l)(1), as prehistoric or historic sites, buildings, structures, objects, districts, or traditional cultural properties (TCP)[1] included in or eligible for inclusion in the National Register of Historic Places (NRHP). Historic properties are identified through a process of evaluation of specific criteria found at 36 CFR § 60.4.
- **Cultural Resources.** For the purpose of this study plan, this term is used to mean any prehistoric or historic district, site, building, structure (to include any industrial/engineering systems), object, or TCP, regardless of its National Register eligibility. As well, if the results of this study warrant it, a landscape approach may be used to determine if there are any cultural landscapes present.

2.0 Agency Resource Management Goals

A new FERC license for the Project may permit activities that "…cause changes in the character or use of historic properties, if any such historic properties exist…" (36 CFR § 800.16(d)). FERC must therefore comply with Section 106 of the National Historic Preservation Act

[1] Traditional Cultural Properties (TCPs) are addressed in a separate study proposal (Native American Traditional Cultural Properties Study).

(NHPA) of 1966, as amended, and its implementing regulations at 36 CFR 800. These regulations require the head of any federal department or independent agency having authority to license any undertaking to take into account the effects of the undertaking on historic properties.

As provided for in 18 CRF § 5.5(e), the Districts will request that FERC designate them as FERC's non-federal representatives for purposes of initiating consultation under Section 106 of the NHPA and implementing regulations found at 36 CFR § 800.2(c)(4).

Additionally, the State Historic Preservation Officer (SHPO), in accordance with section 101(b)(3) of NHPA "…advises and assists Federal agencies in carrying out their Section 106 responsibilities…" by ensuring historic properties are taken into account early in the planning and development processes.

The U.S. Bureau of Land Management (BLM) Mother Lode Field Office has management responsibility within the Project's Area of Potential Effects (APE) on any federal lands administered by BLM. The primary goal of BLM is that FERC comply with Section 106 and that historical properties are appropriately considered and managed. As defined in 36 CFR 800.16(d), the APE is "...the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historical properties, if any such properties exist." ~~For the Don Pedro Project, the APE has been initially defined as all lands within the Project Boundary.~~

~~The State of California also has an interest within the Project's APE. Section 5.11(d)(2) states that an applicant for a new license must in its proposed study "Address any known resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied." If the State of California provides a brief written description of their interest in the resource to be addressed in this study, TID and MID will insert the full description. If not, prior to issuing the PAD, TID and MID will describe to the best of its knowledge and understanding of the relevant management goals of the State of California in the resource addressed in this study.~~

Study results may be used in the development of Project facilities and/or license terms of the new license for the purpose of protecting or treating impacts to historic properties that would result from continued Project O&M, or for the purpose of enhancing historic properties that would be affected by continued Project O&M. These facilities, operations and management activities, which are referred to collectively as protection, mitigation and enhancement (PM&E) measures, could include development of a Historic Properties Management Plan (HPMP)[2] that would describe and implement PM&E measures for historic properties potentially affected by continued Project O&M. A HPMP is a plan for considering and managing effects on historic properties that may occur from constructing, operating, and maintaining hydropower, transmission, and distribution projects, and establishes a decision-making process for considering those effects. Because it is not possible to determine all of the effects of various activities that may occur over the course of a license, FERC typically requires, as a license condition, that a licensee develop and implement a HPMP that considers and manages effects on historic properties throughout the term of the license. For hydropower relicensings~~licensing actions~~, FERC typically completes

[2] While not a part of this study, the information developed by this and other relicensing studies may be used to develop a HPMP in consultation with interested parties, and include a ~~final~~ draft HPMP with the Draft License Appli~~a~~cation and a final HPMP~~including evidence of consultation in the~~ in the Final License Application ~~when filed with FERC~~.

Section 106 by entering into a Programmatic Agreement (PA) or Memorandum of Agreement (MOA) with the Advisory Council on Historic Preservation (ACHP) and the SHPO that typically requires the licensee to develop and implement a HPMP. However, it should be noted that the Section 106 process is still active throughout the life of the new license, particularly regarding new activities by the license holder that have not undergone Section 106 requirements or newly identified cultural resources that also have not undergone Section 106 consideration. As such, while the HPMP and PA or MOA conclude the process needed for obtaining a new FERC license, the Project must continue to comply with Section 106 requirements, the guidelines for which are developed and provided in the HPMP. Additionally, FERC requires that a licensee develop the HPMP in consultation with various other federal, state, tribal, and non-government parties that have interests in the project.

3.0 Study Goals

The primary study goal is to assist FERC in meeting its compliance requirements under Section 106 of the NHPA, as amended, by determining if licensing of the Project will have an adverse effect on historic properties. The objective of this study is to identify ~~archaeological sites and historic architecture~~cultural resources within the APE, formulate a plan to evaluate their eligibility to the NRHP, if needed, and identify Project-related effects on those resources. At a later date the results of the study will then be used to develop the HPMP, which will ensure that all cultural resources identified within the APE will be appropriately considered and managed during the life of the new FERC license.

To address effects on historic properties, as required under Section 106, the APE is defined as all lands ~~within the FERC Project Boundary~~containing Project designated facilities and ~~a 60 m buffer above the high water mark to take into account impromptu camping along the water edge~~areas where there is ~~no~~ previous evidence of ~~any~~ dispersed recreation or use. It is possible that the studies implemented as part of the relicensing process may identify Project-related activities that have the potential to affect historic properties outside ~~the FERC Project Boundary~~this APE. It is also possible that during relicensing, Project improvements may be proposed that are outside the ~~current FERC Project Boundary~~APE. If such areas are identified, the APE will expand in accordance with 36 CFR 800.4(a)(1) in consultation with the SHPO, BLM, Tribes, and other interested parties, as appropriate. Additional cultural resource inventories~~surveys~~ will be completed as part of this study if the APE is expanded.

The study will also comply~~Project is also subject to compliance~~ with other relevant federal laws including the National Environmental ~~Protection~~ Policy Act (NEPA), the Archaeological Resources Protection Act (ARPA) of 1974 (16 USC 469), the American Indian Religious Freedom Act (AIRFA) of 1978 (42 USC 1996 and 1996a), the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (25 USC 3001), Executive Order 11593 (Protection and Enhancement of the Cultural Environment) of 1971 (16 USC 470), the American Antiquities Act of 1906, and Executive Order 13007 (Indian Sacred Sites) of 1996 (73 Federal Register 65, pp. 18293-24).

4.0 Existing Information and Need for Additional Information

Section 5.8 of the PAD describes existing, relevant, and reasonably available information regarding cultural resources. This information is summarized below.

To gather existing, relevant, and reasonably available information regarding cultural resources in the Project APE and vicinity, the Districts performed a records search in July 2010 at the Central California Information Center (CCIC) of the California Historical Resources Information System at California State University (CSU), Stanislaus in Turlock. In addition to identifying ~~historic properties~~cultural resources, this research also served to obtain background information pertinent to understanding the archaeology, history, and ethnohistory of the Project vicinity and APE. The data gathering area included the ~~Project~~FERC Project Boundary, which is much larger than the APE ~~APE~~, plus an additional 0.25-mile buffer beyond, to identify previously recorded cultural resources and previous cultural studies that may require consideration during the Project.

The records search included reviews of cultural resources records and site location maps, historic General Land Office (GLO) plats, NRHP, California Register of Historic Resources, Office of Historic Preservation Historic Property Directory, *California State Historic Landmarks* (1996), *California Inventory of Historic Resources* (1976), historic topographic maps, and the Caltrans Bridge Inventory.

The records search indicates that the Project area is highly sensitive for prehistoric and historic-era properties and that some areas within the Project have been subject to previous cultural surveys (see Section 5.8 in the PAD). However, the research also revealed that: many areas within the APE have not yet been surveyed for cultural resources~~remains~~ and a portion of previously surveyed areas should be reexamined to meet current professional standards for identifying historic properties. To accomplish this, and to meet the study plan objective, additional archival research and field surveys are necessary. This study plan will be used to guide efforts in acquiring the additional information.

The existing information described below is not adequate to meet the goal of the study. Information necessary to address the study goal includes site-specific cultural resources inventory.

4.1 Summary of Record Searches

4.1.1 Previous Cultural Studies

The above-described records search identified 43 previous cultural resource investigations within 0.25-mile of the FERC Project Boundary~~APE~~, of which 18 fall within the FERC Boundary~~APE~~. The investigations date from the 1960s to 2009 and were ~~conducted prior to~~prompted by a variety of different ground disturbing developments, to include water control/treatment facilities, utilities, housing developments, mining activities, road/highway construction, recreation facilities, and grazing leases. Two of the previous investigations are articles from *The Quarterly of the Tuolumne Historical Society*, and one is comprised of documentation of monuments and plaques of the E Clampus Vitus organization.

4.1.2 Previously Recorded Archaeological Sites

The records search identified 146 known archaeological sites previously documented within 0.25 mile of the FERC Project Boundary~~APE~~, of which 61 fall within the FERC Boundary~~Project APE~~. Of the 146 sites within 0.25 mile of the FERC Boundary~~APE~~, one includes both prehistoric and protohistoric components, five sites have both prehistoric and historic-era ~~cultural remains~~components, six sites did not have any information on file at the

Information Center and therefore are unknown as to their site type, 57 sites are prehistoric in age, and 77 sites are historic in age. Of the 61 sites within the FERC BoundaryAPE, 32 are prehistoric, 21 are historic, six are those sites with no site form, and two are multi-component, with both prehistoric and historic-era componentscultural remains. The prehistoric components typically include flaked stone with and without bedrock milling stations, with both short- and long-term occupation sites represented. The historic components are predominantly represented by refuse scatters and/or remains of habitation structures/buildings. According to the Office of Historic Preservation's *Archaeological Determinations of Eligibility* list and the *Directory of Properties in the Historic Property Data File* on file at the CCIC, of the 146 sites recorded in the vicinity of the Project APE, four have been determined eligible for inclusion on the NRHP, all of which are located within the FERC BoundaryAPE. The remaining 142 resources remain unevaluated for the NRHP.

4.1.3 Potential Historic-Period Cultural Resources Sites

Historic period USGS topographic quadrangles maps and GLO plats were reviewed during the records search to identify locations of potential historic-era sites and features within the FERC Project BoundaryAPE and within 0.25 mile of the FERC BoundaryProject APE. This resulted in the identification of well over 50 locations where unrecorded historic period sites or features may be present. These sites and features include potential roads and trails, the town site of Jacksonville, buildings, mines, ditches, the Hetch Hetchy Railroad/Yosemite Short Line Railroad, the Hetch Hetchy Aqueduct, and other features.

Historic period maps often provide a general idea of where sites may be located but are not necessarily accurate. Today's maps and mapping standards are not translatable to the past and plots cannot be taken as exact. Because of the disparity between historic period maps and modern maps, it is not known if physical attributes associated with the potential sites and features still exist, are accessible, or if the remains are within the FERC BoundaryAPE. Potential site locations will be plotted on field maps prior to fieldwork and the survey crew will carefully scrutinize such areas for physical remains.

5.0 Study Methods

5.1 Study Area

The study area that will be investigated to accomplish the current study is the APE.. As defined in 36 CFR 800.16(d), the APE is "...the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historical properties, if any such properties exist." The APE for the Don Pedro Project relicensing study efforts is defined as including all Project designated facilities (recreation areas, hydroelectric facilities, Project access roads, designated Project recreation access roads) and areas where there is previous evidence of dispersed recreation or use. which includes all lands, Project facilities, and features within the Project Boundary. If, at a later time, the Districts propose Project activities that are outside of the study area that may affect resources addressed by this study proposal, the study area will be expanded, if necessary, to include these areas. As well, should large resources, such as TCPs, be identified that continue outside of the Project APE, those resources will be recorded in their entirety, if appropriate and accessible (i.e., linear resources such as roads may not be followed out to their terminus), and the APE may be expanded to incorporate them if it is determine that Project O&M could effect these areas. As required under Section 106 [36 CFR § 800.4(a)(1)],

maps depicting the APE will be submitted to the SHPO for formal review, comment, and approval. The proposed APE ~~(Project Boundary)~~ is shown in Appendix C of the PAD.

5.2 General Concepts and Procedures

The following general concepts apply to the study:

- Personal safety is an important consideration of each fieldwork team. If the Districts determine the information cannot be collected in a safe manner, the Districts will notify FERC and ~~appropriate resource~~ participating agencies (including the BLM) via email to discuss alternative approaches to perform the study.
- The Districts will make a good faith effort to obtain permission to access private property where needed well in advance of performance of the study. If access is not granted or river access is not feasible or safe, the Districts will notify FERC and appropriate resource agencies via email to discuss alternative approaches to perform the study.
- Field crews may make minor modifications to the study plan in the field to accommodate actual field conditions. If modifications are required, the field crews will follow the protocols in this study plan. All modifications will be documented and reported in the draft study reports.
- Global Positioning System (GPS) data will be collected in a manner that meets or exceeds the federal government's "National Map Accuracy Standards" for published maps. All GPS data will be in the Universal Transverse Mercator (UTM) Coordinate System, using the North American Datum 1983 and stored in Environmental Science Research Institute (ESRI) Shapefile format. After a Shapefile has undergone a quality assurance/quality control (QA/QC) review and after all metadata have been documented, the Districts will provide the Shapefile to resource and land management agencies upon request.
- Field crews will be trained on and provided with materials (e.g., Quat) for decontaminating their boots, waders, and other equipment between study sites. Major concerns are amphibian chytrid fungus, and invasive invertebrates (e.g., zebra mussel, *Dreissena polymorpha*). This is of primary importance when moving: (1) between tributaries and mainstem reaches; (2) moving between basins; and (3) moving between isolated wetlands or ponds and river or stream environments.

5.3 Study Methods

The study approach will consist of the following six steps:

Step 1 - Obtain SHPO Approval of APE. As required under Section 106 [36 CFR § 800.4(a)(1)], the Districts will submit maps depicting the APE to the SHPO for formal review, comment, and concurrence[3]. Once approved, the maps including SHPO's concurrence letter will be filed with FERC.

The Districts may request that SHPO concur with a modified APE during the study if the Districts determine that the Project affects historic properties outside the previously SHPO-approved APE.

[3] Participating tribes and agencies will be provided the opportunity to review and comment on all determinations prior to submission to the SHPO.

Step 2 - Archival Research. Information has been obtained from the record search that identified previous cultural surveys and recorded archaeological and historic-era properties within or ~~directly~~ adjacent to the APE. Archival research will also be conducted at the repositories listed below to obtain additional information specific to the prehistory and history of the Project area, the hydroelectric system in whole, and its individual features. The results of the archival research will serve as the basis for preparing the prehistoric and historic contexts against which archaeological and historic-era properties may be evaluated. Historical photographs located during the archival research may be cited in the text as figures, unless they are subject to copyright laws. Previous NRHP evaluations of resources, if they exist, will be used as much as possible. The places to be contacted or visited may~~shall~~ include:

- Bancroft Library, University of California, Berkeley
- California State Library, California History Room and Government Publications
- Bureau of Land Management, Mother Lode~~load~~ Field Office Data Files
- Turlock Museum and Archives
- Modesto Museum and Archives
- Sacramento History Center and Archives
- Sierra Miwuk Tribal Archives
- Tuolumne County Assessor's and Recorder's Offices
- Tuolumne County Historical Society
- Southern Tuolumne County Historical Society
- Archives of the Hetch Hetchy Water and Power/San Francisco Public Utility Commission
- Oral Histories of Project Personnel and/or Local Residents, Historians, or Enthusiasts
- Turlock and Modesto Irrigation Districts
- Sonora Bypass Project Archaeological Documents Produced by the Far Western Anthropological Group

Step 3 - Field Survey. FERC is required to make a reasonable and good faith effort to identify historic properties that may be affected by the Project. Following~~As described at~~ 36 CFR § 800.4(b)(1), this will~~may~~ be accomplished through ~~sample field investigations and/or~~ a comprehensive field survey~~s~~ that is~~are~~ implemented in accordance with the Secretary of the Interior's Standards and Guidelines for Identification (NPS 1983) and the BLM standards, per the 8100 manual series. FERC is also required to consider any other applicable professional standards and tribal, state, or local laws or procedures to complete the identification of historic properties.

Archaeological Field Survey. To assist FERC in meeting its compliance obligations, and to develop appropriate management measures for historic properties identified within the APE, a field survey will be performed to verify locations of previously recorded cultural resources and to examine all accessible lands not previously surveyed or which were surveyed to less than adequate standards. Areas within the APE that cannot be accessed in a safe manner ~~(e.g., certain locations containing dense vegetation, or unsafe slopes)~~ will not be included within the survey or recording of archaeological and historic-era properties; these areas will be identified in the resulting survey report in text and maps with~~and~~ an explanation for survey exclusion ~~will be provided~~.

The field survey will be directly supervised ~~and/or conducted~~in the field by qualified, professional archaeologists (i.e., individuals who meet the Secretary of the Interior's Standards for professional archaeologists and are listed on a California State BLM permit which require the

permit holders to have extensive California archaeological experience). Prior to beginning field work, the field crew will visit a prehistoric archaeological assemblage recovered from a location near the Project vicinity to become familiar with prehistoric materials that might be encountered during the field survey of the Project APE. The purpose of the field survey is to: (1) examine lands which have not been previously surveyed; (2) examine lands previously surveyed but where the field strategy is unknown; and (3) examine lands previously surveyed but for which the field strategy does not meet current professional standards, as defined in the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation* (NPS 1983).

If conditions allow, lands will be examined that are typically inundated by the Project reservoir but which may become accessible during the survey season as a result of normal reservoir draw-downs.

Locations of previously recorded cultural resources will be verified and the sites re-recorded only if their existing site records or other documentation do not meet current standards for recording, or if the condition and/or integrity of the property has changed since its previous recording. Newly discovered cultural resources, including isolated finds, will be fully documented following the recordation procedures outlined in *Instructions for Recording Historical Resources* (OHP 1995), which utilizes state of California Department of Parks and Recreation (DPR) forms DPR 523 A-L. Prehistoric isolates will be defined as three or less artifacts (flakes, groundstone, etc.) per 50 square meters. Prehistoric isolated features will not be treated as isolated finds, but will be recorded as a site. Historic isolates will be defined on a case by case basis, depending on the types of historic resources identified within the APE. A sketch map for each site recorded or re-documented will be drawn to-scale and the property photographed. The locations of all archaeological sites and isolates documented during the survey will be plotted by the Districts' cultural resources specialist or cultural consultant onto the appropriate USGS 1:24,000-scale topographic map at the time of discovery. Field personnel will use a GPS receiver to document the location of cultural resources (including isolates) recorded during the survey, which will be plotted onto the appropriate USGS topographic quadrangle using the UTM coordinate system. GPS data related to recordation of historic properties will adhere to DPR specifications for accuracy and site specific procedures. Additionally, the areas examined will be plotted onto the appropriate USGS 7.5-minute topographic quadrangle for comparison with previous survey coverage maps.

Archaeological surveys that occur on BLM lands will require valid permits. The Districts' ~~or, as appropriate, their~~ consultants will possess a valid Cultural Resource Use Permit issued through the BLM California State Office and will obtain a Field Authorization through the BLM Mother Lode Field Office~~all required permits~~ prior to examining BLM lands. The Districts' consultants also will notify BLM when fieldwork is scheduled to begin. All artifacts encountered during the field survey will be left in place; no artifacts will be collected during the field survey.

Historic-Era Inventory of the Built Environment. A field inspection, documentation, and subsequent NRHP evaluation (see below) of any historic-era built environment resources will be undertaken by qualified, professional individuals meeting the Secretary of the Interior Standards for Architectural and Engineering Documentation. Individual components will be recorded or re-recorded to meet current DPR standards. This will include digital color photography and sketch maps of each built resource and each associated feature.

Discovery and Treatment of Human Remains. If an inadvertent discovery of human remains occurs on federal lands, the person making the discovery shall follow the procedures outlined in 43 CFR § 10(4)(b) of the Native American Graves Protection and Repatriation Act (NAGPRA) and the guidance provided by the Advisory Council on Historic Preservation, requiring that they immediately notify the BLM and affected Tribes, as appropriate, by telephone, and provide written confirmation of the discovery. On BLM-administered land, NAGPRA responsibilities cannot be delegated to FERC or the Districts. All work in the immediate area of the discovery will cease and the area will be secured to protect the remains. The Districts' cultural resources specialist will consult with the affected tribes to contact the lineal descendent and ascertain the cultural affiliation, as outlined in NAGPRA under 43 CFR § 10(14), in order to otherwise abide by NAGPRA to determine the disposition of the discovered human remains (43 CFR § 10[6]).

On privately owned lands, the California Penal Code (CPC), California Health and Safety Code (CH&SC), and California Public Resources Code (CPRC), also prohibit damage, defacement, or disinterment of human remains without legal authority, and establish civil and criminal penalties for actions associated with private landholdings. Although the CH&SC and CPRC technically apply only to those portions of the APE not under federal jurisdiction, in practice the law is applied throughout the area. Criminal sanctions provided for in the CPC, CH&SC, and CPRC would be above and beyond the penalties authorized by the Archaeological Resources Protection Act (ARPA). Other state laws and codes may also apply.

Step 4 - National Register of Historic Places Evaluation. During documentation of archaeological sites and features in Step 3, the Districts will also document the condition of each resource to assist in identifying potential and existing Project-related affects and level of integrity to provide recommendations for NRHP eligibility or evaluations. All previously unevaluated sites that can be evaluated at this phase, based on the documented remains, background research, and site conditions, will be formally evaluated for SHPO consultation and concurrence. Any NRHP evaluations completed for sites located on federal agency lands will be submitted to the appropriate agency for review prior to obtaining SHPO concurrence. ~~Archaeological r~~Resources requiring further cultural resources management consideration beyond the study ~~field efforts or additional archival research to complete NRHP evaluations, including lands not surveyed during relicensing efforts~~ will be identified and included in the Districts' PM&Es for implementation ~~and management outside the study plan~~, likely under a FERC-approved HPMP, unless more immediate action is deemed necessary to address Project-related effects.

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The Districts will utilize the National Register criteria for all sites to be evaluated, which are defined in 36 CFR 60.4, and which include the following:

> **National Register Criteria for Evaluation.** The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and
>
> (a) that are associated with events that have made a significant contribution to the broad pattern of our history;
> (b) that are associated with the lives of persons significant in our past;
> (c) that embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that

represent a significant and distinguishable entity whose components may lack individual distinction;

(d) that have yielded, or may be likely to yield, information important to prehistory or history.

As well, properties not normally considered for listing in the National Register (i.e., cemeteries, birthplaces or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historical buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past fifty years) may qualify if they are integral parts of districts that do meet the criteria for evaluation or can apply the *Criteria Considerations* found at 36 CFR 60.

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Evaluation of Historic Project System Features

Previously evaluated historic Project systems or individual features will not be re-evaluated unless substantial changes in their conditions have been observed and documented during the study, or the evaluation is more than ten years old. If deemed appropriate by a qualified, professional cultural resources specialist, individual historic-era features may be evaluated together as a district.

All previously unevaluated historic-era Project features will be formally evaluated for eligibility to the NRHP. The evaluation will consist of three tasks: (1) development of a historic context for the APE using archival research; (2) examination of each historic feature to document and assess the level of integrity, both individually and as an element of a potential Hydroelectric Historic District; and 93) the historical information and the physical site data obtained during background and field research will be used to evaluate the eligibility of each Project feature individually and as part of a potential historic district for inclusion on the NRHP.

Step 5 - Identify and Assess Potential Project Effects on National Register-Eligible Properties. As required under 36 CFR § 800.5, the Districts will identify and assess, in consultation with the SHPO, BLM, and potentially affected Indian tribes, any adverse effects on historic properties or potential historic properties resulting from Project O&M. Adverse effects are defined as follows:

> *An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative (36 CFR § 800.5(a)(1).*

Step 6 - Reporting. The Districts will prepare a report that includes the following sections: (1) Study Goals and Objectives; (2) Environmental and Cultural Setting; (3~~2~~) Methods and Analysis; (4~~3~~) Results; (5~~4~~) Conclusions; and (6~~5~~) Description of Variances from the FERC-

approved study plan, if any[4]. Upon completion of the field studies, cultural maps provided with the Districts' report will clearly depict the following on USGS 1:24,000 topographic maps: the study areas examined; inventory coverage, including intensity of coverage; and locations of cultural resources identified within the study areas.

Copies of the final report and detailed locations of identified properties may be withheld from public disclosure in accordance with Section 304 (16 U.S.C. 4702-3) of the NHPA (as amended). Concurrence of report recommendations will be sought from the SHPO. Draft versions of the report will be provided to BLM, tribes, and other parties, as appropriate.

6.0 Study-Specific Consultation[5]

The Districts will engage in the following study-specific consultation:

- The Districts will obtain SHPO's concurrence with the APE, for which the participating tribes and agencies will have been provided the opportunity to review and comment as part of this study plan (Step 1).
- The Districts will notify potentially affected tribes and BLM prior to the start of the field survey to provide the proposed field schedule (Step 3).
- Any NRHP evaluations completed for cultural resources located on lands managed by federal agencies (i.e., ~~Forest Service,~~ BLM~~, etc.~~) will be provided to the federal agency, as appropriate, for review prior to submittal to SHPO for concurrence (Step 4).

7.0 Schedule

The Districts anticipate the following schedule for completion of the study:

- Field Work (Steps 1, 2, and 3) .....January 2012 - October 2012[6]
- Office Work (Steps 4 and 5) .....October 2012 - December 2012
- Consultation ..... As needed and Quarterly Reports
- Report Preparation (Step 6)..... ~~December~~ March 2013~~2~~ - April~~February~~ 2013
- Report Review by Agencies and Tribes (Step 6) .....May 2013 - June 2013
- Report Submittal to SHPO (Step 6) ..... July 2013 - September 2013
- Drafting HPMP[7] .....July 2013 - October 2013

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The results of the study will be reported in Exhibit E of the License Application, which will include a summary of the information and findings of the Study Plan. Figures and other pertinent data supporting the summary in Exhibit E will be appended to the License Application. The cultural records and other sensitive information will be included in a Confidential appendix withheld from public disclosure, in accordance with Section 304 (16 U.S.C. 4702-3) of the NHPA as amended.

[4] The report will meet all of the reporting requirements of the BLM-issued Cultural Resource Use Permit.
[5] Copies of all correspondence sent to the SHPO by the Districts will be forwarded to the tribes and agencies.
[6] Fieldwork will include the time of year when the reservoir level is at its lowest to ensure as much surface area is exposed as possible for the study.
[7] Though the HPMP is not the outcome of the proposed study, the results of the study will be used to help draft an HPMP for the Project relicensing efforts.

8.0 Consistency of Methodology with Generally Accepted Scientific Practices

The proposed study methods discussed above are generally consistent with the study methods followed in several recent relicensing projects (i.e., French Meadows Transmission Line Project, FERC No. 2479; Merced River Hydroelectric Project, FERC No. 2179; Yuba-Bear Hydroelectric Project, FERC No. 2266). These methods have been accepted by the participating Indian Tribes, agencies, and other interested parties associated with those projects. The methods presented in this study plan also are consistent with the ACHP's guidelines for compliance with the requirements of Section 106 of the NHPA found at 36 CFR 800.

9.0 Level of Effort and Cost

Not yet estimated.

10.0 References Cited

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Federal Energy Regulatory Commission and Advisory Council on Historic Preservation. 2002. Guidelines for the Development of Historic Properties Management Plans for FERC Hydroelectric Projects. Washington D.C.

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Office of Historic Preservation. 1995. Instructions for Recording Historical Resources. Sacramento, California.

Parker, P. and T. King. 1998. Guidelines for Evaluating and Documenting Traditional Cultural Properties. National Register Bulletin 38. Washington, D.C.: U.S. Department of the Interior, National Park Service

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DRAFT

ATTACHMENT 6-9

TURLOCK IRRIGATION DISTRICT
AND
MODESTO IRRIGATION DISTRICT

DON PEDRO PROJECT
FERC NO. 2299

Historic Properties Study Plan

February 2011
(Revised June 2011)

1.0 Project Nexus

Together, Turlock Irrigation District (TID) and Modesto Irrigation District (MID), both public agencies, own the Don Pedro Project (FERC Project No. 2299) located in Tuolumne County, California. Continued operation and maintenance (O&M) of the Don Pedro Project (Project) may affect historic properties that are listed on or eligible for listing on the National Register of Historic Places (NRHP). The effect may be direct (e.g., result of ground disturbing activities), indirect (e.g., public access to recreation areas) or cumulative (e.g., caused by a Project activity in combination with other non-Project activities). Certain Project O&M activities may affect historic properties within the Project Boundary or outside the Project Boundary if a result of Project-related activities.

Several terms used throughout this Study Plan warrant definition.

- **Historic Properties.** This term is defined under 36 CFR § 800.16(l)(1), as prehistoric or historic sites, buildings, structures, objects, districts, or traditional cultural properties (TCP)[1] included in or eligible for inclusion in the National Register of Historic Places (NRHP). Historic properties are identified through a process of evaluation of specific criteria found at 36 CFR § 60.4.
- **Cultural Resources.** For the purpose of this study plan, this term is used to mean any prehistoric or historic district, site, building, structure (to include any industrial/engineering systems), object, or TCP, regardless of its National Register eligibility. As well, if the results of this study warrant it, a landscape approach may be used to determine if there are any cultural landscapes present.

2.0 Agency Resource Management Goals

A new FERC license for the Project may permit activities that "…cause changes in the character or use of historic properties, if any such historic properties exist…" (36 CFR § 800.16(d)). FERC must therefore comply with Section 106 of the National Historic Preservation Act

[1] Traditional Cultural Properties (TCPs) are addressed in a separate study proposal (Native American Traditional Cultural Properties Study).

(NHPA) of 1966, as amended, and its implementing regulations at 36 CFR 800. These regulations require the head of any federal department or independent agency having authority to license any undertaking to take into account the effects of the undertaking on historic properties.

As provided for in 18 CRF § 5.5(e), the Districts will request that FERC designate them as FERC's non-federal representatives for purposes of initiating consultation under Section 106 of the NHPA and implementing regulations found at 36 CFR § 800.2(c)(4).

Additionally, the State Historic Preservation Officer (SHPO), in accordance with section 101(b)(3) of NHPA "…advises and assists Federal agencies in carrying out their Section 106 responsibilities…" by ensuring historic properties are taken into account early in the planning and development processes.

The U.S. Bureau of Land Management (BLM) Mother Lode Field Office has management responsibility within the Project's Area of Potential Effects (APE) on any federal lands administered by BLM. The primary goal of BLM is that FERC comply with Section 106 and that historical properties are appropriately considered and managed. As defined in 36 CFR 800.16(d), the APE is "...the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historical properties, if any such properties exist."

Study results may be used in the development of Project facilities and/or license terms of the new license for the purpose of protecting or treating impacts to historic properties that would result from continued Project O&M, or for the purpose of enhancing historic properties that would be affected by continued Project O&M. These facilities, operations and management activities, which are referred to collectively as protection, mitigation and enhancement (PM&E) measures, could include development of a Historic Properties Management Plan (HPMP)[2] that would describe and implement PM&E measures for historic properties potentially affected by continued Project O&M. A HPMP is a plan for considering and managing effects on historic properties that may occur from constructing, operating, and maintaining hydropower, transmission, and distribution projects, and establishes a decision-making process for considering those effects. Because it is not possible to determine all of the effects of various activities that may occur over the course of a license, FERC typically requires, as a license condition, that a licensee develop and implement a HPMP that considers and manages effects on historic properties throughout the term of the license. For hydropower relicensings, FERC typically completes Section 106 by entering into a Programmatic Agreement (PA) or Memorandum of Agreement (MOA) with the Advisory Council on Historic Preservation (ACHP) and the SHPO that typically requires the licensee to develop and implement a HPMP. However, it should be noted that the Section 106 process is still active throughout the life of the new license, particularly regarding new activities by the license holder that have not undergone Section 106 requirements or newly identified cultural resources that also have not undergone Section 106 consideration. As such, while the HPMP and PA or MOA conclude the process needed for obtaining a new FERC license, the Project must continue to comply with Section 106 requirements, the guidelines for which are developed and provided in the HPMP. Additionally, FERC requires that a licensee develop the

[2] While not a part of this study, the information developed by this and other relicensing studies may be used to develop a HPMP in consultation with interested parties, and include a draft HPMP with the Draft License Application and a final HPMP in the Final License Application.

HPMP in consultation with various other federal, state, tribal, and non-government parties that have interests in the project.

3.0 Study Goals

The primary study goal is to assist FERC in meeting its compliance requirements under Section 106 of the NHPA, as amended, by determining if licensing of the Project will have an adverse effect on historic properties. The objective of this study is to identify cultural resources within the APE, formulate a plan to evaluate their eligibility to the NRHP, if needed, and identify Project-related effects on those resources. At a later date the results of the study will then be used to develop the HPMP, which will ensure that all cultural resources identified within the APE will be appropriately considered and managed during the life of the new FERC license.

To address effects on historic properties, as required under Section 106, the APE is defined as all lands containing Project designated facilities and areas where there is previous evidence of dispersed recreation or use. It is possible that the studies implemented as part of the relicensing process may identify Project-related activities that have the potential to affect historic properties outside this APE. It is also possible that during relicensing, Project improvements may be proposed that are outside the APE. If such areas are identified, the APE will expand in accordance with 36 CFR 800.4(a)(1) in consultation with the SHPO, BLM, Tribes, and other interested parties, as appropriate. Additional cultural resource inventories will be completed as part of this study if the APE is expanded.

The study will also comply with other relevant federal laws including the National Environmental Policy Act (NEPA), the Archaeological Resources Protection Act (ARPA) of 1974 (16 USC 469), the American Indian Religious Freedom Act (AIRFA) of 1978 (42 USC 1996 and 1996a), the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (25 USC 3001), Executive Order 11593 (Protection and Enhancement of the Cultural Environment) of 1971 (16 USC 470), the American Antiquities Act of 1906, and Executive Order 13007 (Indian Sacred Sites) of 1996 (73 Federal Register 65, pp. 18293-24).

4.0 Existing Information and Need for Additional Information

Section 5.8 of the PAD describes existing, relevant, and reasonably available information regarding cultural resources. This information is summarized below.

To gather existing, relevant, and reasonably available information regarding cultural resources in the Project APE and vicinity, the Districts performed a records search in July 2010 at the Central California Information Center (CCIC) of the California Historical Resources Information System at California State University (CSU), Stanislaus in Turlock. In addition to identifying cultural resources, this research also served to obtain background information pertinent to understanding the archaeology, history, and ethnohistory of the Project vicinity and APE. The data gathering area included the FERC Project Boundary, which is much larger than the APE, plus an additional 0.25-mile buffer beyond, to identify previously recorded cultural resources and previous cultural studies that may require consideration during the Project.

The records search included reviews of cultural resources records and site location maps, historic General Land Office (GLO) plats, NRHP, California Register of Historic Resources, Office of Historic Preservation Historic Property Directory, *California State Historic Landmarks* (1996),

California Inventory of Historic Resources (1976), historic topographic maps, and the Caltrans Bridge Inventory.

The records search indicates that the Project area is highly sensitive for prehistoric and historic-era properties and that some areas within the Project have been subject to previous cultural surveys (see Section 5.8 in the PAD). However, the research also revealed that: many areas within the APE have not yet been surveyed for cultural resources and a portion of previously surveyed areas should be reexamined to meet current professional standards for identifying historic properties. To accomplish this, and to meet the study plan objective, additional archival research and field surveys are necessary. This study plan will be used to guide efforts in acquiring the additional information.

The existing information described below is not adequate to meet the goal of the study. Information necessary to address the study goal includes site-specific cultural resources inventory.

4.1 Summary of Record Searches

4.1.1 Previous Cultural Studies

The above-described records search identified 43 previous cultural resource investigations within 0.25-mile of the FERC Project Boundary, of which 18 fall within the FERC Boundary. The investigations date from the 1960s to 2009 and were prompted by a variety of different ground disturbing developments, to include water control/treatment facilities, utilities, housing developments, mining activities, road/highway construction, recreation facilities, and grazing leases. Two of the previous investigations are articles from *The Quarterly of the Tuolumne Historical Society*, and one is comprised of documentation of monuments and plaques of the E Clampus Vitus organization.

4.1.2 Previously Recorded Archaeological Sites

The records search identified 146 known archaeological sites previously documented within 0.25 mile of the FERC Project Boundary, of which 61 fall within the FERC Boundary. Of the 146 sites within 0.25 mile of the FERC Boundary, one includes both prehistoric and protohistoric components, five sites have both prehistoric and historic-era components, six sites did not have any information on file at the Information Center and therefore are unknown as to their site type, 57 sites are prehistoric in age, and 77 sites are historic in age. Of the 61 sites within the FERC Boundary, 32 are prehistoric, 21 are historic, six are those sites with no site form, and two are multi-component, with both prehistoric and historic-era components. The prehistoric components typically include flaked stone with and without bedrock milling stations, with both short- and long-term occupation sites represented. The historic components are predominantly represented by refuse scatters and/or remains of habitation structures/buildings. According to the Office of Historic Preservation's *Archaeological Determinations of Eligibility* list and the *Directory of Properties in the Historic Property Data File* on file at the CCIC, of the 146 sites recorded in the vicinity of the Project APE, four have been determined eligible for inclusion on the NRHP, all of which are located within the FERC Boundary. The remaining 142 resources remain unevaluated for the NRHP.

4.1.3 Potential Historic-Period Cultural Resources

Historic period USGS topographic maps and GLO plats were reviewed during the records search to identify locations of potential historic-era sites and features within the FERC Project Boundary and within 0.25 mile of the FERC Boundary. This resulted in the identification of well over 50 locations where unrecorded historic period sites or features may be present. These sites and features include potential roads and trails, the town site of Jacksonville, buildings, mines, ditches, the Hetch Hetchy Railroad/Yosemite Short Line Railroad, the Hetch Hetchy Aqueduct, and other features.

Historic period maps often provide a general idea of where sites may be located but are not necessarily accurate. Today's maps and mapping standards are not translatable to the past and plots cannot be taken as exact. Because of the disparity between historic period maps and modern maps, it is not known if physical attributes associated with the potential sites and features still exist, are accessible, or if the remains are within the FERC Boundary. Potential site locations will be plotted on field maps prior to fieldwork and the survey crew will carefully scrutinize such areas for physical remains.

5.0 Study Methods

5.1 Study Area

The study area that will be investigated to accomplish the current study is the APE. As defined in 36 CFR 800.16(d), the APE is "...the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historical properties, if any such properties exist." The APE for the Don Pedro Project relicensing study efforts is defined as including all Project designated facilities (recreation areas, hydroelectric facilities, Project access roads, designated Project recreation access roads) and areas where there is previous evidence of dispersed recreation or use. . If, at a later time, the Districts propose Project activities that are outside of the study area that may affect resources addressed by this study proposal, the study area will be expanded, if necessary, to include these areas. As well, should large resources, such as TCPs, be identified that continue outside of the Project APE, those resources will be recorded in their entirety, if appropriate and accessible (i.e., linear resources such as roads may not be followed out to their terminus), and the APE may be expanded to incorporate them if it is determine that Project O&M could effect these areas. As required under Section 106 [36 CFR § 800.4(a)(1)], maps depicting the APE will be submitted to the SHPO for formal review, comment, and approval. The proposed APE is shown in Appendix C of the PAD.

5.2 General Concepts and Procedures

The following general concepts apply to the study:

- Personal safety is an important consideration of each fieldwork team. If the Districts determine the information cannot be collected in a safe manner, the Districts will notify FERC and participating agencies (including the BLM) via email to discuss alternative approaches to perform the study.
- The Districts will make a good faith effort to obtain permission to access private property where needed well in advance of performance of the study. If access is not granted or river

access is not feasible or safe, the Districts will notify FERC and appropriate resource agencies via email to discuss alternative approaches to perform the study.

- Field crews may make minor modifications to the study plan in the field to accommodate actual field conditions. If modifications are required, the field crews will follow the protocols in this study plan. All modifications will be documented and reported in the draft study reports.
- Global Positioning System (GPS) data will be collected in a manner that meets or exceeds the federal government's "National Map Accuracy Standards" for published maps. All GPS data will be in the Universal Transverse Mercator (UTM) Coordinate System, using the North American Datum 1983 and stored in Environmental Science Research Institute (ESRI) Shapefile format. After a Shapefile has undergone a quality assurance/quality control (QA/QC) review and after all metadata have been documented, the Districts will provide the Shapefile to resource and land management agencies upon request.
- Field crews will be trained on and provided with materials (e.g., Quat) for decontaminating their boots, waders, and other equipment between study sites. Major concerns are amphibian chytrid fungus, and invasive invertebrates (e.g., zebra mussel, *Dreissena polymorpha*). This is of primary importance when moving: (1) between tributaries and mainstem reaches; (2) moving between basins; and (3) moving between isolated wetlands or ponds and river or stream environments.

5.3 Study Methods

The study approach will consist of the following six steps:

Step 1 - Obtain SHPO Approval of APE. As required under Section 106 [36 CFR § 800.4(a)(1)], the Districts will submit maps depicting the APE to the SHPO for formal review, comment, and concurrence[3]. Once approved, the maps including SHPO's concurrence letter will be filed with FERC.

The Districts may request that SHPO concur with a modified APE during the study if the Districts determine that the Project affects historic properties outside the previously SHPO-approved APE.

Step 2 - Archival Research. Information has been obtained from the record search that identified previous cultural surveys and recorded archaeological and historic-era properties within or adjacent to the APE. Archival research will also be conducted at the repositories listed below to obtain additional information specific to the prehistory and history of the Project area, the hydroelectric system in whole, and its individual features. The results of the archival research will serve as the basis for preparing the prehistoric and historic contexts against which archaeological and historic-era properties may be evaluated. Historical photographs located during the archival research may be cited in the text as figures, unless they are subject to copyright laws. Previous NRHP evaluations of resources, if they exist, will be used as much as possible. The places to be contacted or visited may include:

- Bancroft Library, University of California, Berkeley
- California State Library, California History Room and Government Publications

[3] Participating tribes and agencies will be provided the opportunity to review and comment on all determinations prior to submission to the SHPO.

- Bureau of Land Management, Mother Lode Field Office Data Files
- Turlock Museum and Archives
- Modesto Museum and Archives
- Sacramento History Center and Archives
- Sierra Miwuk Tribal Archives
- Tuolumne County Assessor's and Recorder's Offices
- Tuolumne County Historical Society
- Southern Tuolumne County Historical Society
- Archives of the Hetch Hetchy Water and Power/San Francisco Public Utility Commission
- Oral Histories of Project Personnel and/or Local Residents, Historians, or Enthusiasts
- Turlock and Modesto Irrigation Districts
- Sonora Bypass Project Archaeological Documents Produced by the Far Western Anthropological Group

Step 3 - Field Survey. FERC is required to make a reasonable and good faith effort to identify historic properties that may be affected by the Project. Following 36 CFR § 800.4(b)(1), this will be accomplished through a comprehensive field survey that is implemented in accordance with the Secretary of the Interior's Standards and Guidelines for Identification (NPS 1983) and the BLM standards, per the 8100 manual series. FERC is also required to consider any other applicable professional standards and tribal, state, or local laws or procedures to complete the identification of historic properties.

Archaeological Field Survey. To assist FERC in meeting its compliance obligations, and to develop appropriate management measures for historic properties identified within the APE, a field survey will be performed to verify locations of previously recorded cultural resources and to examine all accessible lands not previously surveyed or which were surveyed to less than adequate standards. Areas within the APE that cannot be accessed in a safe manner will not be included within the survey or recording of archaeological and historic-era properties; these areas will be identified in the resulting survey report in text and maps with an explanation for survey exclusion.

The field survey will be directly supervised in the field by qualified, professional archaeologists (i.e., individuals who meet the Secretary of the Interior's Standards for professional archaeologists and are listed on a California State BLM permit which require the permit holders to have extensive California archaeological experience). Prior to beginning field work, the field crew will visit a prehistoric archaeological assemblage recovered from a location near the Project vicinity to become familiar with prehistoric materials that might be encountered during the field survey of the Project APE. The purpose of the field survey is to: (1) examine lands which have not been previously surveyed; (2) examine lands previously surveyed but where the field strategy is unknown; and (3) examine lands previously surveyed but for which the field strategy does not meet current professional standards, as defined in the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation* (NPS 1983).

If conditions allow, lands will be examined that are typically inundated by the Project reservoir but which may become accessible during the survey season as a result of normal reservoir draw-downs.

Locations of previously recorded cultural resources will be verified and the sites re-recorded only if their existing site records or other documentation do not meet current standards for

recording, or if the condition and/or integrity of the property has changed since its previous recording. Newly discovered cultural resources, including isolated finds, will be fully documented following the recordation procedures outlined in *Instructions for Recording Historical Resources* (OHP 1995), which utilizes state of California Department of Parks and Recreation (DPR) forms DPR 523 A-L. Prehistoric isolates will be defined as three or less artifacts (flakes, groundstone, etc.) per 50 square meters. Prehistoric isolated features will not be treated as isolated finds, but will be recorded as a site. Historic isolates will be defined on a case by case basis, depending on the types of historic resources identified within the APE. A sketch map for each site recorded or re-documented will be drawn to-scale and the property photographed. The locations of all archaeological sites and isolates documented during the survey will be plotted by the Districts' cultural resources specialist or cultural consultant onto the appropriate USGS 1:24,000-scale topographic map at the time of discovery. Field personnel will use a GPS receiver to document the location of cultural resources (including isolates) recorded during the survey, which will be plotted onto the appropriate USGS topographic quadrangle using the UTM coordinate system. GPS data related to recordation of historic properties will adhere to DPR specifications for accuracy and site specific procedures. Additionally, the areas examined will be plotted onto the appropriate USGS 7.5-minute topographic quadrangle for comparison with previous survey coverage maps.

Archaeological surveys that occur on BLM lands will require valid permits. The Districts' consultants will possess a valid Cultural Resource Use Permit issued through the BLM California State Office and will obtain a Field Authorization through the BLM Mother Lode Field Office prior to examining BLM lands. The Districts' consultants also will notify BLM when fieldwork is scheduled to begin. All artifacts encountered during the field survey will be left in place; no artifacts will be collected during the field survey.

Historic-Era Inventory of the Built Environment. A field inspection, documentation, and subsequent NRHP evaluation (see below) of any historic-era built environment resources will be undertaken by qualified, professional individuals meeting the Secretary of the Interior Standards for Architectural and Engineering Documentation. Individual components will be recorded or re-recorded to meet current DPR standards. This will include digital color photography and sketch maps of each built resource and each associated feature.

Discovery and Treatment of Human Remains. If an inadvertent discovery of human remains occurs on federal lands, the person making the discovery shall follow the procedures outlined in 43 CFR § 10(4)(b) of the Native American Graves Protection and Repatriation Act (NAGPRA) and the guidance provided by the Advisory Council on Historic Preservation, requiring that they immediately notify the BLM and affected Tribes, as appropriate, by telephone, and provide written confirmation of the discovery. On BLM-administered land, NAGPRA responsibilities cannot be delegated to FERC or the Districts. All work in the immediate area of the discovery will cease and the area will be secured to protect the remains. The Districts' cultural resources specialist will consult with the affected tribes to contact the lineal descendent and ascertain the cultural affiliation, as outlined in NAGPRA under 43 CFR § 10(14), in order to otherwise abide by NAGPRA to determine the disposition of the discovered human remains (43 CFR § 10[6]).

On privately owned lands, the California Penal Code (CPC), California Health and Safety Code (CH&SC), and California Public Resources Code (CPRC), also prohibit damage, defacement, or disinterment of human remains without legal authority, and establish civil and criminal penalties for actions associated with private landholdings. Although the CH&SC and CPRC technically

apply only to those portions of the APE not under federal jurisdiction, in practice the law is applied throughout the area. Criminal sanctions provided for in the CPC, CH&SC, and CPRC would be above and beyond the penalties authorized by the Archaeological Resources Protection Act (ARPA). Other state laws and codes may also apply.

Step 4 - National Register of Historic Places Evaluation. During documentation of archaeological sites and features in Step 3, the Districts will also document the condition of each resource to assist in identifying potential and existing Project-related affects and level of integrity to provide recommendations for NRHP eligibility or evaluations. All previously unevaluated sites that can be evaluated at this phase, based on the documented remains, background research, and site conditions, will be formally evaluated for SHPO consultation and concurrence. Any NRHP evaluations completed for sites located on federal agency lands will be submitted to the appropriate agency for review prior to obtaining SHPO concurrence. Resources requiring further cultural resources management consideration beyond the study will be identified and included in the Districts' PM&Es for implementation, likely under a FERC-approved HPMP, unless more immediate action is deemed necessary to address Project-related effects.

The Districts will utilize the National Register criteria for all sites to be evaluated, which are defined in 36 CFR 60.4, and which include the following:

> **National Register Criteria for Evaluation.** The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and
>
> (a) that are associated with events that have made a significant contribution to the broad pattern of our history;
> (b) that are associated with the lives of persons significant in our past;
> (c) that embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction;
> (d) that have yielded, or may be likely to yield, information important to prehistory or history.

As well, properties not normally considered for listing in the National Register (i.e., cemeteries, birthplaces or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historical buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past fifty years) may qualify if they are integral parts of districts that do meet the criteria for evaluation or can apply the *Criteria Considerations* found at 36 CFR 60.

Evaluation of Historic Project System Features

Previously evaluated historic Project systems or individual features will not be re-evaluated unless substantial changes in their conditions have been observed and documented during the study, or the evaluation is more than ten years old. If deemed appropriate by a qualified,

professional cultural resources specialist, individual historic-era features may be evaluated together as a district.

All previously unevaluated historic-era Project features will be formally evaluated for eligibility to the NRHP. The evaluation will consist of three tasks: (1) development of a historic context for the APE using archival research; (2) examination of each historic feature to document and assess the level of integrity, both individually and as an element of a potential Hydroelectric Historic District; and 93) the historical information and the physical site data obtained during background and field research will be used to evaluate the eligibility of each Project feature individually and as part of a potential historic district for inclusion on the NRHP.

Step 5 - Identify and Assess Potential Project Effects on National Register-Eligible Properties. As required under 36 CFR § 800.5, the Districts will identify and assess, in consultation with the SHPO, BLM, and potentially affected Indian tribes, any adverse effects on historic properties or potential historic properties resulting from Project O&M. Adverse effects are defined as follows:

> *An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative (36 CFR § 800.5(a)(1).*

Step 6 - Reporting. The Districts will prepare a report that includes the following sections: (1) Study Goals and Objectives; (2) Environmental and Cultural Setting; (3) Methods and Analysis; (4) Results; (5) Conclusions; and (6) Description of Variances from the FERC-approved study plan, if any[4]. Upon completion of the field studies, cultural maps provided with the Districts' report will clearly depict the following on USGS 1:24,000 topographic maps: the study areas examined; inventory coverage, including intensity of coverage; and locations of cultural resources identified within the study areas.

Copies of the final report and detailed locations of identified properties may be withheld from public disclosure in accordance with Section 304 (16 U.S.C. 4702-3) of the NHPA (as amended). Concurrence of report recommendations will be sought from the SHPO. Draft versions of the report will be provided to BLM, tribes, and other parties, as appropriate.

6.0 Study-Specific Consultation[5]

The Districts will engage in the following study-specific consultation:

[4] The report will meet all of the reporting requirements of the BLM-issued Cultural Resource Use Permit.
[5] Copies of all correspondence sent to the SHPO by the Districts will be forwarded to the tribes and agencies.

- The Districts will obtain SHPO's concurrence with the APE, for which the participating tribes and agencies will have been provided the opportunity to review and comment as part of this study plan (Step 1).
- The Districts will notify potentially affected tribes and BLM prior to the start of the field survey to provide the proposed field schedule (Step 3).
- Any NRHP evaluations completed for cultural resources located on lands managed by federal agencies (i.e., BLM) will be provided to the federal agency, as appropriate, for review prior to submittal to SHPO for concurrence (Step 4).

7.0 Schedule

The Districts anticipate the following schedule for completion of the study:

- Field Work (Steps 1, 2, and 3) .....January 2012 - October 2012[6]
- Office Work (Steps 4 and 5) .....October 2012 - December 2012
- Consultation ..... As needed and Quarterly Reports
- Report Preparation (Step 6)..... March 2013 - April 2013
- Report Review by Agencies and Tribes (Step 6) .....May 2013 - June 2013
- Report Submittal to SHPO (Step 6) ..... July 2013 - September 2013
- Drafting HPMP[7] .....July 2013 - October 2013

The results of the study will be reported in Exhibit E of the License Application, which will include a summary of the information and findings of the Study Plan. Figures and other pertinent data supporting the summary in Exhibit E will be appended to the License Application. The cultural records and other sensitive information will be included in a Confidential appendix withheld from public disclosure, in accordance with Section 304 (16 U.S.C. 4702-3) of the NHPA as amended.

8.0 Consistency of Methodology with Generally Accepted Scientific Practices

The proposed study methods discussed above are generally consistent with the study methods followed in several recent relicensing projects (i.e., French Meadows Transmission Line Project, FERC No. 2479; Merced River Hydroelectric Project, FERC No. 2179; Yuba-Bear Hydroelectric Project, FERC No. 2266). These methods have been accepted by the participating Indian Tribes, agencies, and other interested parties associated with those projects. The methods presented in this study plan also are consistent with the ACHP's guidelines for compliance with the requirements of Section 106 of the NHPA found at 36 CFR 800.

9.0 Level of Effort and Cost

Not yet estimated.

[6] Fieldwork will include the time of year when the reservoir level is at its lowest to ensure as much surface area is exposed as possible for the study.

[7] Though the HPMP is not the outcome of the proposed study, the results of the study will be used to help draft an HPMP for the Project relicensing efforts.

10.0 References Cited

Advisory Council on Historic Preservation. 2007. Policy Statement Regarding Treatment of Burial Sites, Human Remains, and Funerary Object. Washington, D.C.

Betts, J. 1996. Cultural Resource Record for CA-NEV-582. California Division of Forestry, Tahoe City, CA.

——. 1997 Cultural Resource Record for CA-PLA-828 (FS# 05-17-55-481). California Division of Forestry, Tahoe City, CA.

——. 1998. Cultural Resource Record for CA-PLA-956 (FS #05-17-55-517). California Division of Forestry, Tahoe City, CA.

——. 2001. Cultural Resource Record for CA-PLA-1306 (FS #05-17-55-567). California Division of Forestry, Tahoe City, CA.

——. 2002. Cultural Resource Records for CA-PLA-1418 (FS# 05-17-55-534) and CA-NEV-918/H. California Division of Forestry, Tahoe City, CA.

Federal Energy Regulatory Commission and Advisory Council on Historic Preservation. 2002. Guidelines for the Development of Historic Properties Management Plans for FERC Hydroelectric Projects. Washington D.C.

Jackson, R., M. Boynton, W. Olsen, and R. Weaver. 1988. California Archaeological Resource Identification and Data Acquisition Program: Sparse Lithic Scatters. Office of Historic Preservation, Sacramento.

Jackson, R., T. Jackson, C. Miksicek, K. Roper, and D. Simons. 1994. Framework for Archaeological Research and Management on the National Forests of the North-Central Sierra Nevada. Prepared for the USDA Forest Service, Eldorado National Forest.

King, T. 1998. Cultural Resource Laws and Practice: An Introductory Guide. Lanham, MD: AltaMira Press.

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Office of Historic Preservation. 1995. Instructions for Recording Historical Resources. Sacramento, California.

Parker, P. and T. King. 1998. Guidelines for Evaluating and Documenting Traditional Cultural Properties. National Register Bulletin 38. Washington, D.C.: U.S. Department of the Interior, National Park Service

U.S. Department of Interior, National Park Service. 1983. Archaeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines in the Federal Register, September 29, 1983 (48FR44716). Department of the Interior, Washington, D.C.

——. 2002. How to Apply the National Register Criteria for Evaluation. National Register Bulletin 15. Revised for the Internet, available at: http://www.cr.nps.gov/nr/publications/bulletins/archeology/. U.S. Department of the Interior, National Park Service, National Register, History, and Education.

DRAFT

ATTACHMENT 6-10

TURLOCK IRRIGATION DISTRICT
AND
MODESTO IRRIGATION DISTRICT

DON PEDRO PROJECT
FERC NO. 2299

Native American Traditional Cultural Properties and Ethnographic Study Plan

February 2011
(Revised June 2011)

1.0 Project Nexus

Turlock Irrigation District (TID) and Modesto Irrigation District (MID), both public agencies, own the Don Pedro Project (FERC No. 2299) located in Tuolumne County, California. Certain on-going operation and maintenance (O&M) and/or recreation activities at the Don Pedro Project (Project) may affect Traditional Cultural Properties (TCP). The effect may be direct (e.g., result of ground disturbing activities), indirect (e.g., public access to Project areas) or cumulative (e.g., caused by a Project activity in combination with other past, present, and reasonably foreseeable future projects). This study focuses on the potential for Project-related activities to affect TCPs.

TCPs are not automatically considered historic properties[1]. As defined under 36 CFR 800.16(l), historic properties are prehistoric or historic sites, buildings, structures, objects, districts, or locations of traditional use or beliefs that are included in, or eligible for inclusion in, the National Register of Historic Places (NRHP). Historic properties are identified through a process of evaluation against specific criteria found at 36 CFR 60.4.

To be considered a historic property, a TCP must have integrity and meet at least one of the National Register criteria. When a place of traditional practices is evaluated as eligible for listing on the NRHP, it is termed a TCP. TCPs are defined as any property that is "…eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community" [NR Bulletin 38 (Parker and King 1998:1)].

TCPs are further defined in National Register Bulletin 38 (Parker and King 1998:1) as:

1. Locations associated with the traditional beliefs of a Native American group about its origins, its cultural history, or the nature of the world.

[1] Historic properties other than TCPs are addressed in a separate study proposal (Historic Properties Study) in the relicensing.

2. A rural community, whose organization, buildings and structures, or patterns of land use reflect the cultural traditions valued by its long-term residents.
3. An urban neighborhood that is the traditional home of a particular cultural group, and that reflects its beliefs and practices.
4. Locations where Native American religious practitioners have historically gone and are known or thought to go to today, to perform ceremonial cultural rules of practice.
5. Locations where a community has traditionally carried out economic, artistic or other cultural practices important in maintaining its historic identity.

The Project nexus with TCPs is the potential effect the Project could have on traditional/tribal spiritual areas and other traditional uses in the Project Boundary or adjacent locations that are affected by Project activities. These include, but are not limited to: uses of geologic formations (i.e., landmarks); retrieval of fish for both ceremonial and spiritual purposes; gathering of plants for food, medicinal purposes and traditional uses (e.g., basket making); use of signal points including sightlines for fire signals; and access by Tribe members to and transit on trails and banks of the Tuolumne River traditionally used by Tribes.

2.0 Agency Resource Management Goals

FERC licenses may permit activities that may "…cause changes in the character or use of historic properties, if any such historic properties exist…" (36 CFR § 800.16[d]). FERC must therefore comply with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and its implementing regulations at 36 CFR Part 800 that require any federal department or independent agency having authority to license any undertaking to take into account the effects of the undertaking on historic properties.

As provided for in 18 CFR § 5.5(e), the Districts under separate cover will request that FERC designate them as FERC's non-federal representative for purposes of initiating consultation under Section 106 of the NHPA and the implementing regulations found at 36 CFR § 800.2(c)(4).

Additionally, the State Historic Preservation Officer (SHPO), in accordance with section 101(b)(3) of NHPA "…advises and assists Federal agencies in carrying out their Section 106 responsibilities…" by ensuring historic properties are taken into account early in the planning and development processes.

The Bureau of Land Management (BLM) also has management responsibility for federal lands within the Project's Area of Potential Effects (APE). As defined in 36 CFR 800.16(d), the APE is "...the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historical properties, if any such properties exist." ~~For the Don Pedro Project, the APE has been initially defined as all lands within the Project Boundary.~~

~~The State of California also retains an interest within the Project APE. Section 5.11(d)(2) states that an applicant for a new license must in its proposed study "Address any known resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied."~~

3.0 Study Goals

The primary study goal is to assist FERC in meeting its compliance requirements under Section 106 of the NHPA, as amended, by determining if licensing of the Project will have an adverse effect on TCPs. The objective of this particular study is to identify TCPs that may potentially be affected by Project O&M, evaluate their eligibility to the NRHP, and identify Project-related activities that may affect TCPs, including locations of ethnographic use. At a later date the results of the study will then be used to develop the HPMP, which will ensure that all cultural resources identified within the APE will be appropriately considered and managed during the life of the new FERC license.

The Project is also subject to compliance with other relevant federal laws including the National Environmental Protection Act (NEPA), the Archaeological Resources Protection Act (ARPA) of 1974 (16 USC 469), the American Indian Religious Freedom Act (AIRFA) of 1978 (42 USC 1996 and 1996a), the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (25 USC 3001), Executive Order 11593 (Protection and Enhancement of the Cultural Environment) of 1971 (16 USC 470), the American Antiquities Act of 1906, and Executive Order 13007 (Indian Sacred Sites) of 1996 (73 Federal Register 65, pp. 18293-24).

The term TCP has been in use only in recent decades, thus many older historic studies, oral traditions, and other background materials identified during this study may not use this term specifically, although in principal the information may address what is now termed TCP. Working with indigenous/aboriginal people and gathering any pertinent studies, information, or reports that are used to identify significant indigenous/aboriginal sites will contribute to the understanding of TCPs, and possibly other locations of tribal importance, taking into account relevant tribal values and knowledge as required in FERC's relicensing guidelines. In addition to the Tribal consultation process described more fully in Section 6.3 of this study proposal, significant, relevant studies conducted by ethnographers, graduate students, cultural journalists, and oral historians that are archived in public and private libraries will be reviewed and the relevant data included in the study results.

4.0 Existing Information and Need for Additional Information

Sections 5.8 and 5.10 of the PAD describe existing, relevant, and reasonably available information regarding cultural resources. This information is summarized below.

A records search was conducted during July of 2010 at the Central California Information Center (CCIC) of the California Historical Resources Information System at California State University (CSU), Stanislaus in Turlock. The records search included reviews of cultural resources records and site location maps, historic General Land Office (GLO) plats, NRHP, California Register of Historic Resources, Office of Historic Preservation Historic Property Directory, *California State Historic landmarks* (1996), California Inventory of Historic Resources (1976), historic topographic maps, and the Caltrans Bridge Inventory.

The records search included all lands within the ~~Project APE~~FERC Project Boundary and a 0.25-mile buffer beyond. The purpose of the record search was to identify any previously recorded TCPs that may be in the FERC Boundary~~APE~~ or in the vicinity ~~of the APE~~, and to identify

characteristic resource types previously identified within the FERC Boundary~~APE~~ and vicinity to help in the preparation of an ethnographic context for the area and/or any potential TCP documentation. The records search also included a 0.25-mile buffer beyond the FERC Boundary~~APE~~ to allow adequate coverage and flexibility for Project planning.

The records search did not identify any TCPs or Indian Trust Assets (ITA) within the FERC Project Boundary~~APE~~.

ITAs are legal interests in assets held in trust by the federal government for Indian tribes or individual Indians. Assets can be real property, physical assets or intangible property rights. A characteristic of an ITA is that it cannot be sold, leased or otherwise alienated without the United States government's approval. Examples of ITAs are lands, including reservations and public domain allotment; minerals; water rights; hunting and fishing rights; other natural resources; money or claims. ITAs do not include things in which a tribe or individuals have no legal interest. For example, off-reservation sacred lands or archaeological sites in which a tribe has no interest are not ITA.

Additionally, the Districts contacted the California Native American Heritage Commission (NAHC) at the beginning of September 2010 to obtain a listing of tribal groups who should be contacted regarding the Project. The NAHC ~~has yet to provide a tribal contact list for the Project~~ responded in a letter dated February 3, 2011 with a list of potentially affected tribes. ~~However~~In addition to the NAHC list of tribes, the Districts have identified a number of other Indian Tribes that may have an interest in the relicensing based on the proximity of these groups' traditional territory to the Project APE. The list compiled by the Districts, including the NAHC list, is provided in Table 4.0-1. Additional groups that might be identified ~~by the NAHC, subsequent to this PAD,~~at a later date will be added.

Table 4.0-1 Tribal contact list ~~compiled by the Districts~~.

Central Sierra Me-Wuk Cultural & Historic Reba Fuller, Spokesperson PO Box 699 Tuolumne, CA 95379	North Fork Mono Tribe Ron Goode, Chairperson 13396 Tollhouse Road Clovis, CA. 93611
Buena Vista Rancheria Roselynn Lwenya, Ph.D Environmental Resources Director P.O. Box 162283 Sacramento, CA 95816 ~~Chukchansi Tribe; Choinumni/Mono~~ ~~Lorrie Planas~~ ~~2736 Palo Alto~~ ~~Clovis, CA 93611~~	Buena Vista Rancheria Rhonda Morningstar Pope Chairperson P.O. Box 162283 Sacramento, CA 95816 ~~North Fork Rancheria~~ ~~Delores Roberts, Chairperson~~ ~~PO Box 929~~ ~~North Fork, CA93643~~
~~Chukchansi Tribe~~ Picayune Rancheria of the Chukchansi Indians Mary Motola, Cultural Specialist 46575 Road 417 #A Coarsegold, CA 93614 ~~Emmaline Hammond~~	Picayune Rancheria of the Chukchansi IndiansReggie Lewis, Chairperson 46575 Road 417 #A Coarsegold, CA 93614 ~~North Fork Rancheria~~ ~~Mr. Michel Demers, Tribal Administrator~~

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~~PO Box 852~~ ~~Oakhurst, CA 93644~~	~~P.O. Box 929~~ ~~North Fork, CA 93643~~
~~North Fork Mono Rancheria~~Southern Sierra Miwuk Nation Sandy Vasquez, Chairperson PO Box 1200 Mariposa, CA 95338 ~~Judy Fink, Tribal Chairperson~~ ~~P.O. Box 929~~ ~~North Fork , CA 93643~~	Southern Sierra Miwuk Nation Jay Johnson, Spiritual Leader 5235 Allred Road Mariposa, CA 956338-9357
Southern Sierra Miwuk Nation Anthony Brochini, Cultural Resources Representative~~Chairperson~~ PO Box 1200 Mariposa, CA 95338	Southern Sierra Miwuk Nation Les James, Spiritual Leader PO Box 1200 Mariposa, CA 95338
Tuolumne Band of Me-Wuk Indians Stanley Rob Cox, Cultural Resources Dept. P.O. Box 699 Tuolumne, CA 95379	Tuolumne Band of Me-Wuk Indians Kevin Day, Chairperson P.O. Box 699 Tuolumne, CA 95379
Tuolumne Band of Me-Wuk Indians Reba Fuller, Spokesperson P.O. Box 699 Tuolumne, CA 95379	Mono Nation (non-profit organization associated with the North Fork Mono Rancheria) James Bethel, President 58288 Road 225 North Fork, CA 93643
Chicken Ranch Rancheria of Me-Wuk Melissa Powell, Cultural Resources Coordinator P.O. Box 1159 Jamestown, CA 95327	Chicken Ranch Rancheria of Me-Wuk Lloyd Mathiesen, Chairperson P.O. Box 1159 Jamestown, CA 95327
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To date, no concerns or potential TCPs or ITAs have yet been identified by the Tribes within the FERC Project Boundary~~APE~~ or 0.25 mile beyond.

5.0 Study Methods

5.1 Study Area

The study area that will be investigated to accomplish the current study is the APE. As defined in 36 CFR 800.16(d), the APE is "...the geographic area or areas within which an undertaking

may directly or indirectly cause changes in the character or use of historical properties, if any such properties exist." The APE for the Don Pedro Project relicensing study efforts is defined as including all Project designated facilities (recreation areas, hydroelectric facilities, Project access roads, designated Project recreation access roads) and areas where there is previous evidence of dispersed recreation or use. If, at a later time, the Districts propose Project activities that are outside of the study area that may affect resources addressed by this study proposal, the study area will be expanded, if necessary, to include these areas. As well, should large resources, such as TCPs, be identified that continue outside of the Project APE, those resources will be recorded in their entirety, if appropriate and accessible (i.e., linear resources such as roads may not be followed out to their terminus), and the APE may be expanded to incorporate them if it is determine that Project O&M could effect these areas. As required under Section 106 [36 CFR § 800.4(a)(1)], maps depicting the APE will be submitted to the SHPO for formal review, comment, and approval. The proposed APE is shown in Appendix C of the PAD.

~~The study area is the APE, which includes all lands, Project facilities and features within the Project Boundary and Project affected locations outside the Project Boundary. The APE may be modified if Project O&M activities occur outside the Project Boundary. As required under Section 106 [36 CFR § 800.4(a)(1)], maps depicting the APE will be submitted to the SHPO for formal review, comment, and approval.~~

5.2 General Concepts and Procedures

The following general concepts apply to the study:

- Personal safety is the most important consideration of each fieldwork team. If the Districts determine the information cannot be collected in a safe manner, the Districts will notify FERC and ~~appropriate~~ participating resource agencies (including the BLM) via email to discuss alternative approaches to perform the study.
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mainstem reaches; (2) moving between basins; and (3) moving between isolated wetlands or ponds and river or stream environments.

5.3 Study Methods

The study approach will consist of the following seven steps:

Step 1 - Obtain SHPO Concurrence on the APE. As required under Section 106 [36 CFR § 800.4(a)(1)], the Districts will submit maps depicting the APE to the SHPO for formal review, comment, and concurrence[2]. Once approved, the maps including SHPO's concurrence letter will be filed with FERC.

The Districts may request that SHPO concur with a modified APE during the study if the Districts determine that the Project affects historic properties outside the previously SHPO-approved APE.

Step 2 - Archival Research. The Districts performed initial archival research in preparation of the Pre-Application Document. In this step, the Districts will, at a minimum, conduct additional archival research at the following places, as appropriate:

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- Oral Histories of Project Personnel and/or Local Residents, Historians, or Enthusiasts
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- Other appropriate Tribal, private, state, or federal repositories identified during the research

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[2] Participating tribes and agencies will be provided the opportunity to review and comment on all determinations prior to submission to the SHPO.

In order to facilitate Tribal consultation, the Districts intend to retain a qualified, professional ethnographer who meets the standards for ethnography as defined in Appendix II of National Register Bulletin No. 38. The Districts will coordinate its selection of the ethnographer with the assistance of affected Tribes and other interested cultural/Tribal stakeholders.

The ethnographer, in consultation with designated Tribal representatives (e.g., Tribal Chair), will determine the scope and breadth of interviews. The ethnographer will then contact the appropriate Tribe(s) and interested Tribal and cultural stakeholders to arrange for interviews at a time and location acceptable to those Tribal Interviewees. Tribal interviewees and the ethnographer may need to visit the APE together to accurately define potential TCPs. If necessary, the Districts will arrange for an initial introductory meeting between the Districts, Tribal representatives, and the ethnographer.

Interviews may be conducted on a one-on-one basis with the ethnographer. The oral traditions and information collected during the interviews will be used to help define potential TCPs in the APE and to assist in making sound judgments and management decisions in Project planning. All information gathered will be kept confidential and respectfully documented by the ethnographer.

If participating Indian Tribes do not wish to disclose the locations of any potential TCPs, the Districts will instead work with the Tribes to identify the general issues and concerns that the Tribe(s) may have regarding potential impacts of the Project upon resources known to the Tribe(s) and work and with the Tribes and appropriate land management agencies to develop agreeable measures to address these concerns.

Step 4 - Archaeological Site Visit. Tribal interviewees or a physically capable Tribal representative and the ethnographer may want to visit archaeological sites identified during the study or during the Historic Properties Study. The purpose of the visit would be to provide Tribal representatives the opportunity to examine prehistoric archaeological sites encountered during the Historic Properties Study fieldwork, and for the ethnographer to obtain additional information on potential TCPs. After the site visit(s) Tribal representatives may choose to share additional TCP information. BLM will be involved with any site visits on BLM-administered land. BLM will request to meet in advance, those tribal representatives who wish to visit prehistoric sites on BLM-administered land. This is prudent and reasonable as BLM has ongoing management obligations for resources on lands under their management, regardless of whether these resources within the FERC project boundary. BLM keeps information about archaeological sites confidential.

Step 5 - National Register of Historic Places Evaluation. Following completion of Step 4, the Districts' ethnographer will evaluate the eligibility of identified TCPs for listing on the NRHP using data collected from the field studies described above. The NRHP codifies the criteria used to evaluate most cultural resources at 36 CFR 60.4, as follows:

> *National Register Criteria for Evaluation. The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites,*

buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and

(a) that are associated with events that have made a significant contribution to the broad pattern of our history;
(b) that are associated with the lives of persons significant in our past;
(c) that embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction;
(d) that have yielded, or may be likely to yield, information important to prehistory or history.

However, amendments to the NHPA in 1992 [§101(d)(6)(A)] specify that properties of traditional religious and cultural importance to an Indian Tribe may be determined eligible for inclusion in the NRHP because of their "association with cultural practices or beliefs of a living community that are: (1) rooted in that community's history; and (2) are important in maintaining the continuing cultural identity of the community." Therefore, a TCP can only be significant if it meets these two criteria. However, if sacred areas or religious locations are identified that do not meet these criteria, they will still be evaluated following the Section 106 process. Formal evaluations will be submitted to the SHPO for concurrence.

As well, properties not normally considered for listing in the National Register (i.e., cemeteries, birthplaces or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historical buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past fifty years) may qualify if they are integral parts of districts that do meet the criteria for evaluation or can apply the *Criteria Considerations* found at 36 CFR 60.

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Step 6 - Identify and Assess Potential Project Effects on National Register-Eligible Properties. As required under 36 CFR § 800.5, the Districts will identify and assess, in consultation with the SHPO, BLM, and potentially affected Indian Tribes, any adverse effects on TCPs resulting from Project O&M. Adverse Effects are defined as follows:

An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative (36 CFR § 800.5(a)(1)).

Step 7 - Reporting. The Districts will prepare a report that includes the following sections: (1) Study Goals and Objectives; (2) Environmental and Cultural Setting; (3~~2~~) Methods and

Analysis; (4) Results; (5~~3~~) Conclusions; and (6~~5~~) Description of Variances from the FERC-approved study plan, if any[3]. The report will include the evaluation plan with a detailed assessment of Project effects. Copies of this report will be provided to the affected Indian Tribes, BLM, SHPO, CSU, Stanislaus, CCIC, and FERC. Copies of the final report and detailed locations of identified properties will be withheld from public disclosure in accordance with Section 304 (16 U.S.C. 4702-3) of the NHPA (as amended). Concurrence on report recommendations will be sought from SHPO. BLM and other interested parties will review the cultural report, evaluation plan, and other documents, before they are sent to SHPO for concurrence.

6.0 Study-Specific Consultation[4]

The Districts will engage in the following study-specific consultation:

- Consultation with FERC, SHPO, affected Native American representatives, and BLM as described in Section 5.3.

7.0 Schedule

The Districts anticipate the following schedule for completion of the study:

- Planning/Pre-field Arrangements ..... January 2012 - February 2012
- Field Work (Steps 1, 2, and 3) ..... March 2012 - December 2012
- Office Work (Steps 4 ,5, and 6) ..... January 2013 - July 2013
- Study Proposal Consultation ..... As needed and Quarterly Reports
- Report Preparation (Step 7)..... August 2013 - ~~October~~ September 2013
- Report Review by Agencies and Tribes[5] (Step 7)..... September 2013 - October 2013
- Report Submittal to SHPO[6] (Step 7)..... October 2013 - November 2013
- Drafting HPMP[7] ..... July 2013 – October 2013

The results of the Study Plan will be reported in Exhibit E of the License Application, which will include a summary of the information and findings of the Study Plan. Figures and other pertinent data supporting the summary in Exhibit E will be appended to the License Application. The cultural records and other sensitive information will be included in a confidential appendix withheld from public disclosure, in accordance with Section 304 (16 U.S.C. 4702-3) of the NHPA as amended.

8.0 Consistency of Methodology with Generally Accepted Scientific Practices

The proposed study methods discussed above are generally consistent with the study methods followed in several recent relicensing projects (i.e., French Meadows Transmission Line Project

[3] The report will meet all of the reporting requirements of the BLM-issued Cultural Resource Use Permit.
[4] Copies of all correspondence sent to the SHPO by the Licensees will be forwarded to the tribes and agencies.
[5] Non-confidential portions only.
[6] Non-confidential portions only.
[7] Though the HPMP is not the outcome of the proposed study, the results of the study will be used to help draft an HPMP for the Project relicensing efforts.

- FERC No. 2479; Merced River Hydroelectric Project - FERC No. 2179; Yuba-Bear Hydroelectric Project - FERC No. 2266). These methods have been accepted by the participating Indian Tribes, agencies, and other interested parties associated with those projects. The methods presented in this study plan also are consistent with the ACHP's guidelines for compliance with the requirements of Section 106 of the NHPA found at 36 CFR 800 and with the related guidance set forth in National Register Bulletin 38.

9.0 Level of Effort and Cost

Not yet estimated.

10.0 References Cited

Federal Energy Regulatory Commission and Advisory Council on Historic Preservation. 2002. Guidelines for the Development of Historic Properties Management Plans for FERC Hydroelectric Projects. Washington, D.C.

Parker, Patricia L., and Thomas F. King. 1998. Guidelines for Evaluating and Documenting Traditional Cultural Properties. Revised. National Register Bulletin 38. U.S. Department of the Interior, National Park Service, National Register, History, and Education Division, Washington, D.C.

DRAFT

ATTACHMENT 6-10

TURLOCK IRRIGATION DISTRICT
AND
MODESTO IRRIGATION DISTRICT

DON PEDRO PROJECT
FERC NO. 2299

Native American Traditional Cultural Properties and Ethnographic Study Plan

February 2011
(Revised June 2011)

1.0 Project Nexus

Turlock Irrigation District (TID) and Modesto Irrigation District (MID), both public agencies, own the Don Pedro Project (FERC No. 2299) located in Tuolumne County, California. Certain on-going operation and maintenance (O&M) and/or recreation activities at the Don Pedro Project (Project) may affect Traditional Cultural Properties (TCP). The effect may be direct (e.g., result of ground disturbing activities), indirect (e.g., public access to Project areas) or cumulative (e.g., caused by a Project activity in combination with other past, present, and reasonably foreseeable future projects). This study focuses on the potential for Project-related activities to affect TCPs.

TCPs are not automatically considered historic properties[1]. As defined under 36 CFR 800.16(l), historic properties are prehistoric or historic sites, buildings, structures, objects, districts, or locations of traditional use or beliefs that are included in, or eligible for inclusion in, the National Register of Historic Places (NRHP). Historic properties are identified through a process of evaluation against specific criteria found at 36 CFR 60.4.

To be considered a historic property, a TCP must have integrity and meet at least one of the National Register criteria. When a place of traditional practices is evaluated as eligible for listing on the NRHP, it is termed a TCP. TCPs are defined as any property that is "…eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community" [NR Bulletin 38 (Parker and King 1998:1)].

TCPs are further defined in National Register Bulletin 38 (Parker and King 1998:1) as:

1. Locations associated with the traditional beliefs of a Native American group about its origins, its cultural history, or the nature of the world.

[1] Historic properties other than TCPs are addressed in a separate study proposal (Historic Properties Study) in the relicensing.

2. A rural community, whose organization, buildings and structures, or patterns of land use reflect the cultural traditions valued by its long-term residents.
3. An urban neighborhood that is the traditional home of a particular cultural group, and that reflects its beliefs and practices.
4. Locations where Native American religious practitioners have historically gone and are known or thought to go to today, to perform ceremonial cultural rules of practice.
5. Locations where a community has traditionally carried out economic, artistic or other cultural practices important in maintaining its historic identity.

The Project nexus with TCPs is the potential effect the Project could have on traditional/tribal spiritual areas and other traditional uses in the Project Boundary or adjacent locations that are affected by Project activities. These include, but are not limited to: uses of geologic formations (i.e., landmarks); retrieval of fish for both ceremonial and spiritual purposes; gathering of plants for food, medicinal purposes and traditional uses (e.g., basket making); use of signal points including sightlines for fire signals; and access by Tribe members to and transit on trails and banks of the Tuolumne River traditionally used by Tribes.

2.0 Agency Resource Management Goals

FERC licenses may permit activities that may "…cause changes in the character or use of historic properties, if any such historic properties exist…" (36 CFR § 800.16[d]). FERC must therefore comply with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and its implementing regulations at 36 CFR Part 800 that require any federal department or independent agency having authority to license any undertaking to take into account the effects of the undertaking on historic properties.

As provided for in 18 CFR § 5.5(e), the Districts under separate cover will request that FERC designate them as FERC's non-federal representative for purposes of initiating consultation under Section 106 of the NHPA and the implementing regulations found at 36 CFR § 800.2(c)(4).

Additionally, the State Historic Preservation Officer (SHPO), in accordance with section 101(b)(3) of NHPA "…advises and assists Federal agencies in carrying out their Section 106 responsibilities…" by ensuring historic properties are taken into account early in the planning and development processes.

The Bureau of Land Management (BLM) also has management responsibility for federal lands within the Project's Area of Potential Effects (APE). As defined in 36 CFR 800.16(d), the APE is "...the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historical properties, if any such properties exist."

3.0 Study Goals

The primary study goal is to assist FERC in meeting its compliance requirements under Section 106 of the NHPA, as amended, by determining if licensing of the Project will have an adverse effect on TCPs. The objective of this particular study is to identify TCPs that may potentially be affected by Project O&M, evaluate their eligibility to the NRHP, and identify Project-related

activities that may affect TCPs, including locations of ethnographic use. At a later date the results of the study will then be used to develop the HPMP, which will ensure that all cultural resources identified within the APE will be appropriately considered and managed during the life of the new FERC license.

The Project is also subject to compliance with other relevant federal laws including the National Environmental Protection Act (NEPA), the Archaeological Resources Protection Act (ARPA) of 1974 (16 USC 469), the American Indian Religious Freedom Act (AIRFA) of 1978 (42 USC 1996 and 1996a), the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (25 USC 3001), Executive Order 11593 (Protection and Enhancement of the Cultural Environment) of 1971 (16 USC 470), the American Antiquities Act of 1906, and Executive Order 13007 (Indian Sacred Sites) of 1996 (73 Federal Register 65, pp. 18293-24).

The term TCP has been in use only in recent decades, thus many older historic studies, oral traditions, and other background materials identified during this study may not use this term specifically, although in principal the information may address what is now termed TCP. Working with indigenous/aboriginal people and gathering any pertinent studies, information, or reports that are used to identify significant indigenous/aboriginal sites will contribute to the understanding of TCPs, and possibly other locations of tribal importance, taking into account relevant tribal values and knowledge as required in FERC's relicensing guidelines. In addition to the Tribal consultation process described more fully in Section 6.3 of this study proposal, significant, relevant studies conducted by ethnographers, graduate students, cultural journalists, and oral historians that are archived in public and private libraries will be reviewed and the relevant data included in the study results.

4.0 Existing Information and Need for Additional Information

Sections 5.8 and 5.10 of the PAD describe existing, relevant, and reasonably available information regarding cultural resources. This information is summarized below.

A records search was conducted during July of 2010 at the Central California Information Center (CCIC) of the California Historical Resources Information System at California State University (CSU), Stanislaus in Turlock. The records search included reviews of cultural resources records and site location maps, historic General Land Office (GLO) plats, NRHP, California Register of Historic Resources, Office of Historic Preservation Historic Property Directory, *California State Historic landmarks* (1996), California Inventory of Historic Resources (1976), historic topographic maps, and the Caltrans Bridge Inventory.

The records search included all lands within the FERC Project Boundary and a 0.25-mile buffer beyond. The purpose of the record search was to identify any previously recorded TCPs that may be in the FERC Boundary or in the vicinity, and to identify characteristic resource types previously identified within the FERC Boundary and vicinity to help in the preparation of an ethnographic context for the area and/or any potential TCP documentation. The records search also included a 0.25-mile buffer beyond the FERC Boundary to allow adequate coverage and flexibility for Project planning.

The records search did not identify any TCPs or Indian Trust Assets (ITA) within the FERC Project Boundary.

ITAs are legal interests in assets held in trust by the federal government for Indian tribes or individual Indians. Assets can be real property, physical assets or intangible property rights. A characteristic of an ITA is that it cannot be sold, leased or otherwise alienated without the United States government's approval. Examples of ITAs are lands, including reservations and public domain allotment; minerals; water rights; hunting and fishing rights; other natural resources; money or claims. ITAs do not include things in which a tribe or individuals have no legal interest. For example, off-reservation sacred lands or archaeological sites in which a tribe has no interest are not ITA.

Additionally, the Districts contacted the California Native American Heritage Commission (NAHC) at the beginning of September 2010 to obtain a listing of tribal groups who should be contacted regarding the Project. The NAHC responded in a letter dated February 3, 2011 with a list of potentially affected tribes. In addition to the NAHC list of tribes, the Districts have identified a number of other Indian Tribes that may have an interest in the relicensing based on the proximity of these groups' traditional territory to the Project APE. The list compiled by the Districts, including the NAHC list, is provided in Table 4.0-1. Additional groups that might be identified at a later date will be added.

Table 4.0-1 Tribal contact list.

Central Sierra Me-Wuk Cultural & Historic Reba Fuller, Spokesperson PO Box 699 Tuolumne, CA 95379	North Fork Mono Tribe Ron Goode, Chairperson 13396 Tollhouse Road Clovis, CA. 93611
Buena Vista Rancheria Roselynn Lwenya, Ph.D Environmental Resources Director P.O. Box 162283 Sacramento, CA 95816	Buena Vista Rancheria Rhonda Morningstar Pope Chairperson P.O. Box 162283 Sacramento, CA 95816
Picayune Rancheria of the Chukchansi Indians Mary Motola, Cultural Specialist 46575 Road 417 #A Coarsegold, CA 93614	Picayune Rancheria of the Chukchansi IndiansReggie Lewis, Chairperson 46575 Road 417 #A Coarsegold, CA 93614
Southern Sierra Miwuk NationSandy Vasquez, Chairperson PO Box 1200 Mariposa, CA 95338	Southern Sierra Miwuk Nation Jay Johnson, Spiritual Leader 5235 Allred Road Mariposa, CA 956338-9357
Southern Sierra Miwuk Nation Anthony Brochini, Cultural Resources Representative PO Box 1200 Mariposa, CA 95338	Southern Sierra Miwuk Nation Les James, Spiritual Leader PO Box 1200 Mariposa, CA 95338

Tuolumne Band of Me-Wuk Indians Stanley Rob Cox, Cultural Resources Dept. P.O. Box 699 Tuolumne, CA 95379	Tuolumne Band of Me-Wuk Indians Kevin Day, Chairperson P.O. Box 699 Tuolumne, CA 95379
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- Turlock and Modesto Irrigation DistrictsOther appropriate Tribal, private, state, or federal repositories identified during the research

Step 3 - Tribal Consultation and Identification of Resources. Following the ethnographic literature review in Step 1, the next step in identifying potential TCPs will involve extensive Tribal consultation. Consultation and any fieldwork and potential TCP documentation shall be undertaken in accordance with Section 106 of the NHPA, as amended, and shall be consistent with National Register Bulletin No. 38, *Guidelines for Evaluating and Documenting Identification of Traditional Cultural Properties*. Prior to conducting any fieldwork or field visits on BLM lands, the Districts' ethnographer will obtain a Field Authorization through the BLM Mother Lode Field Office.

In order to facilitate Tribal consultation, the Districts intend to retain a qualified, professional ethnographer who meets the standards for ethnography as defined in Appendix II of National Register Bulletin No. 38. The Districts will coordinate its selection of the ethnographer with the assistance of affected Tribes and other interested cultural/Tribal stakeholders.

The ethnographer, in consultation with designated Tribal representatives (e.g., Tribal Chair), will determine the scope and breadth of interviews. The ethnographer will then contact the appropriate Tribe(s) and interested Tribal and cultural stakeholders to arrange for interviews at a time and location acceptable to those Tribal Interviewees. Tribal interviewees and the ethnographer may need to visit the APE together to accurately define potential TCPs. If necessary, the Districts will arrange for an initial introductory meeting between the Districts, Tribal representatives, and the ethnographer.

Interviews may be conducted on a one-on-one basis with the ethnographer. The oral traditions and information collected during the interviews will be used to help define potential TCPs in the APE and to assist in making sound judgments and management decisions in Project planning. All information gathered will be kept confidential and respectfully documented by the ethnographer.

If participating Indian Tribes do not wish to disclose the locations of any potential TCPs, the Districts will instead work with the Tribes to identify the general issues and concerns that the Tribe(s) may have regarding potential impacts of the Project upon resources known to the Tribe(s) and work and with the Tribes and appropriate land management agencies to develop agreeable measures to address these concerns.

Step 4 - Archaeological Site Visit. Tribal interviewees or a physically capable Tribal representative and the ethnographer may want to visit archaeological sites identified during the study or during the Historic Properties Study. The purpose of the visit would be to provide Tribal representatives the opportunity to examine prehistoric archaeological sites encountered during the Historic Properties Study fieldwork, and for the ethnographer to obtain additional information on potential TCPs. After the site visit(s) Tribal representatives may choose to share additional TCP information. BLM will be involved with any site visits on BLM-administered land. BLM will request to meet in advance, those tribal representatives who wish to visit prehistoric sites on BLM-administered land. This is prudent and reasonable as BLM has ongoing management obligations for resources on lands under their management, regardless of whether these resources within the FERC project boundary. BLM keeps information about archaeological sites confidential.

Step 5 - National Register of Historic Places Evaluation. Following completion of Step 4, the Districts' ethnographer will evaluate the eligibility of identified TCPs for listing on the NRHP using data collected from the field studies described above. The NRHP codifies the criteria used to evaluate most cultural resources at 36 CFR 60.4, as follows:

> *National Register Criteria for Evaluation. The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and*
>
> *(a) that are associated with events that have made a significant contribution to the broad pattern of our history;*
> *(b) that are associated with the lives of persons significant in our past;*
> *(c) that embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction;*
> *(d) that have yielded, or may be likely to yield, information important to prehistory or history.*

However, amendments to the NHPA in 1992 [§101(d)(6)(A)] specify that properties of traditional religious and cultural importance to an Indian Tribe may be determined eligible for inclusion in the NRHP because of their "association with cultural practices or beliefs of a living community that are: (1) rooted in that community's history; and (2) are important in maintaining the continuing cultural identity of the community." Therefore, a TCP can only be significant if it meets these two criteria. However, if sacred areas or religious locations are identified that do not meet these criteria, they will still be evaluated following the Section 106 process. Formal evaluations will be submitted to the SHPO for concurrence.

As well, properties not normally considered for listing in the National Register (i.e., cemeteries, birthplaces or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historical buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past fifty years) may qualify if they are integral parts of districts that do meet the criteria for evaluation or can apply the *Criteria Considerations* found at 36 CFR 60.

Step 6 - Identify and Assess Potential Project Effects on National Register-Eligible Properties. As required under 36 CFR § 800.5, the Districts will identify and assess, in consultation with the SHPO, BLM, and potentially affected Indian Tribes, any adverse effects on TCPs resulting from Project O&M. Adverse Effects are defined as follows:

> *An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative (36 CFR § 800.5(a)(1)).*

Step 7 - Reporting. The Districts will prepare a report that includes the following sections: (1) Study Goals and Objectives; (2) Environmental and Cultural Setting; (3) Methods and Analysis; (4) Results; (5) Conclusions; and (6) Description of Variances from the FERC-approved study plan, if any[3]. The report will include the evaluation plan with a detailed assessment of Project effects. Copies of this report will be provided to the affected Indian Tribes, BLM, SHPO, CSU, Stanislaus, CCIC, and FERC. Copies of the final report and detailed locations of identified properties will be withheld from public disclosure in accordance with Section 304 (16 U.S.C. 4702-3) of the NHPA (as amended). Concurrence on report recommendations will be sought from SHPO. BLM and other interested parties will review the cultural report, evaluation plan, and other documents, before they are sent to SHPO for concurrence.

6.0 Study-Specific Consultation[4]

The Districts will engage in the following study-specific consultation:

- Consultation with FERC, SHPO, affected Native American representatives, and BLM as described in Section 5.3.

[3] The report will meet all of the reporting requirements of the BLM-issued Cultural Resource Use Permit.
[4] Copies of all correspondence sent to the SHPO by the Licensees will be forwarded to the tribes and agencies.

7.0 Schedule

The Districts anticipate the following schedule for completion of the study:

- Planning/Pre-field Arrangements ..... January 2012 - February 2012
- Field Work (Steps 1, 2, and 3) ..... March 2012 - December 2012
- Office Work (Steps 4 ,5, and 6) ..... January 2013 - July 2013
- Study Proposal Consultation ..... As needed and Quarterly Reports
- Report Preparation (Step 7) ..... August 2013 - September 2013
- Report Review by Agencies and Tribes[5] (Step 7) ..... September 2013 - October 2013
- Report Submittal to SHPO[6] (Step 7) ..... October 2013 - November 2013
- Drafting HPMP[7] ..... July 2013 – October 2013

The results of the Study Plan will be reported in Exhibit E of the License Application, which will include a summary of the information and findings of the Study Plan. Figures and other pertinent data supporting the summary in Exhibit E will be appended to the License Application. The cultural records and other sensitive information will be included in a confidential appendix withheld from public disclosure, in accordance with Section 304 (16 U.S.C. 4702-3) of the NHPA as amended.

8.0 Consistency of Methodology with Generally Accepted Scientific Practices

The proposed study methods discussed above are generally consistent with the study methods followed in several recent relicensing projects (i.e., French Meadows Transmission Line Project - FERC No. 2479; Merced River Hydroelectric Project - FERC No. 2179; Yuba-Bear Hydroelectric Project - FERC No. 2266). These methods have been accepted by the participating Indian Tribes, agencies, and other interested parties associated with those projects. The methods presented in this study plan also are consistent with the ACHP's guidelines for compliance with the requirements of Section 106 of the NHPA found at 36 CFR 800 and with the related guidance set forth in National Register Bulletin 38.

9.0 Level of Effort and Cost

Not yet estimated.

10.0 References Cited

Federal Energy Regulatory Commission and Advisory Council on Historic Preservation. 2002. Guidelines for the Development of Historic Properties Management Plans for FERC Hydroelectric Projects. Washington, D.C.

Parker, Patricia L., and Thomas F. King. 1998. Guidelines for Evaluating and Documenting Traditional Cultural Properties. Revised. National Register Bulletin 38. U.S. Department

[5] Non-confidential portions only.
[6] Non-confidential portions only.
[7] Though the HPMP is not the outcome of the proposed study, the results of the study will be used to help draft an HPMP for the Project relicensing efforts.

of the Interior, National Park Service, National Register, History, and Education Division, Washington, D.C.

DRAFT

TURLOCK IRRIGATION DISTRICT
AND
MODESTO IRRIGATION DISTRICT

DON PEDRO PROJECT
FERC NO. 2299

Recreation Facility Condition and Public Accessibility Assessment Study Plan

June 2011

1.0 Project Nexus

The Federal Energy Regulatory Commission (FERC) regulations require that the license application include a statement of the existing recreation measures or facilities to be continued or maintained and the new measures or facilities proposed by the applicant for the purpose of creating, preserving, or enhancing recreational opportunities at the project and in its vicinity, and for the purpose of ensuring the safety of the public in its use of project lands and waters. In addition, recreation is a recognized project purpose at FERC-licensed projects under Section 10(a) of the Federal Power Act.

2.0 Resource Management Goals of Agencies with Responsibility for the Resource to be Studied

Turlock Irrigation District and Modesto Irrigation District (TID and MID or Districts) believe the U.S. Department of Interior Bureau of Land Management (BLM) has interests in public access and use of lands managed by BLM on and near Don Pedro Reservoir. BLM management goals are discussed below.

The BLM Sierra Resource Management Plan (SRMP) was implemented in February 2008 and is nearly identical to the Sierra Proposed SRMP and Final Environmental Impact Statement (EIS) published June 8, 2007. Detailed management resolutions (i.e., management activities, mitigations, and project design features) for public lands are outlined in the SRMP, and some goals are specific to recreation. Two recreation goals outlined in the SRMP are: (1) ensure the continued availability of outdoor recreational opportunities while protecting other resources and uses; and (2) ensure adequate river flows for boating, fishing, swimming, etc. Additionally, five recreation objectives are also detailed: (1) develop recreation management strategies for large blocks of BLM land in wild and scenic river corridors; (2) develop recreation sites that meet public health and safety standards; (3) mitigate conflicts between competing uses; (4) maintain existing visitor center, campground, trail, and day-use facilities to accepted BLM standards; (5) manage recreation for a remote experience on the wild segments of the North Fork American, Tuolumne, and Merced rivers pursuant to the Wild and Scenic Rivers Act (BLM 2008, pp. 26-27).

3.0 Study Goals and Objectives

The goal of the recreation facility condition and public accessibility assessment (the study) is to provide information about any need for maintenance or enhancement of existing recreation facilities to support current and future demand for public recreation in the Project area. The objectives of the study are to:

- Assess the condition of existing developed recreation facilities at the Don Pedro Project;
- Estimate present capacity of recreation facilities at the Project to support present and future demand for public recreation at the Project (i.e., facility carrying capacity); and
- Provide information useful for determining present and future public recreation facility needs for the Project.

4.0 Existing Information and Need for Additional Information

All recreation activities at the Project are managed by the Don Pedro Recreation Agency (DPRA). Operationally, the DPRA is a department within TID. It is an agency sponsored by the Districts and City and County of San Francisco (CCSF). DPRA is managed by a Board of Control. Funding for routine operation and maintenance (O&M) is provided by the recreation fees it charges. Capital funding is provided by the Districts and CCSF.

The Project recreation predominantly occurs at the three developed recreation sites on the reservoir:

- Fleming Meadows Recreation Area;
- Blue Oaks Recreation Area; and
- Moccasin Point Recreation Area.

Developed toilet facilities are operated and maintained at 11 remote locations where recreation use is known to be concentrated. Developed facilities at these 14 locations will be included in this assessment (Figure 1).

DPRA operates and maintains all these developed recreation facilities and routinely assesses the need for and executes maintenance, repair, and replacement. This study will supplement information on existing Project recreation facility condition and accessibility already available from DPRA.

5.0 Study Methods

This study will assess the condition of existing developed recreation facilities within the Don Pedro Project operated by DPRA (Figure 1).

5.1 Study Area

This study will take place at Don Pedro Reservoir in Tuolumne County, California. The study area consists of developed recreation sites and facilities on Don Pedro Reservoir (Figure 1).

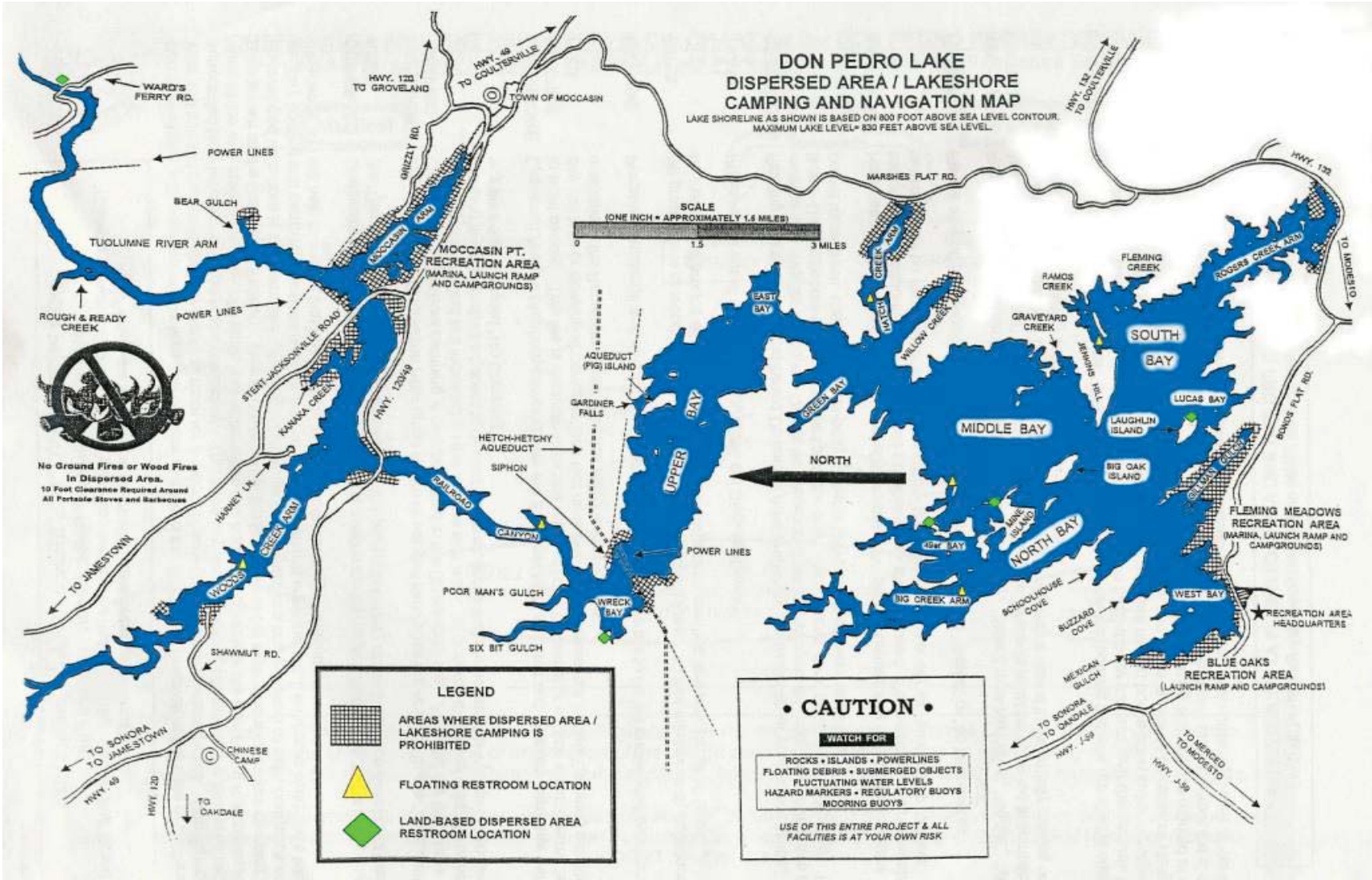

Figure 1 **Developed facilities to be inventoried and evaluated for the Don Pedro Project recreation facility condition and public use assessment.**

5.2 General Concepts and Procedures

The following general concepts apply to the study:

- Personal safety is an important consideration of each fieldwork team. The Districts and their consultants will perform the study in a safe manner.
- The Districts will make a good faith effort to obtain permission to access private property where needed in advance of performance of the study. Field crews may make minor modifications in the field to adjust to and to accommodate actual field conditions and unforeseeable events. Any modifications made will be documented and reported in the draft study reports.

5.3 Study Methods

A recreation facility condition and public accessibility assessment will combine three tasks: 1) facility inventory, 2) facility condition assessment, and 3) accessibility compliance evaluation. Each task is described below.

Facility Inventory

The number and type of recreation facilities at the recreation sites operated by DPRA will be inventoried. Photographs will be taken as appropriate as either a representative photograph of similar facilities or of each one-of-a-kind facility. Facilities of interest include camp sites, picnic sites, restrooms, parking spaces, boat launches, boat docks, marinas, and recreation signs and kiosks.

Facility Condition Assessment

A qualitative assessment of the condition of developed recreation facilities owned and operated by DPRA will be conducted. The assessment categories are poor, fair, and good condition. This assessment will include information on whether the facilities are in working order. Table 1 provides evaluation criteria that will be used for each recreation facility type.

Table 1 Site condition evaluation criteria and rating system.

Variable	0	1	2
	Poor	Fair	Good
Roads and Parking (circulation and condition of surface paving)	All surfaces are in disrepair and need of immediate reconditioning or replacement. Current conditions create safety hazards.	Need for improved maintenance and repair in some areas. No major safety concerns.	All surfaces in generally good condition and well maintained. No rehabilitation required within the next 5-10 years.
Recreation Site Amenities (condition of vehicle spurs, picnic tables, fire ring/grills, boat ramps, etc.)	Facilities require immediate repair or replacement. Little evidence of recent maintenance.	Some facilities damaged or in need of replacement. Could be accommodated through routine maintenance.	Facilities generally in good condition and well maintained.

Variable	0 Poor	1 Fair	2 Good
Recreation Site Buildings (condition of restrooms, maintenance buildings, on-site wastewater disposal, and other structures)	Structures in disrepair requiring immediate attention. Potential for significant rehabilitation. Problems could include rot, leaks, and sagging roofs.	Some structures need minor repairs, such as painting or replacement of roof/shingles. Repairs should be made, but are not needed immediately.	All structures appear in sound, well maintained condition. No significant problems observed.
Signs (presence/condition of project and recreation signs)	Signs do not exist or require immediate repair or replacement.	Some signs damaged or in need of replacement.	Signs generally in good condition and well maintained.
ADA Compliance (presence of accessible facilities)	Little or no consideration for handicap accessibility. Clearly not consistent with ADA guidelines.	Some handicap facilities, but in disrepair or not up to current standards (e.g., slopes too steep, docks inaccessible, etc.)	High quality of accessibility. Facilities appear fully consistent with current ADA guidelines.

Based on the rating of each site component in Table 1, an overall facility evaluation score will be assigned at each site using the following scale:

- Score = 7 to 10: Good condition requiring routine care/maintenance;
- Score = 4 to 6: Fair condition; conditions could be improved by rehabilitation; and
- Score = 0 to 3: Poor condition; rehabilitation work urgently needed.

Accessibility Assessment

Developed recreation facilities operated by DPRA will be assessed for their compliance with current American with Disabilities Act (ADA) standards for accessible design (28 CFR Part 36 1994; U.S. Architectural and Transportation Barriers Compliance Board 2002). Recreation facilities will be assessed for their ability to provide opportunities for persons with disabilities to participate in the Project's primary recreation opportunities (including boating and shore fishing). Privately owned commercial facilities will not be assessed.

6.0 Schedule

The facility condition assessment is planned for spring 2012.

7.0 Consistency of Methodology with Generally Accepted Scientific Practices

The methods presented in this study plan are consistent with those used in recent relicensings in California including most recently for the Merced Irrigation District's Lake McClure and McSwain Reservoir. Additional surveys with similar methodology include the Yuba-Bear/Drum-Spaulding Project's Lake Spaulding, Rollins Reservoir, Bowman Lake, Jackson Meadows Reservoir, Fordyce Lake and Lake Valley Reservoir.

8.0 Deliverables

The Districts will prepare a report on recreation facility condition and public accessibility for inclusion in the Initial Study Report (ISR) to be filed on or before December 21, 2012.

9.0 References

Bureau of Land Management. 2008. Sierra Resource Management Plan and Record of Decision. U.S. Department of the Interior, Bureau of Land Management Mother Lode Field office, El Dorado Hills, California.

U.S. Architectural and Transportation Barriers Compliance Board. 2002. Americans With Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities. Washington, D.C.

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TURLOCK IRRIGATION DISTRICT
AND
MODESTO IRRIGATION DISTRICT

DON PEDRO PROJECT
FERC NO. 2299

Visual Resources Assessment Study Plan

June 2011

1.0 Project Nexus

Turlock Irrigation District's and Modesto Irrigation District's (the Districts) continued operation and maintenance (O&M) of the Don Pedro Project (Project) has a potential to affect visual resources managed by the U.S. Department of Interior Bureau of Land Management (BLM) on federal lands within and adjacent to the Project.

2.0 Resource Management Goals of Agencies with Responsibility for the Resource to be Studied

BLM has interests in federal lands that they manage in and adjacent to the Project; and BLM has established visual resource management goals for these lands. BLM management goals are discussed below. The Districts have identified no other land managing agencies or government jurisdictional authorities with visual resource management goals pertinent to the Project.

In all, there are approximately 4,040 acres of federal lands within the Project Boundary. This represents approximately 22 percent of the total lands within the Project Boundary. These federal lands are part of a larger land unit managed by the BLM in accordance with the Sierra Resource Management Plan (SRMP; BLM 2008). BLM has indentified the lands within the Project Boundary as Visual Resource Management (VRM) areas in the SRMP. In the SRMP, the BLM described the following goals for these lands:

- Protect and enhance the scenic and visual integrity of the characteristic landscapes.
- Maintain the existing visual quality of the Lake Don Pedro/Highway 49 viewshed and the Red Hills ACEC.

The SRMP assigns inventory classes to visual resource areas within the Sierra Resource Management Area (SRMA). Management activities are evaluated in light of the adopted VRM class. The VRM classes within and adjacent to the Project are Class I, Class II, and Class III. Table 1 describes the three classes and the BLM land areas where they are assigned.

Table 1 BLM VRM classes in and adjacent to the Don Pedro Project Boundary.

	Description	Where Assigned
Class I	To preserve the existing character of the landscape. Any change to the characteristic landscape should be very low and must not attract attention.	Tuolumne Wild and Scenic River Corridor
Class II	To retain the existing character of the landscape. Any change to the characteristic landscape should be low.	Red Hills Area of Critical Environmental Concern
Class III	To partially retain the existing character of the landscape. Any change to the characteristic landscape may be moderate.	Lake Don Pedro/Highway 49 viewshed and all other BLM areas not specifically identified as having a particular VRM rating

3.0 Study Goals and Objectives

The goal of this study is to document current visual conditions of the Project as viewed from BLM lands during various times of the year and identify any adverse visual resource effects due to continued operations and maintenance (O&M) of the Project. The objectives of the study are to identify, map, and describe BLM inventories associated with Project facilities and features on public land administered by BLM; and document the existing visual condition (EVC) of all Project facilities and features from associated viewsheds on public land administered by BLM.

4.0 Existing Information and Need for Additional Information

The SRMP identifies and discusses the visual classes assigned to BLM lands within and adjacent to the Project, and adopts management goals for these resources. No specific documentation exists on the inherent aesthetics within these landscapes, or visibility or visual contrast of Project features associated with these BLM lands.

5.0 Study Methods

This study will assess the visual resources of the Don Pedro Project in relation to BLM visual resource management goals.

5.1 Study Area

The study area includes all Project facilities and features on public land administered by BLM, and their associated viewsheds. The viewsheds include travel routes, recreation areas, and water bodies from which the Project facilities and features on BLM-administered public land are visible to the public. Figure 1 identifies BLM-managed lands within and adjacent to the Don Pedro Project Boundary.

5.2 General Concepts and Procedures

The following general concepts apply to the study:

- Personal safety is an important consideration of each fieldwork team. The Districts and their consultants will perform the study in a safe manner.

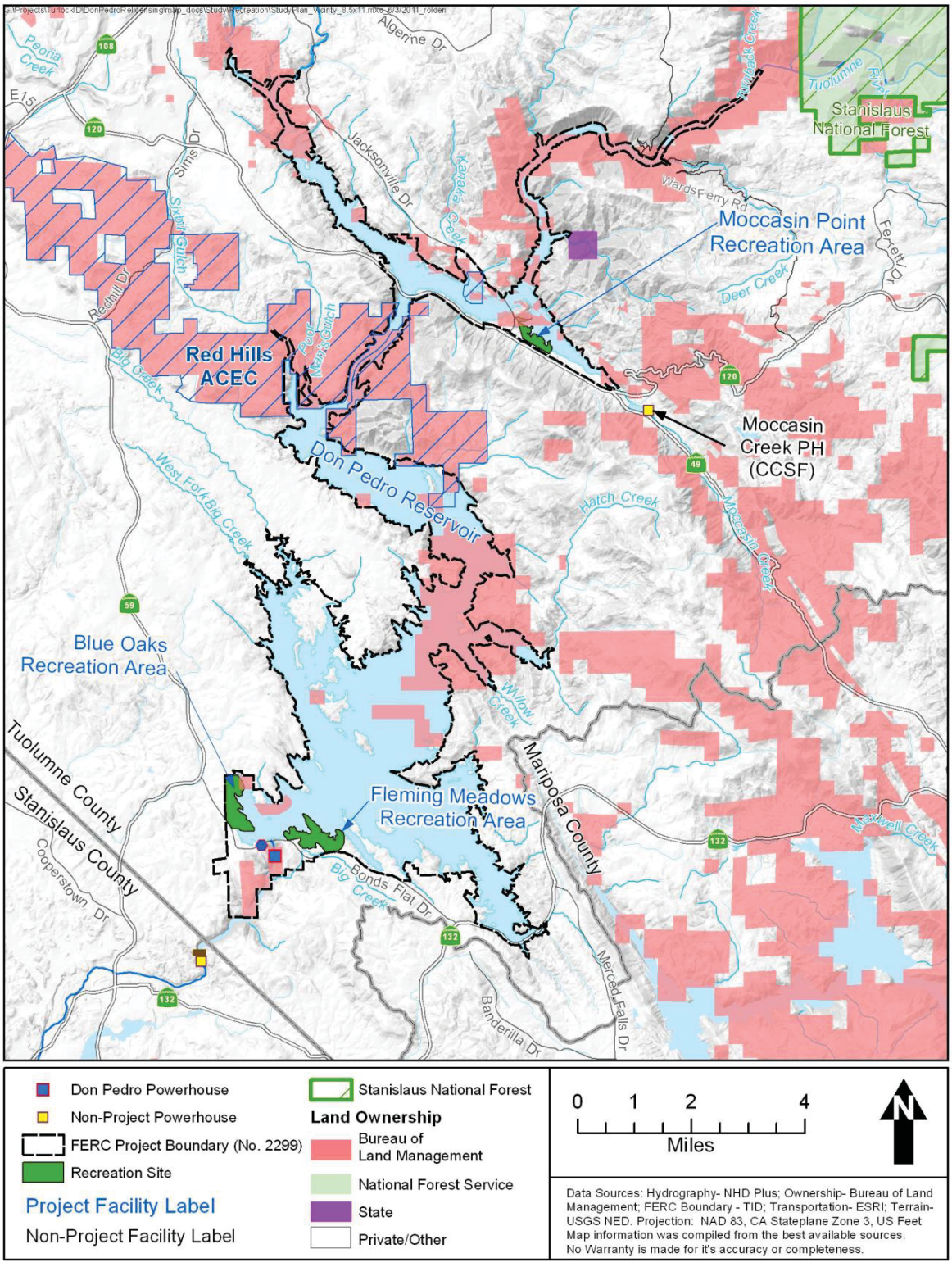

Figure 1 BLM-managed lands within and adjacent to the Don Pedro Project Boundary.

- The Districts will make a good faith effort to obtain permission to access private property where needed in advance of performance of the study. Field crews may make minor modifications in the field to adjust to and to accommodate actual field conditions and unforeseeable events. Any modifications made will be documented and reported in the draft study reports.

5.3 Study Methods

The study methods will follow BLM's VRM, which are described below (BLM 1986a, 1986b).

Step 1 - BLM VRM Inventories. Step 1 will involve identifying the visual resources of the area as viewed from BLM-administered public land. This step includes describing the landscape character of the region associated with the Project and then focusing on landscape character specific to the Project. Information from BLM's visual resource inventory process presented in the SRMP will be used.

Step 2 - Analysis. The analysis stage will involve determining whether the potential visual impacts from the Project, if any, meet the management objectives established for the BLM-administered public land. A visual contrast rating process will be used for this analysis, which involves comparing the Project features on BLM-administered public land with the major features in the existing landscape using the basic design elements of form, line, color, and texture. This process is described in BLM Handbook H-8431-1, Visual Resource Contrast Rating (BLM 1986a). The analysis will be used as a guide for describing any visual impacts. The Districts will:

1. Identify and map representative viewsheds in the study area associated with Project facilities and features. Map and summarize the Visual Resource Objectives (VROs) in the study area identified in the SRMP.
2. Identify and summarize the BLM land management direction associated with the VRM inventories relative to the Project facilities and features. Map the location of Project facilities and features with respect to their associated viewsheds and VRM inventories including VROs, variety classes, sensitivity levels, and distance zones. Photograph Project facilities from agreed upon Key Observation Points (KOPs).

Step 3 - Existing Visual Condition (EVC). The Districts will document the EVC of Project facilities and features on BLM-administered public land. The Districts will identify KOPs and photograph Project facilities and features, map and describe the locations of the KOPs, and photograph Project features (e.g., reservoir) from KOPs at various seasons of the year.

Step 4 - Prepare Report. The Districts will prepare a report that includes the following sections: Study Goals and Objectives; Methods and Analysis; Results; Discussion; and Description of Variances from the FERC-approved study plan, if any.

6.0 Schedule

The visual resources assessment is planned for 2012.

7.0 Consistency of Methodology with Generally Accepted Scientific Practices

The methods presented in this study plan are consistent with BLM's visual resource management protocols and study methods used in recent relicensings in California including most recently for the Merced Irrigation District's Lake McClure and McSwain Reservoir. Additional surveys with similar methodology include the Yuba-Bear/Drum-Spaulding Project's Lake Spaulding, Rollins Reservoir, Bowman Lake, Jackson Meadows Reservoir, Fordyce Lake and Lake Valley Reservoir.

8.0 Deliverables

The Districts will prepare a report on visual resources for inclusion in the Initial Study Report (ISR) to be filed on or before December 21, 2012.

9.0 References

Bureau of Land Management. 1986a. Visual Resource Management BLM Handbook H-8431-1, Visual Resource Contrast Rating.

——. 1986b. Visual Resource Management BLM Handbook H-8410-1, Visual Resource Inventory.

——. 2008. Sierra Resource Management Plan and Record of Decision. U.S. Department of the Interior, Bureau of Land Management Mother Lode Field office, El Dorado Hills, California.

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June 3, 2011

From: Staples, Rose
Sent: Monday, June 06, 2011 8:44 PM
To: Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Subject: Don Pedro Progress Tracking List

The Don Pedro Progress Tracking List, with the new items from the May 18-19 RWG meetings, has been posted to the www.donpedro-relicensing website in the Announcement section under INTRODUCTION!

Rose Staples CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com

Don Pedro Progress Tracking List

Items completed are shaded in gray and will be moved to the CLOSED ITEM worksheet before the next issue of the Progress Tracking List (PTL) is uploaded to the Relicensing Website.
Red Text indicates either NEW items or NEW responses/status updates added since the last upload.
(RP = Relicensing Partipant) - Last Updated 6/06/2011 by R Staples

Item No.	*Souce of Item*	*Item*	*Date Requested*	*Date Due*	*Responsible Party*	*Action Taken/Status*	*Date Closed*
		Items 1-5 Closed					
6	Several RPs	Procedure for managing study plan revisions on the Don Pedro website.	2/28/2011	3/18/2011	Districts	Process for sharing study plan revisions on the Don Pedro website to be described to RPs.	
		Items 7-10 Closed					
11	RPs	Provide a copy of this year's snow surveys used for forecasting.	4/1/2011	n/a	Districts	Districts' response in progress.	
12	RPs	Provide an historic account of the times and duration since project commencement that the reservoir has been into the flood conservation pool during the applicable period-frequency, number of occurrences, duration, and water year type	4/1/2011	n/a	Districts	Districts' response in progress.	
13	RPs	Where, and when, is riparian water used--and how is it separated from storage? Is riparian water the water used on lands that meet the definition of "riparian lands"? Include a map of the lands that are served under a riparian claim. Provide season and amounts of water provided on those lands under claim of riparian right.	4/1/2011	n/a	Districts	Districts' response in progress.	
14	RPs	How long does the reservoir normally stay at the peak elevation it reaches in any year?	4/1/2011	n/a	Districts	Districts' response in progress.	
15	RPs	Provide the unimpaired flows at La Grange and the historical flows at La Grange since the Project began operating.	4/1/2011	n/a	Districts	Districts' response in progress.	

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
16	RPs	Provide copies of the Districts' pre-1914 appropriative rights, as noted or recorded in accordance with the state laws at the time	4/1/2011	n/a	Districts	Districts' response in progress.	
17	RPs	Provide pre-settlement, post-new Don Pedro flows and reservoir elevations similar to which is provided in the PAD for post-settlement	4/1/2011	n/a	Districts	Districts' response in progress.	
18	RPs	What model will be used to develop the Project Operations Model?	4/1/2011	n/a	Districts	Districts' response in progress.	
19	RPs to CCSF	Is there a technical document that describes in some detail the operations of the HHWP?	4/1/2011	n/a	CCSF		
20	RPs to CCSF	What is the projected future water demand estimated by CCSF? Are new water storage resources being planned to meet the demand?	4/1/2011	n/a	CCSF		
21	RPs to CCSF	Provide the historical water bank "account balance" that the Districts have provided CCSF. Also, provide documentation on water bank accounting method.	4/1/2011	n/a	CCSF		
22	RPs to CCSF	Explain how the Don Pedro FERC relicensing process can affect CCSF.	4/1/2011	n/a	CCSF		
23	RPs to CCSF	What compensation does CCSF provide the Districts when CCSF's water bank account has a negative balance?	4/1/2011	n/a	CCSF		
24	RPs to CCSF	Could CCSF provide copies of the water balance reports it sends to the Districts?	4/1/2011	n/a	CCSF		
25	RPs to CCSF	Does CCSF have a water balance model it could share with relicensing participants? Or could CCSF provide portions of its water model to the Districts' water balance model?	4/1/2011	n/a	CCSF		

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
26	RPs to CCSF	What quantity of water in acre feet will CCSF take annually from the river in the next 40 years, compared to same in the last 10 years? What will be the effect on pre-flood releases below Don Pedro?	4/1/2011	n/a	CCSF		
27	Recreation RWG Mtg	Districts were asked to Investigate relationship of the Project Boundary and the downstream Wild & Scenic River Boundary	4/19/2011	n/a	Districts	Districts' response in progress.	
28	Recreation RWG Mtg	Districts were asked to consider performing a "feasibility" or "site suitability" study of relocating or improving current take-out	4/19/2011	4/29/11; extended to 5/05/11, then 5/18/11	Districts	Districts responded via email 5/05/11 that they are reviewing the request and they expect to be able to respond on or before 5/18/11; see #84 for response	
29	Recreation RWG Mtg	NPS to provide new ORV guidelines applicable to the Project area.	4/19/2011	4/29/2011	NPS		
30	Recreation RWG Mtg	Districts' debris maintenance and log-jam removal/management appreciated. Districts were asked if it will continue as part of the new license?	4/19/2011	n/a	Districts	Districts' response in progress.	
		Item 31 closed					
32	Recreation RWG Mtg	Districts were asked if they were planning to prepare a study plan for surveying recreational users to identify unmet demand, satisfaction levels, and need for additional facilities?	4/19/2011	4/29/2011; extended to 5/05/11; then 5/18/11	Districts	Districts responded via email 5/05/2011 that they are reviewing existing raw data and expect to be able to respond to this issue or or before 05/18/11.	
		Item 33 closed					

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
34	Recreation RWG Mtg	Districts were asked to consider the following study needs: (1) boatable flows on lower Tuolumne River (were fishery flows boatable) and possible need for additional put-ins/take-outs, (2) suitability of Wards Ferry take-out, (3) recreational use levels, visitor preferences and satisfaction, unmet demand, (4) existing facility condition assessment, including ADA accessiblility, and (5) visual quality assessment, possibly photo documentation of visual quality at different water levels or landscape features to be brought into future planning of recreation improvements.	4/19/2011	n/a	Districts	See responses to Items 28, 32, 33, 43, and 57.	
35	Recreation RWG Mtg	The Districts were asked if Turlock Lake was stocked; and if so, with what?	4/19/2011	n/a	Districts	Districts' response in progress.	
		Item 36 closed					
37	Cultural RWG Mtg	Consistent standards of investigation must be used from area to area, probably adopt the BLM standards.	4/19/2011	n/a	Districts	Districts' response in progress.	
		Item 38 closed					
39	Cultural RWG Mtg	Agreement should be reached prior to field studies on how to handle discovery of human remains--and human remains on BLM lands. BLM does not delegate responsibility to FERC for handling human remains on BLM lands. The NID/PG&E process was satisfactory, including the providing of site records to BLM, why sites were not evaluated if this were to occur, and the content of Technical Memos.	4/19/2011	n/a	Districts	Districts' response in progress.	
		Item 40 closed					

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
41	Cultural RWG Mtg	James Barnes to give suggestions for how to consider/approach isolets.	4/19/2011	n/a	BLM		
		Items 42-43 closed					
44	Water / Aquatic / Terrestrial RWG Mtg	The question was asked if Turlock Lake and Modesto Reservoir were stocked, by whom, and with what? Also, does Turlock Lake spill into the Tuolumne River?	4/20/2011	n/a	Districts	Districts' response in progress.	
		Item 45 closed					
46	Water / Aquatic / Terrestrial RWG Mtg	The question was asked if pikeminnow populatuion has increased over time? Districts to locate and distribute Tim Ford report developed using known information	4/20/2011	n/a	Districts	Districts' response in progress.	
47	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked to provide a citation for study done for Merced Project relicensing on riffle habitat use.	4/20/2011	n/a	Districts	Districts' response in progress.	
		Items 48-49 closed					
50	Water / Aquatic / Terrestrial RWG Mtg	Question raised about period of time over which O. mykiss tracking occurred?	4/20/2011	n/a	Districts	Districts' response in progress.	
		Item 51 closed					
52	Water / Aquatic / Terrestrial RWG Mtg	It was asked what impact does flow have on moving predators out of prime spawning and rearing habitat?	4/20/2011	n/a	Districts	Districts' response in progress.	

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
53	Water / Aquatic / Terrestrial RWG Mtg	The question was raised about the status of other native species in the lower Tuolumne River (including lamprey, sturgeon, and cyprinids)? It was also noted that reports of sturgeon in the Tuolumne have occurred; this was clarified to be an anecdotal observation by a riparian water user near the Grayson Ranch in late summer.	4/20/2011	n/a	Districts	Districts' response in progress.	
		Items 54-57 closed					
58	Water / Aquatic / Terrestrial RWG Mtg	Districts were advised to consider the relationship between pollinator species, vernal pools, and special-status plants.	4/20/2011	n/a	Districts	Districts to consider modifying the current study plan.	
59	Water / Aquatic / Terrestrial RWG Mtg	Concern was raised about effect of dispersed recreation on sensitive areas (e.g. serpentine soils). Consider modifying current plan?	4/20/2011	n/a	Districts	Districts' response in progress.	
		Items 60-64 closed					
65	Water / Aquatic / Terrestrial RWG Mtg	It was indicated that the Districts would likely be asked for a PM&E measure for periodic eagle monitoring. It was asked if the Districts would accept this; and if so, it would obviate the need for study now.	4/20/2011	n/a	Districts	Districts' response in progress.	
66	Water / Aquatic / Terrestrial RWG Mtg	Regarding water quality study plan, Is oxidation-reduction occuring at reservoir bottom?	4/20/2011	n/a	Districts	Districts' response in progress.	
67	Water / Aquatic / Terrestrial RWG Mtg	Regarding water quality study plan, will reservor bathymetry be able to distinquish original ground from sediment?	4/20/2011	n/a	Districts	Districts' response in progress.	

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
68	Water / Aquatic / Terrestrial RWG Mtg	Districts should consider getting ADCP readings between old Don Pedro and the new Don Pedro.	4/20/2011	n/a	Districts	Districts' response in progress.	
		Items 69-73 closed					
74	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked to plot escapement vs total acre-feet released to the lower Tuolumne.	4/20/2011	n/a	Districts	Districts' response in progress.	
		Item 75 closed					
76	Water / Aquatic / Terrestrial RWG Mtg	It was mentioned that other potential data gaps were (1) potential to improve salmon success if timing of fall impulse flows were adjusted for actual water temperatures, (2) relationship between predation and water temperature, and (3) possible accoustic tagging of bass to track movements under different temperature and flow regimes.	4/20/2011	n/a	Districts	Districts' response in progress.	
		Items 77-78 closed					
79	**Cultural RWG Mtg**	**Provide redline and clean copy of next revision of both Historic Properties and TCP study plans incorporating changes discussed at 5/18/11 meeting.**	**5/18/2011**	**6/3/2011**	**Districts**	**Districts to revise both Historic Properties and TCP study plan.**	
80	**Cultural RWG Mtg**	**R Fuller to provide information on preferred process for handling of human remains to be included in Study Plan.**	**5/18/2011**	**6/10/2011**	**R Fuller**	**D Risse, HDR, to follow up.**	
81	**Cultural RWG Mtg**	**F Winchell, FERC, requested that Districts send a separate letter to FERC requesting Section 106 designation of authority for Section 106 consultation.**	**5/18/2011**	**6/10/2011**	**HDR**	**Districts requested such designation in its NOI, but will send separate letter.**	
82	**Recreation RWG Mtg**	**Work group members are planning to request a visitor use survey.**	**5/18/2011**	**6/10/2011**	**Work Group RPs**	**Districts will respond in the July 25, 2011 Proposed Study Plan (PSP).**	

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
83	Recreation RWG Mtg	Districts asked to provide 2002/2003 recreation user survey DPRA conducted.	5/18/2011	6/3/2011	Districts	Completed; information posted.	
84	Recreation RWG Mtg	RPs asked Districts to confirm they would prepare a study plan of assessing improvements to the Wards Ferry takeout.	5/18/2011	6/3/2011	Districts	This was confirmed in the May 18th meeting (see PTL #28); the Districts also indicated they would not have a draft study plan issued before 06/10/2011.	
85	Recreation RWG Mtg	RPs asked if Facility Study Assessment Study Plan draft would be issued by June 3.	5/18/2011	6/3/2011	Districts	Districts uploaded draft study plan on 06/03/2011.	
86	Recreation RWG Mtg	Lower Tuolumne River boating study scope.	5/18/2011	7/25/2011	Districts	P Koepele to provide related information. Boating study may extend from Route 132 bridge to Turlock Lake State Park. Legion Park is an undesirable put-in because of the old Dennet Dam remnants.	
87	Water/Aquatic RWG Meeting	Don Pedro bathymetry work: A separate conference call was agreed-upon to discuss the ongoing bathymetry work.	5/19/2011	6/2/2011	Districts	Districts issued the data gathering proctocol on May 27th and held a conference call on June 2. R Kranz and A Manji participated. Districts agreed to issue a redline version of the May 27th protocol to clarify/describe questions raised.	
88	Water/Aquatic RWG Meeting	Reservoir 3-D Model: RPs raised three concerns to be addressed in the July 25 Proposed Study Plan (PSP): (1) ease of use/compulational time frame, (2) accuracy, and (3) ability for RPs to make model runs	5/19/2011	7/25/2011	Districts	Districts will respond in the July 25, 2011 Proposed Study Plan (PSP).	
89	Water/Aquatic RWG Meeting	Temperature Modeling: RPs raised a question of whether the reach of river between Don Pedro Dam and La Grange Dam will be modified and if additional temperature data needs to be collected in this reach	5/19/2011	7/25/2011	Districts	Districts will respond in the July 25, 2011 Proposed Study Plan (PSP).	

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
90	Water/Aquatic RWG Meeting	Operations Modeling: A question was asked whether the Districts would consider use of HEC RESSIM model instead of the Excel platform proposed.	5/19/2011	7/25/2011	Districts	Districts to consider and will respond.	
91	Water/Aquatic RWG Meeting	CEQA information: RPs noted that CEQA requires addressing the new greenhouse gas regulations.	5/19/2011	No date	Districts		
92	Water/Aquatic RWG Meeting	RPs reported that flows greater than 6,000 cfs affect Lower Tuolumne River farmland. Farmers asked how and when decisions are made on flow releases.	5/19/2011	No date	Districts		
93	Terrestrial RWG Meeting	Scope of Terrestrial-based study plans.	5/19/2011	7/25/2011	Districts & RPs	Districts are proposing to conduct studies where there are Project effects, not every acre inside the Project Boundary. RPs may not agree. Districts to develop a Project Affects map for discussion at the June 21 RWG meeting.	
94	Terrestrial RWG Meeting	Extent of dispersed recreational use.	5/19/2011	7/25/2011	Districts	Dispersed recreational areas priminarily defined as areas that are both "usable and accessible". Districts to provide further definition.	
95	Terrestrial RWG Meeting	BLM asked if an invasive species or special-status species were located, would the Districts document the entire population?	5/19/2011	7/25/2011	Districts	Districts responded that "in general-yes" and would include further confirming language in the July 25, 2011 Proposed Study Plan.	

Don Pedro Progress Tracking List

CLOSED ITEMS

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
1	RP	Poll of RPs for meeting availability and resource area interests.	2/28/2011	3/8/2011	Districts	Created Doodle Poll questionaire and sent it to RPs via email on 3/2/2011. Responses due 03/07/2011. Poll completed 03/07/2011; 2011 meeting dates announced to RPs via email on 03/15/2011 and have been posted on website calendar	5/13/2011
2	CSPA; CDFG; and TRT	Use of an independent facilitator.	2/28/2011	n/a	n/a	Request documented; Districts' response emailed to RPs on 03/07/2011.	5/13/2011
3	Several RPs	Alternating the meeting locations for future meetings.	2/28/2011	3/11/2011	Districts	Request for alternating meeting locations to be considered. Districts' response emailed to RPs on 03/15/2011.	5/13/2011
4	Several RPs	Use of web conferencing as part of future meetings.	2/28/2011	3/11/2011	Districts	Request for web conferencing as part of the meeting to be considered. Districts' response emailed to RPs on 03/15/2011.	5/13/2011
5	NGOs	RPs not to have to pay for PAD reproduction costs.	2/28/2011	3/11/2011	Districts	Request for RPs not to have to pay for PAD reproduction costs to be considered. Districts' response emailed to RPs on 03/15/2011	5/13/2011
7	Several RPs	Exhibit G or other Project Boundary Maps for tailwater and Gasburg Creek areas.	2/28/2011	3/11/2011	Districts	Project Boundary Maps to be uploaded to the Don Pedro website. Two Project Boundary maps (showing area below the Don Pedro Dam) have been uploaded and RPs advised via email 03/15/2011.	5/13/2011

8	Districts	RP review of Relicensing Participants List in PAD (Appendix B) to identify additional parties interested in the relicensing.	2/28/2011	3/18/2011	RPs	RPs to advise Districts of additional interested parties and their contact information, if known. Additional names have been received and added to the Relicensing Participants Contact Email List	5/13/2011
9	NHI	"Discussion of Cummulative Impacts" to be an agenda item for the April 19-20 meeting.	2/28/2011	04/19-20/2011	Districts	"Discussion of Cummulative Impacts" to be added to the agenda for the April 19-20 RP meeting. Project effects were discussed at the April 19-20 RWG meetings	5/13/2011
10	RPs	Uploading of Meeting Slides to the Don Pedro ebsite.	2/28/2011	3/11/2011	Districts	Slides used at the Feb 28 RP meeting to be uploaded to the Don Pedro website. Meeting presentation slides have been uploaded and RPs advised via email 03/15/2011	5/13/2011
31	Recreation RWG Mtg	The question was asked that if dispersed recreational use was found to be impacting rare or sensitive plant areas, would Districts restrict such use?	4/19/2011	n/a	Districts	Districts responded to this during the meeting, noting that the new license application is likely to contain identification of unique or sensitive habitats, and it is not uncommon to restrict recreation access to those areas. In fact, some areas of the reservoir shoreline are already restricted.	
33	Recreation RWG Mtg	Districts were asked if the current flows on the lower Tuolumne are boatable and compatible with other uses (fishing)?	4/19/2011	n/a	Districts	Districts responded via email 5/05/11.	
36	Cultural RWG Mtg	Study plan should include the requirement for field investigators to have California archaeology experience.	4/19/2011	n/a	Districts	Study plan will include.	
38	Cultural RWG Mtg	James Barnes, BLM archaeologist, should be copied on all correspondence with the SHPO regarding Section 106 consultation.	4/19/2011	n/a	Districts	Will occur.	
40	Cultural RWG Mtg	It was suggested that the Districts visit the newly opened UC Davis collection.	4/19/2011	n/a	Districts	Districts will do.	

42	Cultural RWG Mtg	It was emphasized that "protect and preserve is the goal".	4/19/2011	n/a	Districts	Districts acknowledge this goal.	
43	Water / Aquatic / Terrestrial RWG Mtg	It was asked if it was the Districts' intention to perform a study that would develop a clear understanding of how flow relates to other stressors to the anadromous fisheries? Or perform a "limiting factors analysis" of each salmon life stage compared to individual stressors?	4/20/2011	4/29/2011; extended to 5/05/2011	Districts	Districts responded via email 5/05/11.	
45	Water / Aquatic / Terrestrial RWG Mtg	The qustion was asked where did the population of rainbow trout in La Grange Reservoir come from?	4/20/2011	n/a	Districts	It was noted at the meeting that no one knew the origin of this population..	
48	Water / Aquatic / Terrestrial RWG Mtg	It was pointed out that CDFG recently issued a draft EIR on section dredging that was still open for comment.	4/20/2011	n/a	n/a	No action required.	
49	Water / Aquatic / Terrestrial RWG Mtg	R Kanz requested a copy of the ongoing IFIM study plan be forwarded to him. It was also asked if any disease studies been conducted on anadromous fish in the Tuolumne River? CDFG to look into this and respond.	4/20/2011	n/a	Districts & CDFG	Districts to forward copy of ongoing IFIM study plan to R Kanz.	
51	Water / Aquatic / Terrestrial RWG Mtg	The question was asked if a study should be undertaken to determine effect on predator location in river with changing water temperature?	4/20/2011	n/a	Districts	N Hume responded during the meeting that he believed this could be addressed with existing data.	

54	Water / Aquatic / Terrestrial RWG Mtg	Question raised about the status of mussels in the lower Tuolumne River? Is this a data gap? It was reported that anecdotal observations were that prior to 1995 there were many mussels in the river and that now there are very few. Idea was offered that stranding may be a potential cause. It was pointed out that the Project no longer peaks, but RPs noted that flows change in accordance with seasonal downstream flow requirements.	4/20/2011	n/a	Districts	The Districts responded via email 5/05/11.	
55	Water / Aquatic / Terrestrial RWG Mtg	Districts were encouraged to refer to counties' weed watch list for additional information on invasive weeds.	4/20/2011	n/a	Districts	Districts will contact counties.	
56	Water / Aquatic / Terrestrial RWG Mtg	Districts were advised to refer to a study of cottonwoods in the Central Valley.	4/20/2011	n/a	Districts	The Districts advised in the meeting that this study, performed by Stella et al, was summarized in the PAD.	
57	Water / Aquatic / Terrestrial RWG Mtg	It was pointed out that the Districts were not proposing to perform a study dedicated to wetlands mapping and the potental project effects on wetlands. RPs wondered if this would not be needed/useful	4/20/2011	4/29/2011; extended to 5/05/2011	Districts	The Districts responded via email 5/05/11.	
60	Water / Aquatic / Terrestrial RWG Mtg	Concern about proposed size of areas to be studied around project facilities.	4/20/2011	na/a	Districts	Districts responded during the meeting that a possible approach to coming to site-specific agreement would be for BLM staff to join field investigators in the field to perform beta testing of appropriate area to study based on actual site observations. Study would have to be modified to indicate such an approach. It was noted that BLM may have limited staff time.	

61	Water / Aquatic / Terrestrial RWG Mtg	Districts were advised that the protocols for CRLF that were in the YT/DS study plan were acceptable.	4/20/2011	n/a	Districts	No response required.	
62	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked to upload copy of proposed WPT protocols to the website	4/20/2011	n/a	Districts	Districts will do.	
63	Water / Aquatic / Terrestrial RWG Mtg	Zac Jackson to forward report which included observations of WPT downstream of the project.	4/20/2011	n/a	USFWS	The report has been forwarded.	
64	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked to Include Critical Habitat maps in the ESA study plan.	4/20/2011	n/a	Districts	At the meeting, the Districts agreed to include Critical Habitat maps in the study plan.	
69	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked if there would be a separate study plan for the 3D temperature model development?	4/20/2011	n/a	Districts	The Districts are developing a study plan for the 3D temperature model development.	
70	Water / Aquatic / Terrestrial RWG Mtg	It was suggested the Districts get data on flows and temps in Moccasin Creek; thought CCSF would have it?	4/20/2011	n/a	Districts	Districts will do.	
71	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked if they would prepare a Study Plan for a Socioeconomic Study? It was suggested it would be needed for CEQA.	4/20/2011	4/29/2011; extended to 5/05/2011	Districts	Districts responded via email 5/05/11.	
72	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked if they planned to conduct an analysis of projected population growth and irrigination use compared to their water rights? Study potential effects of such growth on water quality (due to less water being in the river)	4/20/2011	4/29/2011; extended to 5/05/2011	Districts	Districts responded via email 05/05/11.	

73	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked if they were going to evaluate benefits to fisheries with more flow being released to the river. Suggested that high-flow benefits was a data gap.	4/20/2011	n/a	Districts	Districts indiciated in meeting that the current IFIM study is investigating that issue. Also, data from prior monitoring could also address that question.	
75	Water / Aquatic / Terrestrial RWG Mtg	It was suggested that a data gap existed as no data on number of salmon emerging from the gravel and the number leaving the Tuolumne.	4/20/2011	n/a	Districts	Districts responded in the meeting that they were uncertain how a one- or two-year study of this would inform any such gap, nor could they think of how to conduct such a study, nor could RPs when asked	
77	Water / Aquatic / Terrestrial RWG Mtg	The Districts were asked if they were planning any reservoir fish population studies?	4/20/2011	n/a	Districts	Districts responded in the meeting that the reservoir fishery included both good cold and warm water fishery and both were healthy and viable based on the data it had. Reservoir fishery is primarily a stocked fishery. Because there was no evidence of a problem, therefore no apparent Project effect, the study would not be justified under the ILP.	
78	Water / Aquatic / Terrestrial RWG Mtg	It was requested the Districts provide a GIS layer describing the Project Boundary to the BLM.	4/20/2011	n/a	Districts	Districts will do.	

Rose Staples
HDR|DTA
Direct: 207-2

From: Staples, Rose on behalf of Devine, John
Sent: Wednesday, June 15, 2011 2:23 PM
To: Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis-Reggie-PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Subject: Don Pedro Project RWG Meetings Scheduled for June 21-22

Don Pedro Relicensing Participants,

Due to the large number of comments and study requests received (over 50 filings and 75 study requests with some still trickling in), it is necessary for the Districts to devote their time to responding to the study requests and preparing our Proposed Study Plan (PSP) document. ***Therefore, we are cancelling the RP meetings originally scheduled for next week.*** *Over the next 45 days, if we have questions regarding individual study requests, we may communicate directly with the study requestor for clarification.*

We look forward to continuing to work with all Relicensing Participants throughout the 90-day period following our scheduled July 25 PSP submittal to discuss and revise, as appropriate, the PSP.

Thank you for your understanding on this matter.

John Devine, P.E.
Senior Vice President
HDR|DTA
970 Baxter Blvd, Suite 301| Portland, ME | 04103
Office: 207.775.4495 | Fax: 207.775.1742
Cell: 207-776-2206
Durango, CO: 970-385-4995

From: Staples, Rose
Sent: Thursday, June 16, 2011 7:55 PM
To: Alves, Jim - City of Modesto; Anderson, Craig - USFWS; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Brochini, Tony - NPS; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis-Reggie-PRCI; Linkard, David - TRT /RH; Loy, Carin; Lwenya, Roselynn, BVR; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - PRCI; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Vasquez, Sandy ; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Subject: Don Pedro Website Upload Today Include Updated PTL and Revised RedLine Bathymetry Study Plan

I have uploaded to the Don Pedro Relicensing Website today an updated Progress Tracking List (PTL) with some Districts and CCSF responses. In addition, I have uploaded a red-line version of the

Bathymetry Study Plan, which reflects suggestions and comments received from the Relicensing Participants during the June 2 Bathymetry Study Plan conference call.

Both of these documents, and attachments to the PTL, can be found as the first two ANNOUNCEMENTS on the INTRODUCTION page of the website www.donpedro-relicensing.com.

Rose Staples CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com

Don Pedro Progress Tracking List

Items completed are shaded in gray and will be moved to the CLOSED ITEM worksheet before the next issue of the Progress Tracking List (PTL) is uploaded to the Relicensing Website.
Red Text indicates either NEW items or NEW responses/status updates added since the last upload.
(RP = Relicensing Participant) - Last Updated 6/16/2011 by R Staples

Item No.	*Source of Item*	*Item*	*Date Requested*	*Date Due*	*Responsible Party*	*Action Taken/Status*	*Date Closed*
		Items 1-5 Closed					
6	Several RPs	Procedure for managing study plan revisions on the Don Pedro website.	2/28/2011	3/18/2011	Districts	Process for sharing study plan revisions on the Don Pedro website to be described to RPs.	
		Items 7-10 Closed					
11	RPs	Provide a copy of this year's snow surveys used for forecasting.	4/1/2011	n/a	Districts	**Snow survey data are from the DWR CDEC website. The Districts and CCSF help pay for that information, but DWR does the forecasting. Http://cdec.water.ca.gov/snow/current/snow/. A spreadsheet of historic values accompanies this tracking list.**	
12	RPs	Provide an historic account of the times and duration since project commencement that the reservoir has been into the flood conservation pool during the applicable period-frequency, number of occurrences, duration, and water year type.	4/1/2011	n/a	Districts	**A spreadsheet containing the requested information accompanies this tracking list.**	
13	RPs	Where, and when, is riparian water used--and how is it separated from storage? Is riparian water the water used on lands that meet the definition of "riparian lands"? Include a map of the lands that are served under a riparian claim. Provide season and amounts of water provided on those lands under claim of riparian right.	4/1/2011	n/a	Districts	The Districts' response is in progress.	

Item No.	Source of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
14	RPs	How long does the reservoir normally stay at the peak elevation it reaches in any year?	4/1/2011	n/a	Districts	In average to wet years, and depending on runoff rates, Don Pedro reaches its maximum level for the year between the last week in June and the second week in July--and then starts to drop off quickly due to the runoff ending and releases for irrigation increasing. The reservoir remains at its highest level for the year for a very short period, from a day to a week.	
15	RPs	Provide the unimpaired flows at La Grange and the historical flows at La Grange since the Project began operating.	4/1/2011	n/a	Districts	The two spreadsheets containing the requested information accompanies this tracking list.	
16	RPs	Provide copies of the Districts' pre-1914 appropriative rights, as noted or recorded in accordance with the state laws at the time.	4/1/2011	n/a	Districts	Districts' response in progress.	
17	RPs	Provide pre-settlement, post-new Don Pedro flows and reservoir elevations similar to which is provided in the PAD for post-settlement.	4/1/2011	n/a	Districts	See answer to Item 15 for flows. A spreadsheet containing the requested reservoir information also accompanies this tracking list.	
18	RPs	What model will be used to develop the Project Operations Model?	4/1/2011	n/a	Districts	This topic was discussed at the May 19 Aquatic/Water RWG meeting. The Districts will prepare and submit a Proposed Study Plan in its July 25 PSP.	
19	RPs to CCSF	Is there a technical document that describes in some detail the operations of the HHWP?	4/1/2011	n/a	CCSF	See the Regional Water System Hetch Hetchy Water&Power Operations Plan (URS 2006) at https://infrastructure.sfwater.org/fds/fds.aspx?lib=HHWP&doc=127205&data=39560755	

Item No.	Source of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
20	RPs to CCSF	What is the projected future water demand estimated by CCSF? Are new water storage resources being planned to meet the demand?	4/1/2011	n/a	CCSF	See the Draft 2010 UWMP at http://sfwater.org/mto_main.cfm/MC_ID/13/MSC_ID/165/MTO_ID/286	
21	RPs to CCSF	Provide the historical water bank "account balance" that the Districts have provided CCSF. Also, provide documentation on water bank accounting method.	4/1/2011	n/a	CCSF	See attached "Response 21" for Instructions for Water Bank Accounting document (CCSF&Districts, 1971)	
22	RPs to CCSF	Explain how the Don Pedro FERC relicensing process can affect CCSF.	4/1/2011	n/a	CCSF	See attached "Response 22" for ALJ process testimony. Also see FEIS for Reservoir Release Requirement at Don Pedro; and pages 2-36 to 2-39, and page 2-42 to 2-43 of WSIP PEIR at http://sfwater.org/Project.cfm/MC_ID/35/MSC_ID/393/MTO_ID/649/PRJ_ID/216	
23	RPs to CCSF	What compensation does CCSF provide the Districts when CCSF's water bank account has a negative balance?	4/1/2011	n/a	CCSF	MID-TID have only consented once to SF request to "go negative" in the water bank through the history of the Project. See attached "Response 23".	
24	RPs to CCSF	Could CCSF provide copies of the water balance reports it sends to the Districts?	4/1/2011	n/a	CCSF	See attached "Response 24" for water bank accounting.	
25	RPs to CCSF	Does CCSF have a water balance model it could share with relicensing participants? Or could CCSF provide portions of its water model to the Districts' water balance model?	4/1/2011	n/a	CCSF	Yes, a watershed-wide water balance model is being developed.	

Item No.	Source of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
26	RPs to CCSF	What quantity of water in acre feet will CCSF take annually from the river in the next 40 years, compared to same in the last 10 years? What will be the effect on pre-flood releases below Don Pedro?	4/1/2011	n/a	CCSF	**See the Draft 2010 UWMP at http://sfwater.org/mto_main.cfm/MC_ID/13/MSC_ID/165/MTO_ID/286 and the WSIP PEIR at http://sfwater.org/Project.cfm/MC_ID/35/MSC_ID/393/MTO_ID/649/PRJ_ID/216**	
27	Recreation RWG Mtg	Districts were asked to Investigate relationship of the Project Boundary and the downstream Wild & Scenic River Boundary.	4/19/2011	n/a	Districts	**The Districts can confirm that the Wild and Scenic Boundary overlaps into the Project Boundary, but not to Ward's Ferry. The Districts are continuing to seek more precise information.**	
28	Recreation RWG Mtg	Districts were asked to consider performing a "feasibility" or "site suitability" study of relocating or improving current take-out.	4/19/2011	4/29/11; extended to 5/05/11, then 5/18/11	Districts	**In the May 18 Recreation RWG meeting, the Districts agreed to including this study in the PSP to be filed on July 25.**	
29	Recreation RWG Mtg	NPS to provide new ORV guidelines applicable to the Project area.	4/19/2011	4/29/2011	NPS	**At the May 18 Recreation RWG meeting, NPS to provide guidelines prior to June 10.**	
30	Recreation RWG Mtg	Districts' debris maintenance and log-jam removal/management appreciated. Districts were asked if it will continue as part of the new license?	4/19/2011	n/a	Districts	**FERC will determine the new license's terms. The Districts are likely to continue their current practices.**	
		Item 31 closed					
32	Recreation RWG Mtg	Districts were asked if they were planning to prepare a study plan for surveying recreational users to identify unmet demand, satisfaction levels, and need for additional facilities?	4/19/2011	4/29/2011; extended to 5/05/11; then 5/18/11	Districts	**The Districts will post information to the website by May 20 for RPs to review.**	
		Items 33-34 closed					

Item No.	Source of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
35	Recreation RWG Mtg	The Districts were asked if Turlock Lake was stocked; and if so, with what?	4/19/2011	n/a	Districts	**The Department of Fish and Game stocks catchable rainbows in this lake from April through October, normally a time when plants in low elevation reservoirs are suspended, because the water entering the lake from the Tuolumne River at La Grange Dam keeps the lake relatively cool. The DFG plants 5,000 pounds of rainbows annually in Turlock Lake. The trout are raised at the Moccasin Creek Fish Hatchery. Also, Allison Boucher reports that only rainbow trout are stocked, no warm water species.**	
		Item 36 closed					
37	Cultural RWG Mtg	Consistent standards of investigation must be used from area to area, probably adopt the BLM standards.	4/19/2011	n/a	Districts	**Historic Properties and TCP Study Plans have been revised to specify that the BLM guidelines will be followed.**	
		Item 38 closed					
39	Cultural RWG Mtg	Agreement should be reached prior to field studies on how to handle discovery of human remains--and human remains on BLM lands. BLM does not delegate responsibility to FERC for handling human remains on BLM lands. The NID/PG&E process was satisfactory, including the providing of site records to BLM, why sites were not evaluated if this were to occur, and the content of Technical Memos.	4/19/2011	n/a	Districts	**The Districts are working with the tribes and agencies to revise the language in the study plans regarding discovery of human remains.**	
		Item 40 closed					
41	Cultural RWG Mtg	James Barnes to give suggestions for how to consider/approach isolets.	4/19/2011	n/a	BLM	**The Districts are working with James Barnes to include an appropriate definition of isolets to be issued for the Historic Properties Study Plan.**	

Item No.	Source of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
		Items 42-43 closed					
44	Water / Aquatic / Terrestrial RWG Mtg	The question was asked if Turlock Lake and Modesto Reservoir were stocked, by whom, and with what? Also, does Turlock Lake spill into the Tuolumne River?	4/20/2011	n/a	Districts	**See response to Item #35.**	
		Item 45 closed					
46	Water / Aquatic / Terrestrial RWG Mtg	The question was asked if pikeminnow population has increased over time? Districts to locate and distribute Tim Ford report developed using known information.	4/20/2011	n/a	Districts	Districts' response in progress.	
47	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked to provide a citation for study done for Merced Project relicensing on riffle habitat use.	4/20/2011	n/a	Districts	**Allison Boucher provided the citation.**	
		Item 48 closed					
49	Water / Aquatic / Terrestrial RWG Mtg	R Kanz requested a copy of the ongoing IFIM study plan be forwarded to him. It was also asked if any disease studies been conducted on anadromous fish in the Tuolumne River? CDFG to look into this and respond.	4/20/2011	n/a	Districts & CDFG	**A copy of the IFIM plan has been posted to the Relicensing Website. CDFG's response is in progress.**	
50	Water / Aquatic / Terrestrial RWG Mtg	Question raised about period of time over which O. mykiss tracking occurred?	4/20/2011	n/a	Districts	**Tracking of six O. mykiss during 2010 was done from April 1 to November 1. The study results are contained in Volume II of the Don Pedro PAD (Page 5-115).**	
		Item 51 closed					
52	Water / Aquatic / Terrestrial RWG Mtg	It was asked what impact does flow have on moving predators out of prime spawning and rearing habitat?	4/20/2011	n/a	Districts	Districts' response in progress.	

Item No.	Source of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
53	Water / Aquatic / Terrestrial RWG Mtg	The question was raised about the status of other native species in the lower Tuolumne River (including lamprey, sturgeon, and cyprinids)? It was also noted that reports of sturgeon in the Tuolumne have occurred; this was clarified to be an anecdotal observation by a riparian water user near the Grayson Ranch in late summer.	4/20/2011	n/a	Districts	**Locations of all fish species encountered during all seining, snorkel, RST, and other surveys have been documented. FERC Report 2002-9 includes a detailed assessment of flow and resident fish communities by Ford and Brown (2002). No corroboration of sturgeon observations has been made by routine sampling or other sources.**	
		Items 54-57 closed					
58	Water / Aquatic / Terrestrial RWG Mtg	Districts were advised to consider the relationship between pollinator species, vernal pools, and special-status plants.	4/20/2011	n/a	Districts	Districts to consider modifying the current study plan.	
59	Water / Aquatic / Terrestrial RWG Mtg	Concern was raised about effect of dispersed recreation on sensitive areas (e.g. serpentine soils). Consider modifying current plan?	4/20/2011	n/a	Districts	Districts' response in progress.	
		Items 60-64 closed					
65	Water / Aquatic / Terrestrial RWG Mtg	It was indicated that the Districts would likely be asked for a PM&E measure for periodic eagle monitoring. It was asked if the Districts would accept this; and if so, it would obviate the need for study now.	4/20/2011	n/a	Districts	Districts' response in progress.	
66	Water / Aquatic / Terrestrial RWG Mtg	Regarding water quality study plan, Is oxidation-reduction occurring at reservoir bottom?	4/20/2011	n/a	Districts	**The Study Plan will add a field measurement of oxidation-reduction to the Study Plan for hypolimnion samples, where physically practical. Don Pedro's great depth poses logistic difficulties for sampling water within centimeters of the bottom sediments.**	

Item No.	Source of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
67	Water / Aquatic / Terrestrial RWG Mtg	Regarding water quality study plan, will reservoir bathymetry be able to distinguish original ground from sediment?	4/20/2011	n/a	Districts	**The type of bathymetric survey which we are performing will not provide detailed sedimentation estimates. We can get a general idea by comparing the existing operations reservoir stage/elevation and volume table to the area/capacity curve that we develop using the new bathymetric model, but a direct comparison would not be precise.**	
68	Water / Aquatic / Terrestrial RWG Mtg	Districts should consider getting ADCP readings between old Don Pedro and the new Don Pedro.	4/20/2011	n/a	Districts	**The Districts will consider getting ADCP readings at this location. ADCP readings could be useful to determine if there are any velocity gradients that exist over the old dam, and if any eddying/mixing is occurring downstream of the old dam. Key consideration will be (1) to determine whether or not ADCP is reliable at the depths that would be required here, (2) the feasibility of obtaining measurements at several reservoir elevations (the dynamics of flow over that old dam will change drastically depending on the depth of water over it, and (3) if it would be more straightforward to simply be sure to take several temperature profiles upstream, at and below the old dam, to get an understanding for the thermal mixing dynamics.**	
		Items 69-73 closed					

Item No.	Source of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
74	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked to plot escapement vs total acre-feet released to the lower Tuolumne.	4/20/2011	n/a	Districts	**Plots of escapement vs lagged flow (flow 3 years prior to a given run) are under preparation (a) period of record (b) since the completion of New Pedro Dam (escapement from 1974 to 2010 vs flows from 1971-2007).**	
		Item 75 closed					
76	Water / Aquatic / Terrestrial RWG Mtg	It was mentioned that other potential data gaps were (1) potential to improve salmon success if timing of fall impulse flows were adjusted for actual water temperatures, (2) relationship between predation and water temperature, and (3) possible acoustic tagging of bass to track movements under different temperature and flow regimes.	4/20/2011	n/a	Districts	Districts' response in progress.	
		Items 77-78 closed					
79	Cultural RWG Mtg	Provide redline and clean copy of next revision of both Historic Properties and TCP study plans incorporating changes discussed at 5/18/11 meeting.	5/18/2011	6/3/2011	Districts	Districts to revise both Historic Properties and TCP study plan.	
80	Cultural RWG Mtg	R Fuller to provide information on preferred process for handling of human remains to be included in Study Plan.	5/18/2011	6/10/2011	R Fuller	D Risse, HDR, to follow up.	
81	Cultural RWG Mtg	F Winchell, FERC, requested that Districts send a separate letter to FERC requesting Section 106 designation of authority for Section 106 consultation.	5/18/2011	6/10/2011	HDR	Districts requested such designation in its NOI, but will send separate letter.	
82	Recreation RWG Mtg	Work group members are planning to request a visitor use survey.	5/18/2011	6/10/2011	Work Group RPs	Districts will respond in the July 25, 2011 Proposed Study Plan (PSP).	
83	Recreation RWG Mtg	Districts asked to provide 2002/2003 recreation user survey DPRA conducted.	5/18/2011	6/3/2011	Districts	Completed; information posted.	

Item No.	Source of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
84	Recreation RWG Mtg	RPs asked Districts to confirm they would prepare a study plan of assessing improvements to the Wards Ferry takeout.	5/18/2011	6/3/2011	Districts	This was confirmed in the May 18th meeting (see PTL #28); the Districts also indicated they would not have a draft study plan issued before 06/10/2011.	
85	Recreation RWG Mtg	RPs asked if Facility Study Assessment Study Plan draft would be issued by June 3.	5/18/2011	6/3/2011	Districts	Districts uploaded draft study plan on 06/03/2011.	
86	Recreation RWG Mtg	Lower Tuolumne River boating study scope.	5/18/2011	7/25/2011	Districts	P Koepele to provide related information. Boating study may extend from Route 132 bridge to Turlock Lake State Park. Legion Park is an undesirable put-in because of the old Dennet Dam remnants.	
87	Water/Aquatic RWG Meeting	Don Pedro bathymetry work: A separate conference call was agreed-upon to discuss the ongoing bathymetry work.	5/19/2011	6/2/2011	Districts	Districts issued the data gathering protocol on May 27th and held a conference call on June 2. R Kranz and A Manji participated. Districts agreed to issue a redline version of the May 27th protocol to clarify/describe questions raised.	
88	Water/Aquatic RWG Meeting	Reservoir 3-D Model: RPs raised three concerns to be addressed in the July 25 Proposed Study Plan (PSP): (1) ease of use/compulational time frame, (2) accuracy, and (3) ability for RPs to make model runs.	5/19/2011	7/25/2011	Districts	Districts will respond in the July 25, 2011 Proposed Study Plan (PSP).	
89	Water/Aquatic RWG Meeting	Temperature Modeling: RPs raised a question of whether the reach of river between Don Pedro Dam and La Grange Dam will be modified and if additional temperature data needs to be collected in this reach.	5/19/2011	7/25/2011	Districts	Districts will respond in the July 25, 2011 Proposed Study Plan (PSP).	
90	Water/Aquatic RWG Meeting	Operations Modeling: A question was asked whether the Districts would consider use of HEC RESSIM model instead of the Excel platform proposed.	5/19/2011	7/25/2011	Districts	Districts to consider and will respond.	

Item No.	Source of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
91	Water/Aquatic RWG Meeting	CEQA information: RPs noted that CEQA requires addressing the new greenhouse gas regulations.	5/19/2011	No date	Districts		
92	Water/Aquatic RWG Meeting	RPs reported that flows greater than 6,000 cfs affect Lower Tuolumne River farmland. Farmers asked how and when decisions are made on flow releases.	5/19/2011	No date	Districts		
93	Terrestrial RWG Meeting	Scope of Terrestrial-based study plans.	5/19/2011	7/25/2011	Districts & RPs	Districts are proposing to conduct studies where there are Project effects, not every acre inside the Project Boundary. RPs may not agree. Districts to develop a Project Affects map for discussion at the June 21 RWG meeting.	
94	Terrestrial RWG Meeting	Extent of dispersed recreational use.	5/19/2011	7/25/2011	Districts	Dispersed recreational areas primarily defined as areas that are both "usable and accessible". Districts to provide further definition.	
95	Terrestrial RWG Meeting	BLM asked if an invasive species or special-status species were located, would the Districts document the entire population?	5/19/2011	7/25/2011	Districts	Districts responded that "in general-yes" and would include further confirming language in the July 25, 2011 Proposed Study Plan.	

Item No.	Source of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
96	Aquatics	Clarification of "data gap" study request addressed in email of 5 May 2011. It was advised that the April 20th request was that the Districts undertake a study to evaluate the relative effects of project ops and other stressors on these fisheries in the lower Tuolumne. How do project ops affect each of these fisheries--its population, geographic distribution, age distribution, or habitat, whether overall or by life stage? Can you distinguish the effects of the project relative to other stressors? To the statement that certain non-project stressors are "among the most significant", 5 questions were asked: (1) What do you mean by significant? (2) What is the basis for conclusion that non-project stressors listed have significant effects? (3) Since a comparative term was used ("among the most significant"), what evidence in the existing record is the basis for the comparison? (4) Does the existing record show whether project ops are a stressor for these fisheries? and (5) Does the existing record show whether the project ops are a significant stressor?	5/18/2011	7/25/2011	Districts	**Email Response of June 14, 2011 to the five questions asked: (1) It means having an "influence", (2) The existing data and studies undertaken by the Districts and others provide the information from which this conclusion is drawn. We would refer you to the various studies on the TR TAC website and the ALJ testimony, (3) Response to question 2 provides the general sources of the information; all of these documents might not yet be on the record of the relicensing proceeding, (4) We are sure there are many differing opinions on this question. We encourage you to review the data available on the TR TAC, the PAD, and the FERC website to help inform your opinion, and (5) Please see response above.**	

Don Pedro Progress Tracking List

CLOSED ITEMS

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
1	RP	Poll of RPs for meeting availability and resource area interests.	2/28/2011	3/8/2011	Districts	Created Doodle Poll questionaire and sent it to RPs via email on 3/2/2011. Responses due 03/07/2011. Poll completed 03/07/2011; 2011 meeting dates announced to RPs via email on 03/15/2011 and have been posted on website calendar	5/13/2011
2	CSPA; CDFG; and TRT	Use of an independent facilitator.	2/28/2011	n/a	n/a	Request documented; Districts' response emailed to RPs on 03/07/2011.	5/13/2011
3	Several RPs	Alternating the meeting locations for future meetings.	2/28/2011	3/11/2011	Districts	Request for alternating meeting locations to be considered. Districts' response emailed to RPs on 03/15/2011.	5/13/2011
4	Several RPs	Use of web conferencing as part of future meetings.	2/28/2011	3/11/2011	Districts	Request for web conferencing as part of the meeting to be considered. Districts' response emailed to RPs on 03/15/2011.	5/13/2011
5	NGOs	RPs not to have to pay for PAD reproduction costs.	2/28/2011	3/11/2011	Districts	Request for RPs not to have to pay for PAD reproduction costs to be considered. Districts' response emailed to RPs on 03/15/2011	5/13/2011
7	Several RPs	Exhibit G or other Project Boundary Maps for tailwater and Gasburg Creek areas.	2/28/2011	3/11/2011	Districts	Project Boundary Maps to be uploaded to the Don Pedro website. Two Project Boundary maps (showing area below the Don Pedro Dam) have been uploaded and RPs advised via email 03/15/2011.	5/13/2011

8	Districts	RP review of Relicensing Participants List in PAD (Appendix B) to identify additional parties interested in the relicensing.	2/28/2011	3/18/2011	RPs	RPs to advise Districts of additional interested parties and their contact information, if known. Additional names have been received and added to the Relicensing Participants Contact Email List	5/13/2011
9	NHI	"Discussion of Cummulative Impacts" to be an agenda item for the April 19-20 meeting.	2/28/2011	04/19-20/2011	Districts	"Discussion of Cummulative Impacts" to be added to the agenda for the April 19-20 RP meeting. Project effects were discussed at the April 19-20 RWG meetings	5/13/2011
10	RPs	Uploading of Meeting Slides to the Don Pedro ebsite.	2/28/2011	3/11/2011	Districts	Slides used at the Feb 28 RP meeting to be uploaded to the Don Pedro website. Meeting presentation slides have been uploaded and RPs advised via email 03/15/2011	5/13/2011
31	Recreation RWG Mtg	The question was asked that if dispersed recreational use was found to be impacting rare or sensitive plant areas, would Districts restrict such use?	4/19/2011	n/a	Districts	Districts responded to this during the meeting, noting that the new license application is likely to contain identification of unique or sensitive habitats, and it is not uncommon to restrict recreation access to those areas. In fact, some areas of the reservoir shoreline are already restricted.	
33	Recreation RWG Mtg	Districts were asked if the current flows on the lower Tuolumne are boatable and compatible with other uses (fishing)?	4/19/2011	n/a	Districts	Districts responded via email 5/05/11.	

34	Recreation RWG Mtg	Districts were asked to consider the following study needs: (1) boatable flows on lower Tuolumne River (were fishery flows boatable) and possible need for additional put-ins/take-outs, (2) suitability of Wards Ferry take-out, (3) recreational use levels, visitor preferences and satisfaction, unmet demand, (4) existing facility condition assessment, including ADA accessiblility, and (5) visual quality assessment, possibly photo documentation of visual quality at different water levels or landscape features to be brought into future planning of recreation improvements.	4/19/2011	n/a	Districts	See responses to Items 28, 32, 33, 43, and 57.	
36	Cultural RWG Mtg	Study plan should include the requirement for field investigators to have California archaeology experience.	4/19/2011	n/a	Districts	Study plan will include.	
38	Cultural RWG Mtg	James Barnes, BLM archaeologist, should be copied on all correspondence with the SHPO regarding Section 106 consultation.	4/19/2011	n/a	Districts	Will occur.	
40	Cultural RWG Mtg	It was suggested that the Districts visit the newly opened UC Davis collection.	4/19/2011	n/a	Districts	Districts will do.	
42	Cultural RWG Mtg	It was emphasized that "protect and preserve is the goal".	4/19/2011	n/a	Districts	Districts acknowledge this goal.	
43	Water / Aquatic / Terrestrial RWG Mtg	It was asked if it was the Districts' intention to perform a study that would develop a clear understanding of how flow relates to other stressors to the anadromous fisheries? Or perform a "limiting factors analysis" of each salmon life stage compared to individual stressors?	4/20/2011	4/29/2011; extended to 5/05/2011	Districts	Districts responded via email 5/05/11.	
45	Water / Aquatic / Terrestrial RWG Mtg	The qustion was asked where did the population of rainbow trout in La Grange Reservoir come from?	4/20/2011	n/a	Districts	It was noted at the meeting that no one knew the origin of this population..	

48	Water / Aquatic / Terrestrial RWG Mtg	It was pointed out that CDFG recently issued a draft EIR on section dredging that was still open for comment.	4/20/2011	n/a	n/a	No action required.	
51	Water / Aquatic / Terrestrial RWG Mtg	The question was asked if a study should be undertaken to determine effect on predator location in river with changing water temperature?	4/20/2011	n/a	Districts	N Hume responded during the meeting that he believed this could be addressed with existing data.	
54	Water / Aquatic / Terrestrial RWG Mtg	Question raised about the status of mussels in the lower Tuolumne River? Is this a data gap? It was reported that anecdotal observations were that prior to 1995 there were many mussels in the river and that now there are very few. Idea was offered that stranding may be a potential cause. It was pointed out that the Project no longer peaks, but RPs noted that flows change in accordance with seasonal downstream flow requirements.	4/20/2011	n/a	Districts	The Districts responded via email 5/05/11.	
55	Water / Aquatic / Terrestrial RWG Mtg	Districts were encouraged to refer to counties' weed watch list for additional information on invasive weeds.	4/20/2011	n/a	Districts	Districts will contact counties.	
56	Water / Aquatic / Terrestrial RWG Mtg	Districts were advised to refer to a study of cottonwoods in the Central Valley.	4/20/2011	n/a	Districts	The Districts advised in the meeting that this study, performed by Stella et al, was summarized in the PAD.	
57	Water / Aquatic / Terrestrial RWG Mtg	It was pointed out that the Districts were not proposing to perform a study dedicated to wetlands mapping and the potental project effects on wetlands. RPs wondered if this would not be needed/useful	4/20/2011	4/29/2011; extended to 5/05/2011	Districts	The Districts responded via email 5/05/11.	

60	Water / Aquatic / Terrestrial RWG Mtg	Concern about proposed size of areas to be studied around project facilities.	4/20/2011	na/a	Districts	Districts responded during the meeting that a possible approach to coming to site-specific agreement would be for BLM staff to join field investigators in the field to perform beta testing of appropriate area to study based on actual site observations. Study would have to be modified to indicate such an approach. It was noted that BLM may have limited staff time.	
61	Water / Aquatic / Terrestrial RWG Mtg	Districts were advised that the protocols for CRLF that were in the YT/DS study plan were acceptable.	4/20/2011	n/a	Districts	No response required.	
62	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked to upload copy of proposed WPT protocols to the website	4/20/2011	n/a	Districts	Districts will do.	
63	Water / Aquatic / Terrestrial RWG Mtg	Zac Jackson to forward report which included observations of WPT downstream of the project.	4/20/2011	n/a	USFWS	The report has been forwarded.	
64	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked to Include Critical Habitat maps in the ESA study plan.	4/20/2011	n/a	Districts	At the meeting, the Districts agreed to include Critical Habitat maps in the study plan.	
69	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked if there would be a separate study plan for the 3D temperature model development?	4/20/2011	n/a	Districts	The Districts are developing a study plan for the 3D temperature model development.	
70	Water / Aquatic / Terrestrial RWG Mtg	It was suggested the Districts get data on flows and temps in Moccasin Creek; thought CCSF would have it?	4/20/2011	n/a	Districts	Districts will do.	
71	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked if they would prepare a Study Plan for a Socioeconomic Study? It was suggested it would be needed for CEQA.	4/20/2011	4/29/2011; extended to 5/05/2011	Districts	Districts responded via email 5/05/11.	

72	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked if they planned to conduct an analysis of projected population growth and irrigination use compared to their water rights? Study potential effects of such growth on water quality (due to less water being in the river)	4/20/2011	4/29/2011; extended to 5/05/2011	Districts	Districts responded via email 05/05/11.	
73	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked if they were going to evaluate benefits to fisheries with more flow being released to the river. Suggested that high-flow benefits was a data gap.	4/20/2011	n/a	Districts	Districts indiciated in meeting that the current IFIM study is investigating that issue. Also, data from prior monitoring could also address that question.	
75	Water / Aquatic / Terrestrial RWG Mtg	It was suggested that a data gap existed as no data on number of salmon emerging from the gravel and the number leaving the Tuolumne.	4/20/2011	n/a	Districts	Districts responded in the meeting that they were uncertain how a one- or two-year study of this would inform any such gap, nor could they think of how to conduct such a study, nor could RPs when asked	
77	Water / Aquatic / Terrestrial RWG Mtg	The Districts were asked if they were planning any reservoir fish population studies?	4/20/2011	n/a	Districts	Districts responded in the meeting that the reservoir fishery included both good cold and warm water fishery and both were healthy and viable based on the data it had. Reservoir fishery is primarily a stocked fishery. Because there was no evidence of a problem, therefore no apparent Project effect, the study would not be justified under the ILP.	
78	Water / Aquatic / Terrestrial RWG Mtg	It was requested the Districts provide a GIS layer describing the Project Boundary to the BLM.	4/20/2011	n/a	Districts	Districts will do.	

DRAFT

TURLOCK IRRIGATION DISTRICT
AND
MODESTO IRRIGATION DISTRICT

DON PEDRO HYDROELECTRIC PROJECT
FERC NO. 2299

Bathymetric and Surface Temperature Data Collection for Don Pedro Reservoir

~~May~~ June 16, 2011

1.0 Project Nexus

Turlock Irrigation District and Modesto Irrigation District's (TID and MID or Districts) continued operation and maintenance (O&M) of the Don Pedro Hydroelectric Project (Project) has a potential to affect water temperature. In particular, stratification of the reservoir affects the amount of cold water stored in Don Pedro Reservoir.

The Districts plan to develop a 3-D water temperature model that requires bathymetry information as input. Bathymetric data will also provide a better understanding of the elevation-reservoir storage relationship of the reservoir.

2.0 Resource Management Goals of Agencies with Responsibility for the Resource to be Studied

The Districts believe that two agencies have jurisdiction over water temperature in the reservoir: (1) the California Department of Fish and Game (CDFG) and (2) the State Water Resources Control Board, Division of Water Rights (SWRCB). Each of these agencies and their jurisdiction and management direction, as understood by the Districts at this time, is described below.

CDFG's goal is to preserve; to protect; and, as needed, to restore habitat necessary to support native fish, wildlife and plant species.

SWRCB has authority under the federal Clean Water Act (33 U.S.C. §11251-1357) to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Throughout the relicensing process, the SWRCB maintains independent regulatory authority to condition the operation of the Project to protect water quality and the beneficial uses of stream reaches

consistent with Section 401 of the federal Clean Water Act, the Regional Water Quality Control Board Basin Plans, State Water Board regulations, CEQA, and any other applicable state law.

3.0 Study Goals and Objectives

This study is needed as input for the proposed 3-D water temperature model and to update the historical reservoir elevation-storage curve. Though monthly profiles collected by CDFG since 2004 will be the predominant dataset used for the 3-D model's ~~verification and~~ calibration and verification, water temperature data collected concurrently with the bathymetric data will also support the effort. ~~Thermal data will support calibration efforts for the 3-D water temperature model.~~

4.0 Existing Information and Need for Additional Information

Previous detailed bathymetric data are not available for the Don Pedro Reservoir. It appears that the only data available to define the original reservoir bathymetry is USGS 15-minute quadrangle maps developed prior to the construction of the new Don Pedro Project. These are not of sufficient detail to define the current bathymetric characteristics of the reservoir.

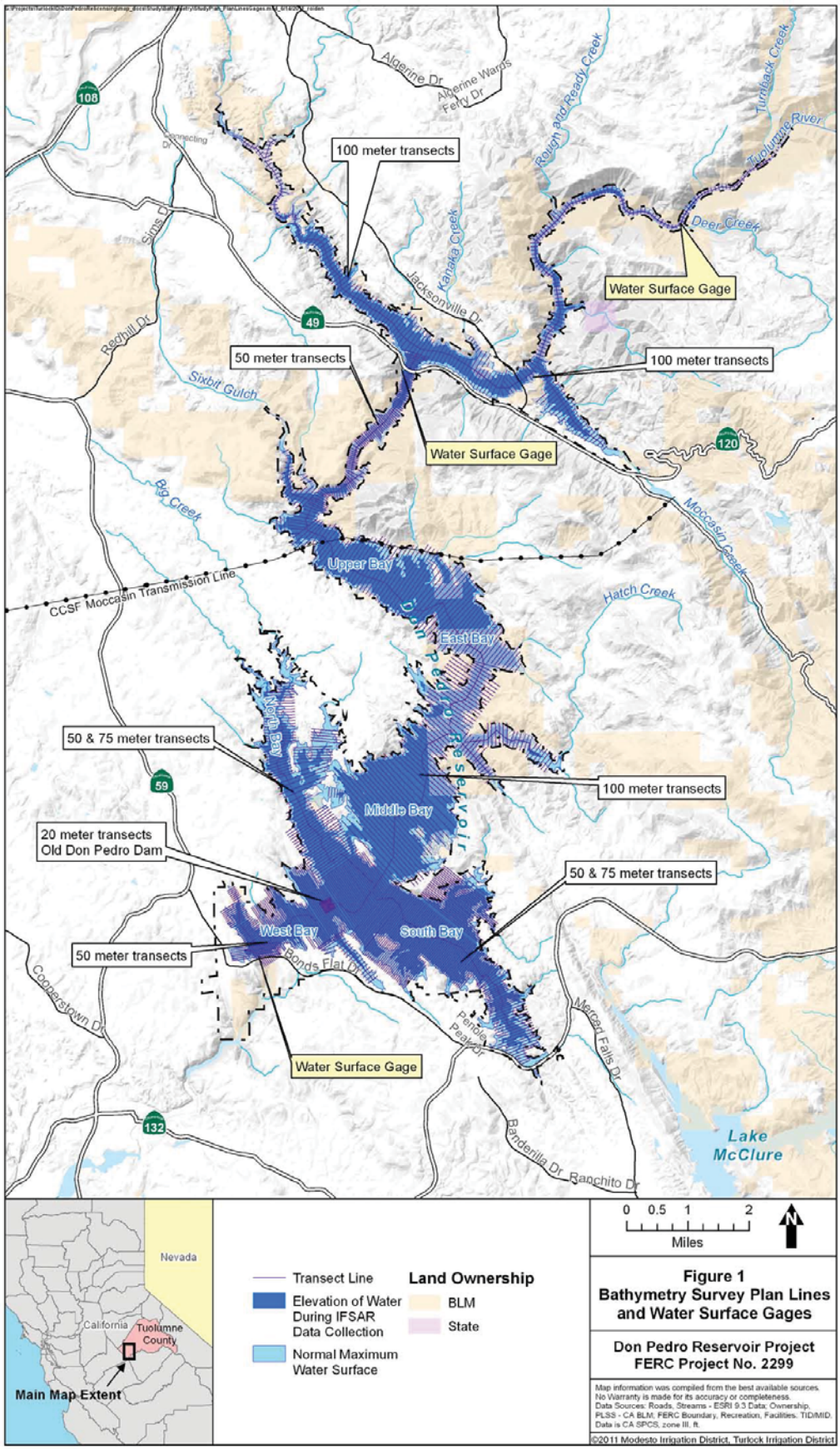
CDFG has collected monthly water temperature profiles from six locations in Don Pedro Reservoir for several years and profiles collected by CDFG, from 2004 through and including the present, effectively characterize Don Pedro Reservoir's vertical thermal trends. A seventh profile location, upstream of the old Don Pedro Dam, would provide insight into temperature dynamics at this location. Profiles collected during the bathymetry fieldwork will provide a temperature-related link between the bathymetry data and CDFG's long term data-set.

5.0 Study Methods and Analysis

Bathymetry data collected with the reservoir water surface at approximately elevation 790 feet (ft) will be combined with IFSAR topographic mapping, obtained by the Districts' when the water surface elevation was at approximately 760 ft, to develop a full description of the reservoir geometry and depth-area-storage relationships.

5.1 Study Area

This study will take place at Don Pedro Reservoir in Tuolumne County, California. The study area consists of Don Pedro Reservoir below the Project Boundary at an elevation of approximately 860 ft, as depicted in Figure 1.


100 meter transects
Water Surface Gage
50 meter transects
100 meter transects
Water Surface Gage
50 & 75 meter transects
100 meter transects
20 meter transects
Old Don Pedro Dam
50 & 75 meter transects
50 meter transects
Water Surface Gage
Upper Bay
East Bay
Middle Bay
West Bay
South Bay
Don Pedro Reservoir
Lake McClure
CCSF Moccasin Transmission Line
Algerine Dr
Algerine Wards Ferry Dr
Rough and Ready Creek
Turnback Creek
Tuolumne River
Deer Creek
Kanaka Creek
Jacksonville Dr
Sims Dr
Redhill Dr
Sixbit Gulch
Big Creek
Moccasin Creek
Hatch Creek
Bonds Flat Dr
Cooperstown Dr
Penole Peak Dr
Merced Falls Dr
Banderilla Dr
Ranchito Dr
108
49
120
59
132
Nevada
California
Tuolumne County
Main Map Extent
Transect Line
Elevation of Water During IFSAR Data Collection
Normal Maximum Water Surface
Land Ownership
BLM
State
0 0.5 1 2
Miles
N
Figure 1
Bathymetry Survey Plan Lines and Water Surface Gages
Don Pedro Reservoir Project
FERC Project No. 2299
Map information was compiled from the best available sources.
No Warranty is made for its accuracy or completeness.
Data Sources: Roads, Streams - ESRI 9.3 Data; Ownership, PLSS - CA BLM; FERC Boundary, Recreation, Facilities. TID/MID. Data is CA SPCS, zone III, ft.
©2011 Modesto Irrigation District, Turlock Irrigation District

5.2 General Concepts and Procedures

The following general concepts apply to the study:

- Personal safety is an important consideration of each fieldwork team. The Districts and their consultants will perform the study in a safe manner.
- The Districts will make a good faith effort to obtain permission in advance of performance of the study to access private property where needed. Field crews may make minor modifications in the field to adjust to and to accommodate actual field conditions and unforeseeable events. Any modifications made will be documented and reported in the draft study reports.

5.3 Study Methods

The plan for developing the bathymetric model of Don Pedro Reservoir is presented below in five subsections: (1) preparation, (2) field data collection, (3) data processing, (4) quality assurance/quality control, and (5) documentation and reporting.

5.3.1 Preparation

Before data collection begins, transects spaced at 50, 75, 100 meter intervals oriented approximately perpendicular to the longitudinal axis of the reservoir will be established using the bathymetric data collection software, Hypack. In addition to the standard transects, at least one perpendicular "tie line", oriented approximately parallel to the longitudinal axis of the reservoir will be established to ensure inter-transect data consistency. Transects will cover the entire reservoir at the water elevations observed during the time of the field data collection.

The location of the Old Don Pedro Dam, inundated by the construction of the new dam, has been estimated using historical USGS topographic maps. A 20 meter transect spacing will be developed in the area of the Old Don Pedro Dam to establish the geometry and location of the old dam.

5.3.2 Field Data Collection

5.3.2.1 Bathymetric Data

The technique that will be used for data collection employs precision depth sounder and navigation systems aboard an outboard powered 19-ft Johnboat, in conjunction with vertical control to determine the elevation of the water surface at the time of the survey. Vertical control and water surface elevation data will be taken from the gages at the Don Pedro Dam, the Highway 120/49 Bridge and the Wards Ferry Bridge. The gages at the two bridges will be used to establish vertical control in the upstream portion of the Don Pedro Reservoir. Temporal and

spatial variations in water surface elevation throughout the bathymetric survey will be taken into account in the data processing as explained below.

Water depth will be measured using an Airmar B258 1kW dual frequency transducer and a Foruno FCV-585 digital depth sounder (or equivalent), with a vertical resolution of 0.1 ft. The depth sounder will be deployed aboard the Johnboat that will navigate along predetermined transects. Transect locations may be adjusted in the field to accommodate shallow water, in-water structures, marinas, and/or recreational activities.

Soundings will be taken at approximately 1 second intervals and the boat speed will be set to ensure that bottom features will be appropriately sampled (typically, at least 1 sounding is taken for every 2 linear meters along the vessel track). The boat will be navigated using a differential Global Positioning System (DGPS), and the position of each sounding will be determined using the DGPS system. The DGPS will provide better than 1 meter circular positioning accuracy. All depth and horizontal positioning data will be recorded digitally in the field as a series of points with x-y-z coordinates, using a rugged field notebook PC running Hypack Hydrographic Survey software (or equivalent).

5.3.2.2 Reservoir Temperature Data

CDFG continues to collect monthly temperature profiles in Don Pedro reservoir and these data will be used as the primary dataset for the 3-D model's calibration and verification. As part of this study, reservoir temperature data will be collected concurrently with the bathymetric data to provide additional data ~~sets~~ for the 3-D model's ~~calibration and~~ verification.

Surface water temperature will ~~also~~ be ~~recorded~~ measured concurrently with the bathymetric data and recorded digitally using the Hypack software. Temperature data will be collected using a Falmouth Scientific Ocean Temperature Module (FSI OTM). The accuracy FSI OTM is ~~-~~± 0.005 degree Celsius temperature. Surface water data provide ~~some insight into~~ information about the variation in the reservoir's ~~horizontal~~ temperature~~s~~ through the horizontal plane.

Vertical temperature profiles will ~~also~~ be collected at least one-time each at the six CDFG profile stations and one additional location just upstream of old Don Pedro Dam, to capture any influence of the old dam on reservoir temperature. During each week of surveying, water temperature profiles (along with dissolved oxygen)~~,~~ will be taken at the nearest ~~predetermined~~ CDFG profile location or nearby locations. ~~A weekly interval is sufficient because reservoir temperature is not dynamic enough to justify an increased frequency.~~

5.3.2.3 Water Surface Elevation Data

Reservoir water level elevations will be ~~verified~~ measured throughout the study. Water surface elevations near the dam of the reservoir are routinely measured and recorded by TID. Water

surface elevation gages will be installed at two other locations, where benchmarks provide vertical control for combining all elevation data to a common datum: (1) Highway 120/49 Bridge and (2) Wards Ferry Bridge. All vertical control will be converted to match the vertical datum of the gage at Don Pedro Dam, which is NGVD 29. The three water surface gages will provide continuous data during the bathymetry survey for data processing.

5.3.3 Data Processing

5.3.3.1 Bathymetric Surface Development

The data will be processed using the Hypack software and exported to a table that can be imported into GIS. Elevation values for each point will be calculated in a spreadsheet by first correcting the depth of the reading to include the known submergence value of the transducer and then subtracting the depth of the sounding from the water surface elevation of the reservoir according to the nearest gage reading from the same day and time.

Remotely sensed data will be used to supplement the bathymetric data collected in the field. Previously obtained Digital Terrain Model (DTM) data will be integrated with the bathymetric model. These data were collected in August of 2004 by the vendor Intermap using interferometric synthetic aperture radar (IFSAR). The water surface of the reservoir at the time the DTM data were collected was 760 ft and the DTM data extends upwards to well above the Project Boundary elevation. The DTM will assist with defining the reservoir geometry at water levels above that obtained by the bathymetric survey. In the instances of overlap in the topographical elevations of the DTM and elevations covered by the bathymetric survey, the DTM will provide information that may assist in the interpolation of the surface in between the transect points collected in the field.

A contour line at maximum water level will be generated using a GIS contouring tool with the DTM. It will be visually checked and modified as needed using a horizontally more accurate hi-resolution aerial image. The field collected points, the DTM surface data below the high water contour and the maximum water contour will then be used to interpolate a reservoir geometry model in GIS.

The bathymetric survey elevation data will be developed by using the ESRI geoprocessing tool "Topo to Raster". Contours will be developed from the surface using ESRI contouring tools and displayed at an appropriate resolution for the maps that will be included in the final report.

5.3.3.2 Temperature Data Processing

Surface water temperature data and temperature profiles will be used to assist in the 3-D temperature model ~~calibration~~verification. In addition, ~~S~~surface water temperature data will be plotted and contoured using Surfer (by Golden Software). Temperature data collected during

time intervals of two to four hours will be mapped separately to constrain the diurnal temperature variation and provide a "snapshot" of surface temperature. The resulting temperature contours will be shown on a series of maps of the reservoir.

~~Temperature data collected during time intervals of two to four hours will be mapped separately to constrain the diurnal temperature variation. The resulting temperature contours will be shown on a series of maps of the reservoir~~. Vertical temperature profiles will also be plotted and a map showing the location of the vertical profiles will also be produced. ~~Surface water temperature data and temperature profiles will be used to assist in the 3-D temperature model calibration.~~

5.3.4 Quality Assurance/Quality Control

Data quality will be assured through following manufacture's instructions and periodically verifying data values through an alternative measurement. Throughout the survey, the depth measured by the sounder will be periodically compared to the actual depth. The actual depth will be measured by either lowering a "bar" beneath the sounder or by direct measurement of the bottom with a lead line or pole. Measurement of the "draft" or the depth from the water surface to the face of the transducer will also be recorded. All measurements will be recorded in the field notebook.

Quality Assurance will be performed by an independent reviewer. A three step approach will be used for quality assurance of the bathymetric survey data. The first step is a review of the field methods and materials. The second step is checking the edited raw data. Finally, the methods used in the production of the final deliverable will be checked.

Review of field methods will include a check of any "bar checks" performed in the field. A bar check compares the depth measured by the sounder to the actual depth, measured physically. The specifications of the sounder and GPS used in the survey will be reviewed to confirm the accuracy of the data as reported. The water surface elevation data at the three gages will be checked for consistency.

The next step is to check the processing of the raw data. Any data with GPS error or sounding error that were flagged accordingly and deleted prior to contour plotting will be checked to confirm that the deletion was appropriate. Soundings will be spot checked for consistency. The crossing of transects and tie-lines will be reviewed to ensure that the sounder recorded similar depths at the intersection of survey lines. If any sharp differences in depth at adjacent points are present, they will be identified as either an error or a real feature.

The last step is a check of the final deliverable. Once the field methods and raw data have been reviewed, the production of contours or a bathymetric surface relative to a know datum will be checked. Calculation of the bottom elevation from sounding depths will be reviewed to ensure

corrections for the draft and water surface elevation were properly accounted for. The method of interpolation and setting used to in the interpolation will be reviewed to ensure that reasonable contours are generated. Contours created using interpolation will be checked against actual soundings to verify that the interpolated surface is reasonable. Finally, contours will be checked against any previous studies for consistency.

5.3.5 Documentation and Reporting

A report will be developed that documents all methods and results. Contours derived from the use of the bathymetric and IFSAR data will be displayed in maps of appropriate scale. Maps showing coverage of the depth sounding points will also be included. In addition to the maps, a table showing area and storage volume for each two-feet of reservoir elevation will be developed and included in the report. Storage volume will be plotted against elevation and compared graphically to the reservoir area-capacity curve presented in the PAD. Vertical temperature profiles and sample surface temperature plots will also be provided.

6.0 Schedule

Surveys are planned to be completed during the months of May and June, 2011. IFSAR data has been obtained. Data compilation and mapping will occur from June through September, 2011. Final checking and review will occur in October and November, 2011 and final maps produced by the end of 2011.

7.0 Consistency of Methodology with Generally Accepted Scientific Practices

The methods presented in this study plan are consistent with those used in recent relicensings in California including most recently for the Merced Irrigation District's Lake McClure and McSwain Reservoir. Additional surveys with similar methodology include the Yuba-Bear/Drum-Spaulding Project's Lake Spaulding, Rollins Reservoir, Bowman Lake, Jackson Meadows Reservoir, Fordyce Lake, and Lake Valley Reservoir.

8.0 Deliverables

The Districts will make the draft report available to relicensing participants following internal quality assurance review. The final report will be provided along with the elevation and temperature data in GIS files. These GIS files will be used in developing the 3-D Temperature Model.

9.0 References

ESRI ArcGIS 10 http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html

Golden Software Surfer http://www.goldensoftware.com/products/surfer/surfer.shtml

Intermap http://www.intermap.com/

From: Staples, Rose
Sent: Monday, July 25, 2011 4:07 PM
To: Alves, Jim - City of Modesto; Anderson, Craig - USFWS; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Brochini, Tony - NPS; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis-Reggie-PRCI; Linkard, David - TRT /RH; Loy, Carin; Lwenya, Roselynn, BVR; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - PRCI; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sander, Max - TNC; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Vasquez, Sandy ; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Subject: Don Pedro Project Proposed Study Plan - FERC Scoping Document 2

Proposed Study Plan (TID / MID)

The Proposed Study Plan (PSP) for the Don Pedro Project (FERC No. 2299) has been e-filed with FERC today. The document is available on FERC's E-Library website (www.FERC.gov). In addition, a copy has been posted to the Don Pedro Relicensing website at www.donpedro-relicensing.com and is accessible via the DOCUMENTS tab, under the STUDIES category. You may have to scroll down the screen to find the STUDIES section of the Document Listing.

Scoping Document 2 (FERC)
FERC issued today their Scoping Document 2. A copy is available on FERC's E-Library website (www.FERC.gov), or on the Don Pedro Relicensing website at www.donpedro-relicensing.com in the DOCUMENTS / PAD-NOI-SCOPING section.

If you have any difficulties locating and/or downloading the documents, or if you would prefer to receive a CD copy of the Proposed Study Plan, please advise me at the email address noted below. Thank you.

Rose Staples CPS CAP
Executive Assistant
HDR
970 Baxter Boulevard Suite 301 | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com

From: Russ Kanz [RKANZ@waterboards.ca.gov]
Sent: Monday, August 08, 2011 11:46 AM
To: Devine, John; Ruth M. Porter
Cc: Steve - AR' 'Rothert; Dave - AW' 'Steindorf; 'Bill Johnston'; William -CSPA' 'Jennings; Paul ' 'Marko; John - CSPA' 'Beuttler; Jim - MPM' 'Smith; Bill - MR' 'Lyons; Bob' 'Ott; Steve - ARTA' 'Welch; Art - BAWSCA' 'Jensen; Nicole - BAWSCA' 'Sandkulla; Allison - TRC' 'Boucher; Dave -Allison - TRC' 'Boucher; James - BLM' 'Eicher; Lauren - BLM' 'Fety; Rhonda - BVR' 'Morningstar Pope; Roselynn BVR' 'Lwenya; James - BLM' 'Barnes; Jeff -BLM' 'Horn; Peggy - BLM' 'Cranston; Beau - CalPoly' 'Freeman; Charles - CalPoly' 'Burt; Jenny - CT' 'Hatch; Cindy - GWWF' 'Charles; Mary - PRCI' 'Motola; Dan' 'Wheeler; Dave' 'Wheeler; John - CSERC' 'Buckley; Rebecca - CSERC' 'Cremeen; Annie' 'Manji; Jennifer - CDFG' 'O'Brien; Julie - CDFG' 'Means; Mary Jane - CDFG' 'Taylor; Robert - CDFG' 'Hughes; Stephen - CDFG' 'Puccini; Tim - CDFG' 'Heyne; Royal' 'Robbins; Ronn - CNRF/AIC' 'Slay; John - SCERD' 'Aud; Frank - FERC' 'Winchell; James L - FERC' 'Hastreiter; Kelly - FOR' 'Catlett; Ron - FOR' 'Stork; Maggie-SNF' 'Dowd; Vern - SNF' 'Shumway; Craig - USFWS' 'Anderson; Deborah - USFWS' 'Giglio; Michelle - USFWS' 'Workman; Zac - USFWS' 'Jackson; Harry (NPS)' 'Williamson; Janice' 'Keating; Jesse' 'Roseman; Allison - HB' 'Schutte; Ray - BAWSCA' 'McDevitt; Timothy - HansonBridgett' 'Findley; Loy, Carin; Jones, Rick; Staples, Rose; Mike - RHH' 'Marshall; Douglas P. Wheeler; Joseph' 'Lein; Noah' 'Hughes; Chris' 'Ott; Ron - NFMT' 'Goode; Teresa' 'Kinney; 'Justin'; James ' 'Holden; Art - CWRMP' 'Bowman; Dave - FR' 'Wood; David - TRT /RH' 'Linkard; Melissa - CRRMW' 'Powell; George A ' 'TeVelde; 'Greg Dias'; 'Joy Warren'; 'MelissaWilliams'; Jan -Chicken Ranch' 'Costa; Lloyd - CRRMW' 'Mathiesen; Stanley Rob - TBMWI' 'Cox; Reba - TMTC' 'Fuller; Jim - City ofModesto' 'Alves; Jack - City of Modesto' 'Bond; Nick - City of Modesto' 'Pinhey; Bryan - MF' 'Wilson; Colette - TRT/MF' 'Verkuil; Eric - MF' 'Walters; P - MF' 'Day; Zahra - MF' 'Hayat; 'Arthur F Godwin'; Chris - CSPA' 'Shutes; David O - N-R' 'Romano; Lynette - N-R' 'Asay; Jeffrey - NOAA-NMFS' 'McLain; John -NOAA' 'Wooster; Kathryn - NOAA-MNFS' 'Kempton; Larry - NOAA-MNFS' 'Thompson; Maria - NOAA-NMFS' 'Rea; Monica - NOAA-NMFS' 'Gutierrez; Rhonda - NOAA-NMFS' 'Reed; Rick - NOAA-NMFS' 'Wantuck; Steve - NOAA' 'Edmondson; Stephen - NPS' 'Bowes; Tony - NPS' 'Brochini; 'Tim O'Laughlin'; Dan -CDWA' 'McDaniel; Milford Wayne - OHP' 'Donaldson; Susan - CA SHPO' 'Stratton; Jeffrey' 'Cowan; Jerry ' 'Jackman; Donn W - SFPUC' 'Furman; Ellen - SFPUC' 'Levin; Michael - SFPUC' 'Carlin; tramirez@sfwater.org; William - SFPUC' 'Sears; Marty - SMRT' 'McDonnell; John - TUD' 'Mills; sharon.coleman@spiegelmcd.com; william.huang@spiegelmcd.com; Tom - SCFB' 'Orvis; Wayne - SCFB' 'Zipser; Anthony - SSMN' 'Brochini; Michael - MFFC' 'Martin; Sandy ' 'Vasquez; 'Lewis-Reggie-PRCI'; Doug - TetraTech' 'Brewer; 'Michelle Reimers'; 'Robert M. Nees'; 'Steve Boyd'; Laura - TNC' 'Jensen; Philip - TNC' 'Cory; Brian - CalTrout' 'Johnson; Eric - TRT' 'Wesselman; Jessie - TRT' 'Raeder; Patrick - TRT' 'Koepele; Peter - TRT' 'Drekmeier; Ron' 'Yoshiyama; Kevin - USACE' 'Richardson; Rachael - USACE' 'Hersh-Burdick; Mary' 'Johannis; Julie -Water-Power Law Grp' 'Ganteinbein; Richard - Water-Power Law Grp forNHI' 'Roos-Collins; Anita - HH' 'Hellam; Tini' 'Horn; Elaine - YSC' 'Gorman

Subject:RE: Request for Additional Information

John,
I am interested in this information also. I recommend you scan this information and provide it to all parties at no cost.

Thanks

Russ J. Kanz
State Water Resources Control Board
P.O. Box 2000
Sacramento, CA 95812-2000
(916) 341-5341
rkanz@waterboards.ca.gov

>>> "Devine, John" <John.Devine@hdrinc.com> 8/5/2011 12:28 PM >>>
Ruth,

To report our progress on this matter, we have located the information you were requesting and will provide the information that is available electronically to you (or load it on the website). It is our intent to complete this by next Tuesday. The information consists of Forms 11, 173, 174, and 150 which exist in electronic format for the period October 1983 through December 2007. The forms prior to October 1983 exist as hard copy only and will need to be scanned. That will require disassembling binders, scanning, and reassembling binders, including staple removal and re-attachment. Do you also want this earlier information? There may be a charge for copying this information, but we have not yet estimated what that would be.

We are still researching the question relating to if, and how often, CCSF has gone negative in the water bank since 1971 (also when and for how long), and if there was compensation. We are hopeful of having this information to you next week as well.

We do believe that the water bank accounting methodology has not changed since the completion of the Project.

John

From: Porter, Ruth M. [mailto:ruth.porter@hoganlovells.com]
Sent: Wednesday, July 06, 2011 8:13 PM
To: Devine, John

From: Staples, Rose
Sent: Thursday, August 11, 2011 3:16 PM
To: Alves, Jim - City of Modesto; Anderson, Craig - USFWS; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Blake, Martin; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Brochini, Tony - NPS; Buckley, John - CSERC; Burt, Charles - CalPoly; Cadagan, Jerry; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Derwin, Maryann Moise; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Grader, Zeke; Gutierrez, Monica - NOAA-NMFS; Hackamack, Robert; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hayden, Ann; Hellam, Anita - HH; Heyne, Tim - CDFG; Holden, James ; Holm, Lisa; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis-Reggie-PRCI; Linkard, David - TRT /RH; Loy, Carin; Lwenya, Roselynn, BVR; Lyons, Bill - MR; Madden, Dan; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - PRCI; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Pool, Richard; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Ridenour, Jim; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sander, Max - TNC; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shipley, Robert; Shumway, Vern - SNF; Shutes, Chris - CSPA; Sill, Todd; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; Terpstra, Thomas; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Vasquez, Sandy ; Verkuil, Colette - TRT/MF; Vierra, Chris; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Subject: Don Pedro Relicensing Website Location of Additional Information Requested by Restore Hetch Hetchy

I have uploaded 5 new files to the www.donpedro-relicensing.com website, which contain information requested by Restore Hetch Hetchy (Ruth Porter, RHH). Once you have accessed the site, please click on DOCUMENTS. Then, using the scroll bar provided on the right-hand side of your screen, please scroll down past the ***PAD, NOI and FERC Scoping*** section. The next major section title is ***RHH Forms Request*** and in this section, under the sub-group heading *August 2011*, you will find the 5 files. If you have any problems accessing the website or the files, please let me know. Thank you.

ROSE STAPLES
CPS CAP

HDR Engineering, Inc.
Executive Assistant, Hydropower Services

970 Baxter Boulevard, Suite 301 | Portland, ME 04103
207.239.3857 | f: 207.775.1742
rose.staples@hdrinc.com| hdrinc.com

HOME EMAIL ADDRESSES REMOVED PER SECTION 2.4.3 DON PEDRO PAD

From: Loy, Carin
Sent: Thursday, August 25, 2011 4:16 PM
To: Tom Orvis; maperanch[redacted]
Cc: seboyd@tid.org; Craig[redacted]; Craig, Nancy; GREGD@MID.ORG; agodwin[redacted] noah@stillwatersci.com; AGENGR6[redacted] rmnees@tid.org; towater@olaughlinparis.com; duane.paul@cardno.com; Snider, William; steinerd[redacted]; JOYW@MID.ORG; Scott@stillwatersci.com; jalves@modestogov.com; lynette@newman-romano.com; jaud@envres.org; james_barnes@ca.blm.gov; Beuttler[redacted] jbeuttler[redacted]; Bond@[redacted]; jbond@modestogov.com; aboucher[redacted]; anadromous[redacted] Stephen_Bowes@nps.gov; artbow[redacted] douglas.brewer@tetratech.com; brochin[redacted] Buckley[redacted] johnb@cserc.org; cburt@calpoly.edu; Carlin[redacted]; mcarlin@sfwater.org; Catlett[redacted] kelly@friendsoftheriver.org; Charles[redacted] cindy[redacted]; Cory[redacted]; pcory@tnc.org; chixrnch@mlode.com; J.cowan[redacted]; receptionist@mlode.com; pcransto@ca.blm.gov; rebeccac@cserc.org; Pday@mofo.com; Devine, John; mwdonaldson@parks.ca.gov; mdowd@fs.fed.us; Peter@tuolumne.org; steve.edmondson@noaa.gov; james_eicher@BLM.gov; lfety@blm.gov; TFindley@hansonbridgett.com; bfreeman@calpoly.edu; rfuller@mlode.com; donn.w.furman@sfgov.org; jgantenbein@waterpowerlaw.com; Deborah_Giglio@fws.gov; rwgoode911[redacted] vevadc[redacted] monica.gutierrez@noaa.gov; James.Hastreiter@FERC.gov; jhatch@caltrout.org; Zhayat@mofo.com; anitajhellam[redacted] Rachael.Hersh-Burdick@USACE.army.mil; theyne@dfg.ca.gov; holden2jo[redacted]; jhorn@ca.blm.gov; timihorn[redacted] noahnsa[redacted] rwhughes@dfg.ca.gov; jjackman[redacted]; zachary_jackson@FWS.gov; deltakeep[redacted]; ajensen@bawsca.org; Laura_Jensen@TNC.org; mjohannis@usbr.gov; bjohnson@tu.org; justin[redacted] rkanz@waterboards.ca.gov; jekeating66[redacted] kathryn.kempton@noaa.gov; tkinney86[redacted]; patrick@tuolumne.org; Mortalis46[redacted]; elevin@sfwater.org; prci.info@chukchansi.net; dslinkard[redacted] amanji@dfg.ca.gov; mike@hetchhetchy.org; mmartin[redacted]; chixrnch2@mlode.com; damplo[redacted] McDevitt[redacted]; rmcdevitt@hansonbridgett.com; marty[redacted]; jeff.mclain@noaa.gov; jmeans@dfg.ca.gov; sixbit[redacted] rhonda@buenavistatribe.com; mary.motola@chukchansi.net; JKObrien@dfg.ca.gov; rsce[redacted]; ottfarms[redacted]

npinhey@modestogov.com; ruth.porter@hoganlovells.com; chixrnch@lodelink.com; spuccini@dfg.ca.gov; jessie@tuolumne.org; tramirez@sfwater.org; maria.rea@noaa.gov; rhonda.reed@noaa.gov; Kevin.A.Richardson@usace.army.mil; royalrobbins[redacted] dave@newman-romano.com; rrcollins@waterpowerlaw.com; jessetroseman[redacted]; srothert@americanrivers.org; nsandkulla@bawsca.org; aschutte@hansonbridgett.com; wsears@sfwater.org; vshumway@fs.fed.us; blancapaloma[redacted]; CNRF[redacted] jpsmithgm[redacted] Staples, Rose; dave@americanwhitewater.org; rstork@friendsoftheriver.org; sstratton@parks.ca.gov; mtaylor@dfg.ca.gov; gatevelde[redacted] larry.thompson@noaa.gov; cverkuil@mofo.com; ewalters@mofo.com; richard.wantuck@noaa.gov; arta[redacted] eric@tuolumne.org; dan.wheelerhay[redacted]; dave.wheelerhay[redacted]; douglas.wheeler@hoganlovells.com; hbwillia44[redacted]; bwilson@mofo.com; frank.winchell@ferc.gov; davewood@ldpmarina.com; john.wooster@noaa.gov; michelle_workman@fws.gov; rmyoshiyama@ucdavis.edu; Wayne Zipser; PBarnes@waterboards.ca.gov; Steve.Pavich@cardno.com

Subject: Don Pedro: Sub-group Meeting Doodlepoll Update

Dear Relicensing Participants,
The Socioeconomics sub-group Doodlepoll has been updated and shows Modesto will be the meeting location.

Please respond to BOTH polls by close-of-business tomorrow, Friday, September 26.

Thank you very much for your participation in this process.

Regards,
Carin Loy
HDR
916-679-8737.
carin.loy@hdrinc.com

From: Tom Orvis [tomo@stanfarmbureau.org]
Sent: Thursday, August 25, 2011 2:59 PM
To: maperanch[redacted] Loy, Carin
Cc: seboyd@tid.org; Craig[redacted]; Craig, Nancy; GREGD@MID.ORG; agodwin[redacted] noah@stillwatersci.com; AGENGR6[redacted] rmnees@tid.org; towater@olaughlinparis.com; duane.paul@cardno.com; Snider, William; steinerd[redacted]; JOYW@MID.ORG; Scott@stillwatersci.com; jalves@modestogov.com; lynette@newman-romano.com; jaud@envres.org; james_barnes@ca.blm.gov; Beuttler[redacted] jbeuttler[redacted] Bond@a[redacted]; jbond@modestogov.com; aboucher[redacted]; anadromous[redacted] Stephen_Bowes@nps.gov; artbow[redacted] douglas.brewer@tetratech.com; brochin[redacted] Buckley[redacted] johnb@cserc.org; cburt@calpoly.edu; Carlin[redacted]; mcarlin@sfwater.org; Catlett[redacted] kelly@friendsoftheriver.org; Charles[redacted] cindy[redacted]; Cory[redacted]; pcory@tnc.org; chixrnch@mlode.com; J.cowan[redacted]; receptionist@mlode.com; pcransto@ca.blm.gov; rebeccac@cserc.org; Pday@mofo.com; Devine, John; mwdonaldson@parks.ca.gov; mdowd@fs.fed.us; Peter@tuolumne.org; steve.edmondson@noaa.gov; james_eicher@BLM.gov; lfety@blm.gov; TFindley@hansonbridgett.com; bfreeman@calpoly.edu; rfuller@mlode.com; donn.w.furman@sfgov.org; jgantenbein@waterpowerlaw.com; Deborah_Giglio@fws.gov; rwgoode911[redacted] monica.gutierrez@noaa.gov; James.Hastreiter@FERC.gov; jhatch@caltrout.org; Zhayat@mofo.com; anitajhellam[redacted] Rachael.Hersh-Burdick@USACE.army.mil; theyne@dfg.ca.gov; holden2jo[redacted]; jhorn@ca.blm.gov; timihorn[redacted] noahnsa[redacted] rwhughes@dfg.ca.gov; jjackman[redacted]; zachary_jackson@FWS.gov; deltakeep[redacted]; ajensen@bawsca.org; Laura_Jensen@TNC.org; mjohannis@usbr.gov; bjohnson@tu.org; justin[redacted] rkanz@waterboards.ca.gov; jekeating66[redacted] kathryn.kempton@noaa.gov; tkinney86[redacted]; patrick@tuolumne.org; Mortalis46[redacted]; elevin@sfwater.org; prci.info@chukchansi.net; dslinkard[redacted] amanji@dfg.ca.gov; mike@hetchhetchy.org; mmartin[redacted]; chixrnch2@mlode.com; damplo[redacted] McDevitt[redacted]; rmcdevitt@hansonbridgett.com; [redacted] jeff.mclain@noaa.gov; jmeans@dfg.ca.gov; sixbit[redacted] rhonda@buenavistatribe.com; mary.motola@chukchansi.net; JKObrien@dfg.ca.gov; rsce[redacted]; ottfarms[redacted]

npinhey@modestogov.com; ruth.porter@hoganlovells.com; chixrnch@lodelink.com; spuccini@dfg.ca.gov; jessie@tuolumne.org; tramirez@sfwater.org; maria.rea@noaa.gov; rhonda.reed@noaa.gov; Kevin.A.Richardson@usace.army.mil; royalrobbins[redacted]; dave@newman-romano.com; rrcollins@waterpowerlaw.com; jessetroseman[redacted].com; srothert@americanrivers.org; nsandkulla@bawsca.org; aschutte@hansonbridgett.com; wsears@sfwater.org; vshumway@fs.fed.us; blancapaloma@msn.com; CNRP[redacted] jpsmithgm[redacted] Staples, Rose; dave@americanwhitewater.org; rstork@friendsoftheriver.org; sstratton@parks.ca.gov; mtaylor@dfg.ca.gov; gatevelde[redacted] larry.thompson@noaa.gov; cverkuil@mofo.com; ewalters@mofo.com; richard.wantuck@noaa.gov; arta[redacted] eric@tuolumne.org; dan.wheelerhay[redacted]; dave.wheelerhay[redacted]; douglas.wheeler@hoganlovells.com; hbwillia44[redacted] bwilson@mofo.com; frank.winchell@ferc.gov; davewood@ldpmarina.com; john.wooster@noaa.gov; michelle_workman@fws.gov; rmyoshiyama@ucdavis.edu; Wayne Zipser; PBarnes@waterboards.ca.gov

Subject: RE: Don Pedro: Scheduling Socioeconmics Subgroup Meeting

We agree with Mr. Lyons – We respectfully ask that this subcommittee meeting be in the Modesto/Turlock area.

Your focus needs to be the people that will truly be affected on a day to day basis by any FERC decision. Paid staff, consultants and advocates expect to travel.

If the date is workable, the Stanislaus County Farm Bureau will even offer our Boardroom for the meeting. We are located 1 block east of MID at 1201 L Street.

Tom Orvis
Stanislaus County Farm Bureau
Modesto, CA 95354
(209) 522-7278 Office
TomO@stanfarmbureau.org

"FARMERS FEED FAMILIES"
WWW.STANFARMBUREAU.COM

From: maperanch@[redacted] [mailto:maperanch[redacted]]
Sent: Thursday, August 25, 2011 11:06 AM
To: Carin.Loy@hdrinc.com
Cc: seboyd@tid.org; Craig@[redacted] Nancy.Craig@hdrinc.com; GREGD@MID.ORG; agodwin@m[redacted];

noah@stillwatersci.com; AGENGR6[redacted]; rmnees@tid.org; towater@olaughlinparis.com; duane.paul@cardno.com; William.Snider@hdrinc.com; [redacted]; JOYW@MID.ORG; Scott@stillwatersci.com; jalves@modestogov.com; lynette@newman-romano.com; jaud@envres.org; james_barnes@ca.blm.gov; Beuttler[redacted]; jbeuttler[redacted]; Bond[redacted]; jbond@modestogov.com; abouche[redacted]; anadromous[redacted]; Stephen_Bowes@nps.gov; artbow[redacted] douglas.brewer@tetratech.com; brochin[redacted]; Buckley[redacted]; johnb@cserc.org; cburt@calpoly.edu; Carlin[redacted]; mcarlin@sfwater.org; Catlett[redacted]; kelly@friendsoftheriver.org; Charles[redacted]; cindy[redacted] net; Cory[redacted]; pcory@tnc.org; chixrnch@mlode.com; J.cowar[redacted]; receptionist@mlode.com; pcransto@ca.blm.gov; rebeccac@cserc.org; Pday@mofo.com; John.Devine@hdrinc.com; mwdonaldson@parks.ca.gov; mdowd@fs.fed.us; Peter@tuolumne.org; steve.edmondson@noaa.gov; james_eicher@BLM.gov; lfety@blm.gov; TFindley@hansonbridgett.com; bfreeman@calpoly.edu; rfuller@mlode.com; donn.w.furman@sfgov.org; jgantenbein@waterpowerlaw.com; Deborah_Giglio@fws.gov; rwgoode911[redacted]; vevadc[redacted] com; monica.gutierrez@noaa.gov; James.Hastreiter@FERC.gov; jhatch@caltrout.org; Zhayat@mofo.com; anitajhellam[redacted] Rachael.Hersh-Burdick@USACE.army.mil; theyne@dfg.ca.gov; holden2jc[redacted]; jhorn@ca.blm.gov; timihorn[redacted]; noahnsa[redacted] rwhughes@dfg.ca.gov; jjackman[redacted]; zachary_jackson@FWS.gov; deltakeep[redacted]; ajensen@bawsca.org; Laura_Jensen@TNC.org; mjohannis@usbr.gov; bjohnson@tu.org; justin[redacted]; rkanz@waterboards.ca.gov; jekeating66[redacted]; kathryn.kempton@noaa.gov; [redacted]; patrick@tuolumne.org; Mortalis46[redacted]; elevin@sfwater.org; prci.info@chukchansi.net; dslinkard[redacted]; amanji@dfg.ca.gov; mike@hetchhetchy.org; mmartin[redacted]; chixrnch2@mlode.com; dampl[redacted]t; McDevitt[redacted]; rmcdevitt@hansonbridgett.com; marty[redacted] jeff.mclain@noaa.gov; jmeans@dfg.ca.gov; sixbit[redacted] rhonda@buenavistatribe.com; mary.motola@chukchansi.net; JKObrien@dfg.ca.gov; Tom Orvis; rsce[redacted]; ottfarms[redacted]; npinhey@modestogov.com; ruth.porter@hoganlovells.com; chixrnch@lodelink.com; spuccini@dfg.ca.gov; jessie@tuolumne.org; tramirez@sfwater.org; maria.rea@noaa.gov; rhonda.reed@noaa.gov; Kevin.A.Richardson@usace.army.mil; royalrobbins[redacted] dave@newman-romano.com; rrcollins@waterpowerlaw.com; jessetroseman[redacted]; srothert@americanrivers.org; nsandkulla@bawsca.org; aschutte@hansonbridgett.com; wsears@sfwater.org; vshumway@fs.fed.us; blancapaloma@msn.com; CNRF[redacted]; jpsmithgm[redacted]; Rose.Staples@hdrinc.com; dave@americanwhitewater.org; rstork@friendsoftheriver.org; sstratton@parks.ca.gov; mtaylor@dfg.ca.gov; gatevelde[redacted]; larry.thompson@noaa.gov; cverkuil@mofo.com; ewalters@mofo.com; richard.wantuck@noaa.gov; arta[redacted]; eric@tuolumne.org; dan.wheelerhay[redacted]; dave.wheelerhay[redacted]; douglas.wheeler@hoganlovells.com; hbwillia44[redacted]; bwilson@mofo.com; frank.winchell@ferc.gov; davewood@ldpmarina.com; john.wooster@noaa.gov; michelle_workman@fws.gov; rmyoshiyama@ucdavis.edu; Wayne Zipser; PBarnes@waterboards.ca.gov

Subject: Re: Don Pedro: Scheduling Socioeconmics Subgroup Meeting

You are having the sub-group on socioeconomic impacts to the greater Modesto/Turlock area meeting in Sacramento? May I respectfully ask why hold the meeting in Sacramento? Is it a convenient location for the paid consultants? It is an inconvenient location for local Modesto/Turlock residents, business men and women, Chamber of Commerce, labor groups, social advocates and farmers to attend.

Sincerely,

William (Bill) J. Lyons, Jr.
Mape's Ranch/Lyons' Investments

10555 Maze Blvd.
Modesto CA 95358
(209) 522-1762

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-----Original Message-----
From: Loy, Carin <Carin.Loy@hdrinc.com>
To: seboyd@tid.org <seboyd@tid.org>; Craig, Nancy <Nancy.Craig@hdrinc.com>; Greg Dias <GREGD@MID.ORG>; [redacted]>; rmnees@tid.org <rmnees@tid.org>; Tim O'Laughlin <towater@olaughlinparis.com>; Duane Paul <duane.paul@cardno.com>; Snider,William <William.Snider@hdrinc.com>; Daniel Steiner <steinerd[redacted]>; Joy Warren <JOYW@MID.ORG>; Scott Wilcox <Scott@stillwatersci.com>; Alves, Jim - City of Modesto <jalves@modestogov.com>; Asay, Lynette - N-R <lynette@newman-romano.com>; Aud, John - SCERD <jaud@envres.org>; Barnes, James - BLM <james_barnes@ca.blm.gov>; Beuttler, John - CSPA <jbeuttle[redacted]>; Bond, Jack - City of Modesto <jbond@modestogov.com>; Boucher, Allison -TRC <abouche[redacted]>; Boucher, Dave - Allison - TRC <anadromous[redacted]>; Bowes, Stephen - NPS <Stephen_Bowes@nps.gov>; Bowman, Art - CWRMP <artbow@juno.com>; Brewer,Doug - TetraTech <douglas.brewer@tetratech.com>; Brochini, Anthony - SSMN <brochin[redacted] Buckley, John - CSERC <johnb@cserc.org>; Burt,Charles - CalPoly <cburt@calpoly.edu>; Carlin, Michael - SFPUC <mcarlin@sfwater.org>; Catlett, Kelly - FOR <kelly@friendsoftheriver.org>; Charles, Cindy - GWWF <cindy[redacted]>; Cory, Philip - TNC <pcory@tnc.org>; Costa, Jan - Chicken Ranch <chixrnch@mlode.com>; Cowan,Jeffrey <J.cowan[redacted]>; Cox, Stanley Rob - TBMWI <receptionist@mlode.com>; Cranston, Peggy - BLM <pcransto@ca.blm.gov>; Cremeen, Rebecca - CSERC <rebeccac@cserc.org>; Day, P - MF <Pday@mofo.com>; Devine, John <John.Devine@hdrinc.com>; Donaldson,Milford Wayne - OHP <mwdonaldson@parks.ca.gov>; Dowd, Maggie-SNF <mdowd@fs.fed.us>; Drekmeier, Peter - TRT <Peter@tuolumne.org>; Edmondson, Steve - NOAA <steve.edmondson@noaa.gov>; Eicher, James - BLM <james_eicher@BLM.gov>; Fety, Lauren - BLM <lfety@blm.gov>; Findley,Timothy - Hanson Bridgett <TFindley@hansonbridgett.com>; Freeman, Beau -CalPoly <bfreeman@calpoly.edu>; Fuller, Reba - TMTC <rfuller@mlode.com>; Furman, Donn W - SFPUC <donn.w.furman@sfgov.org>; Ganteinbein, Julie -Water-Power Law Grp <jgantenbein@waterpowerlaw.com>; Giglio, Deborah -USFWS <Deborah_Giglio@fws.gov>; Goode, Ron - NFMT <rwgoode911[redacted]>; Gorman, Elaine - YSC <vevadc[redacted]>; Gutierrez, Monica - NOAA-NMFS <monica.gutierrez@noaa.gov>; Hastreiter,James L - FERC <James.Hastreiter@FERC.gov>; Hatch, Jenny - CT <jhatch@caltrout.org>; Hayat, Zahra - MF <Zhayat@mofo.com>; Hellam, Anita- HH <[redacted]>; Hersh-Burdick, Rachael - USACE <Rachael.Hersh-Burdick@USACE.army.mil>; Heyne, Tim - CDFG <theyne@dfg.ca.gov>; Holden, James <holden2jc[redacted]>; Horn, Jeff - BLM <jhorn@ca.blm.gov>; Horn, Tini <timihorn[redacted]>; Hughes, Noah <noahnsa[redacted]>; Hughes, Robert - CDFG <rwhughes@dfg.ca.gov>; Jackman, Jerry <[redacted]>; Jackson, Zac - USFWS <zachary_jackson@FWS.gov>; Jennings, William - CSPA <[redacted]>; Jensen, Art - BAWSCA <ajensen@bawsca.org>; Jensen, Laura - TNC <Laura_Jensen@TNC.org>; Johannis, Mary <mjohannis@usbr.gov>; Johnson,Brian - CalTrout <bjohnson@tu.org>; Justin <justin[redacted]>; Kanz,Russ - SWRCB <rkanz@waterboards.ca.gov>; Keating, Janice <jekeating66[redacted]>; Kempton, Kathryn - NOAA-MNFS <kathryn.kempton@noaa.gov>; Kinney, Teresa <tkinney86[redacted]>; Koepele, Patrick - TRT <patrick@tuolumne.org>; Lein, Joseph <Mortalis46[redacted]>; Levin, Ellen - SFPUC <elevin@sfwater.org>; Lewis, Reggie - PRCI <prci.info@chukchansi.net>; Linkard, David - TRT /RH <dslinkard[redacted]>; Lyons, Bill - MR <maperanch[redacted]>; Manji, Annie <amanji@dfg.ca.gov>; Marko, Paul <Dmarko[redacted]>; Marshall,

HOME EMAIL ADDRESSES REMOVED PER SECTION 2.4.3 DON PEDRO PAD

Mike - RHH <mike@hetchhetchy.org>; Martin, Michael - MFFC <mmartin[redacted]t>; Mathiesen, Lloyd - CRRMW <chixrnch2@mlode.com>; McDaniel, Dan -CDWA <dampl[redacted]>; McDevitt, Ray - BAWSCA <rmcdevitt@hansonbridgett.com>; McDonnell, Marty - SMRT <marty[redacted]>; McLain, Jeffrey - NOAA-NMFS <jeff.mclain@noaa.gov>; Means, Julie - CDFG <jmeans@dfg.ca.gov>; Mills, John - TUD <sixbi[redacted] Morningstar Pope, Rhonda - BVR <rhonda@buenavistatribe.com>; Motola, Mary - CT <mary.motola@chukchansi.net>; O'Brien, Jennifer - CDFG <JKObrien@dfg.ca.gov>; Orvis, Tom - SCFB <TomO@stanfarmbureau.org>; Ott,Bob <rsce[redacted]>; Ott, Chris <ottfarms[redacted] Pinhey, Nick -City of Modesto <npinhey@modestogov.com>; Porter, Ruth - RHH <ruth.porter@hoganlovells.com>; Powell, Melissa - CRRMW <chixrnch@lodelink.com>; Puccini, Stephen - CDFG <spuccini@dfg.ca.gov>; Raeder, Jessie - TRT <jessie@tuolumne.org>; Ramirez, Tim - SFPUC <tramirez@sfwater.org>; Rea, Maria - NOAA-NMFS <maria.rea@noaa.gov>; Reed, Rhonda - NOAA-NMFS <rhonda.reed@noaa.gov>; Richardson, Kevin -USACE <Kevin.A.Richardson@usace.army.mil>; Robbins, Royal <royalrobbins[redacted]>; Romano, David O - N-R <dave@newman-romano.com>; Roos-Collins, Richard - Water-Power Law Grp forNHI <rrcollins@waterpowerlaw.com>; Roseman, Jesse <jessetroseman[redacted] Rothert, Steve - AR <srothert@americanrivers.org>; Sandkulla, Nicole - BAWSCA <nsandkulla@bawsca.org>; Schutte, Allison - HB <aschutte@hansonbridgett.com>; Sears, William - SFPUC <wsears@sfwater.org>; Shumway, Vern - SNF <vshumway@fs.fed.us>; Shutes, Chris - CSPA <blancapaloma[redacted]>; Slay, Ronn - CNRF/AIC <[redacted]>; Smith,Jim - MPM <jpsmithgm[redacted]>; Staples, Rose <Rose.Staples@hdrinc.com>; Steindorf, Dave - AW <dave@americanwhitewater.org>; Stork, Ron - FOR <rstork@friendsoftheriver.org>; Stratton, Susan - CA SHPO <sstratton@parks.ca.gov>; Taylor, Mary Jane - CDFG <mtaylor@dfg.ca.gov>; TeVelde, George A <gatevelde[redacted]>; Thompson, Larry - NOAA-MNFS <larry.thompson@noaa.gov>; Verkuil, Colette - TRT/MF <cverkuil@mofo.com>; Walters, Eric - MF <ewalters@mofo.com>; Wantuck, Rick - NOAA-NMFS <richard.wantuck@noaa.gov>; Welch, Steve - ARTA <arta[redacted] Wesselman, Eric - TRT <eric@tuolumne.org>; Wheeler, Dan <dan.wheelerhay[redacted]>; Wheeler, Dave <dave.wheelerhay[redacted]>; Wheeler, Douglas - RHH <douglas.wheeler@hoganlovells.com>; Williamson,Harry (NPS) <[redacted]>; Wilson, Bryan - MF <bwilson@mofo.com>; Winchell, Frank - FERC <frank.winchell@ferc.gov>; Wood, Dave - FR <davewood@ldpmarina.com>; Wooster, John -NOAA <john.wooster@noaa.gov>; Workman, Michelle - USFWS <michelle_workman@fws.gov>; Yoshiyama, Ron <rmyoshiyama@ucdavis.edu>; Zipser, Wayne - SCFB <waynez@stanfarmbureau.org>; Peter Barnes <PBarnes@waterboards.ca.gov>
Sent: Wed, Aug 24, 2011 1:39 pm
Subject: Don Pedro: Scheduling Socioeconmics Subgroup Meeting

Don Pedro Relicensing
Socioeconomics Sub-Group Meeting

At the August 23 Water & Aquatic Resource Work Group meeting, the Relicensing Participants and Districts decided to create a sub-group and schedule a meeting
to discuss and refine the following study plan:

- W&AR-15 Socioeconomics

Please follow the link complete the Doodlepoll with your availability.
http://doodle.com/qmmmvy54cmw2qicr

I will close the poll by the end of the day tomorrow, Thursday, August 25. Afternoons between September 6 and September 14 are included. The sub-group will be able to report back to the greater group at the September 15 meeting.

Everyone who is interested is encouraged to attend. The precise location in Sacramento will be determined and distributed once we have received your

responses.

If you have any questions about this meeting, please contact Carin Loy, HDR, at carin.loy@hdrinc.com<mailto:carin.loy@hdrinc.com> or 916-679-8737.

RE Request for Additional Information

From: Annie Manji [AManji@dfg.ca.gov]
Sent: Friday, August 26, 2011 12:45 PM
To: Devine, John
Cc: Steve - AR' 'Rothert; Dave - AW' 'Steindorf; 'Bill Johnston'; William -CSPA'

'Jennings; Paul ' 'Marko; John - CSPA' 'Beuttler; Jim - MPM' 'Smith; Bill - MR' 'Lyons; Bob' 'Ott; Steve - ARTA' 'Welch; Art - BAWSCA' 'Jensen; Nicole - BAWSCA' 'Sandkulla; Allison - TRC' 'Boucher; Dave -Allison - TRC' 'Boucher; James - BLM' 'Eicher; Lauren - BLM' 'Fety; Rhonda - BVR' 'Morningstar Pope; Roselynn BVR' 'Lwenya; James - BLM' 'Barnes; Jeff -BLM' 'Horn; Peggy - BLM' 'Cranston; Beau - CalPoly' 'Freeman; Charles - CalPoly' 'Burt; Jenny - CT' 'Hatch; Cindy - GWWF' 'Charles; Mary - PRCI' 'Motola; Dan' 'Wheeler; Dave' 'Wheeler; John - CSERC' 'Buckley; Rebecca - CSERC' 'Cremeen; Jim Canaday; Jennifer O'Brien; Julie Means; Mary Jane Taylor; Bob Hughes; Stephen Puccini; Tim Heyne; Royal' 'Robbins; Ronn - CNRF/AIC' 'Slay; John - SCERD' 'Aud; Frank - FERC' 'Winchell; James.Hastreiter@ferc.gov; Kelly - FOR' 'Catlett; Ron - FOR' 'Stork; Maggie-SNF' 'Dowd; Vern - SNF' 'Shumway; Craig - USFWS' 'Anderson; Deborah -USFWS' 'Giglio; Michelle - USFWS' 'Workman; Zac - USFWS' 'Jackson; Harry (NPS)' 'Williamson; Janice' 'Keating; Jesse' 'Roseman; Allison - HB' 'Schutte; Ray - BAWSCA' 'McDevitt; Timothy - HansonBridgett' 'Findley; Loy, Carin; Jones, Rick; Staples, Rose; Mike - RHH' 'Marshall; Douglas P. Wheeler; ruth.porter@hoganlovells.com; Joseph' 'Lein; Noah' 'Hughes; Chris' 'Ott; Ron - NFMT' 'Goode; Teresa' 'Kinney; 'Justin'; James ' 'Holden; Art - CWRMP' 'Bowman; Dave - FR' 'Wood; David - TRT /RH' 'Linkard; Melissa - CRRMW' 'Powell; George A ' 'TeVelde; 'Greg Dias'; 'Joy Warren'; 'MelissaWilliams'; Jan -Chicken Ranch' 'Costa; Lloyd - CRRMW' 'Mathiesen; Stanley Rob - TBMWI' 'Cox; Reba - TMTC' 'Fuller; Jim - City ofModesto' 'Alves; Jack - City of Modesto' 'Bond; Nick - City of Modesto' 'Pinhey; Bryan - MF' 'Wilson; Colette - TRT/MF' 'Verkuil; Eric - MF' 'Walters; P - MF' 'Day; Zahra - MF' 'Hayat; 'Arthur F Godwin'; Chris - CSPA' 'Shutes; David O - N-R' 'Romano; Lynette - N-R' 'Asay; Jeffrey - NOAA-NMFS' 'McLain; John -NOAA' 'Wooster; Kathryn - NOAA-MNFS' 'Kempton; Larry - NOAA-MNFS' 'Thompson; Maria - NOAA-NMFS' 'Rea; Monica - NOAA-NMFS' 'Gutierrez; Rhonda - NOAA-NMFS' 'Reed; Rick - NOAA-NMFS' 'Wantuck; Steve - NOAA' 'Edmondson; Stephen - NPS' 'Bowes; Tony - NPS' 'Brochini; 'Tim O'Laughlin'; Dan -CDWA' 'McDaniel; Milford Wayne - OHP' 'Donaldson; Susan - CA SHPO' 'Stratton; Jeffrey' 'Cowan; Jerry ' 'Jackman; Donn W - SFPUC' 'Furman; Ellen - SFPUC' 'Levin; Michael - SFPUC' 'Carlin; tramirez@sfwater.org; William - SFPUC' 'Sears; Marty - SMRT' 'McDonnell; John - TUD' 'Mills; sharon.coleman@spiegelmcd.com; william.huang@spiegelmcd.com; Tom - SCFB' 'Orvis; Wayne - SCFB' 'Zipser; Anthony - SSMN' 'Brochini; Michael - MFFC' 'Martin; Sandy ' 'Vasquez; 'Lewis-Reggie-PRCI'; Doug - TetraTech' 'Brewer; 'Michelle Reimers'; 'Robert M. Nees'; 'Steve Boyd'; Laura - TNC' 'Jensen; Philip - TNC' 'Cory; Brian - CalTrout' 'Johnson; Eric - TRT' 'Wesselman; Jessie - TRT' 'Raeder; Patrick - TRT' 'Koepele; Peter - TRT' 'Drekmeier; Ron' 'Yoshiyama; Kevin - USACE' 'Richardson; Mary' 'Johannis; Russ - SWRCB' 'Kanz; Julie -Water-Power Law Grp' 'Ganteinbein; Richard - Water-Power Law Grp forNHI' 'Roos-Collins; Anita - HH' 'Hellam; Tini' 'Horn; Elaine - YSC' 'Gorman
Subject: RE: Request for Additional Information

Follow Up Flag: Follow up
Flag Status: Flagged

John,

Now that the preliminary study requests and proposed study plan milestones are behind us, I would like to follow-up on two additional information requests from the April 1, 2011 meeting.

At that meeting DFG representatives asked:

"Where, and when, is riparian water used -- and how is it separated form

storage? Is riparian water used on lands that meet the definition of "riparian lands"? Please include a map of the lands that are served under a riparian claim. Please provide season and amounts of water provided on those lands under claim of riparian right"

The Progress Tracking List labels this as "Item 13" and the status has not changed from "the Districts' response is in progress"

A related request also submitted at the April 1, 2011 meeting by another relicensing party was:

" Provide copies of the District's pre-1914 appropriative rights, as noted or recorded in accordance with the state laws at the time"

This is Progress Tracking List Item # 16 and again the status is "in progress"

Could you please provide an update on these water rights items?
Thank you

Annie Manji
Statewide FERC Coordinator
California Department of Fish and Game
Water Branch
601 Locust Street
Redding, CA 96001
(530) 225-2315
amanji@dfg.ca.gov

Loy, Carin

From: Porter, Ruth M. [ruth.porter@hoganlovells.com]
Sent: Monday, August 29, 2011 10:21 AM
To: Devine, John; Robert M. Nees; Greg Dias; Joy Warren; 'Arthur F. Godwin (agodwin@mrgb.org)'; William R. Johnston; towater@olaughlinparis.com; Steve Boyd; Melissa Williams; Michelle Reimers
Cc: Staples, Rose; 'Alves, Jim - City of Modesto'; 'Anderson, Craig - USFWS'; 'Asay, Lynette - N-R'; 'Aud, John - SCERD'; 'Barnes, James - BLM'; 'Beuttler, John - CSPA'; 'Bond, Jack - City of Modesto'; 'Boucher, Allison - TRC'; 'Boucher, Dave - Allison - TRC'; 'Bowes, Stephen - NPS'; 'Bowman, Art - CWRMP'; 'Brewer, Doug - TetraTech'; 'Brochini, Anthony - SSMN'; 'Brochini, Tony - NPS'; 'Buckley, John - CSERC'; 'Burt, Charles - CalPoly'; 'Carlin, Michael - SFPUC'; 'Catlett, Kelly - FOR'; 'Charles, Cindy - GWWF'; 'Cory, Philip - TNC'; 'Costa, Jan - Chicken Ranch'; 'Cowan, Jeffrey'; 'Cox, Stanley Rob - TBMWI'; 'Cranston, Peggy - BLM'; 'Cremeen, Rebecca - CSERC'; 'Day, P - MF'; 'Donaldson, Milford Wayne - OHP'; 'Dowd, Maggie-SNF'; 'Drekmeier, Peter - TRT'; 'Edmondson, Steve - NOAA'; 'Eicher, James - BLM'; 'Fety, Lauren - BLM'; 'Findley, Timothy - Hanson Bridgett'; 'Freeman, Beau - CalPoly'; 'Fuller, Reba - TMTC'; 'Furman, Donn W - SFPUC'; 'Ganteinbein, Julie - Water-Power Law Grp'; 'Giglio, Deborah - USFWS'; 'Goode, Ron - NFMT'; 'Gorman, Elaine - YSC'; 'Gutierrez, Monica - NOAA-NMFS'; 'Hastreiter, James L - FERC'; 'Hatch, Jenny - CT'; 'Hayat, Zahra - MF'; 'Hellam, Anita - HH'; 'Heyne, Tim - CDFG'; 'Holden, James '; 'Horn, Jeff - BLM'; 'Horn, Tini'; 'Hughes, Noah'; 'Hughes, Robert - CDFG'; 'Jackman, Jerry '; 'Jackson, Zac - USFWS'; 'Jennings, William - CSPA'; 'Jensen, Art - BAWSCA'; 'Jensen, Laura - TNC'; 'Johannis, Mary'; 'Johnson, Brian - CalTrout'; 'Justin'; 'Kanz, Russ - SWRCB'; 'Keating, Janice'; 'Kempton, Kathryn - NOAA-MNFS'; 'Kinney, Teresa'; 'Koepele, Patrick - TRT'; 'Lein, Joseph'; 'Levin, Ellen - SFPUC'; 'Lewis-Reggie-PRCI'; 'Linkard, David - TRT /RH'; Loy, Carin; 'Lwenya, Roselynn, BVR'; 'Lyons, Bill - MR'; 'Manji, Annie'; 'Marko, Paul '; 'Marshall, Mike - RHH'; 'Martin, Michael - MFFC'; 'Mathiesen, Lloyd - CRRMW'; 'McDaniel, Dan -CDWA'; 'McDevitt, Ray - BAWSCA'; 'McDonnell, Marty - SMRT'; 'McLain, Jeffrey - NOAA-NMFS'; 'Means, Julie - CDFG'; 'Mills, John - TUD'; 'Morningstar Pope, Rhonda - BVR'; 'Motola, Mary - PRCI'; 'O'Brien, Jennifer - CDFG'; 'Orvis, Tom - SCFB'; 'Ott, Bob'; 'Ott, Chris'; 'Pinhey, Nick - City of Modesto'; 'Powell, Melissa - CRRMW'; 'Puccini, Stephen - CDFG'; 'Raeder, Jessie - TRT'; 'Ramirez, Tim - SFPUC'; 'Rea, Maria - NOAA-NMFS'; 'Reed, Rhonda - NOAA-NMFS'; 'Richardson, Kevin - USACE'; 'Robbins, Royal'; 'Romano, David O - N-R'; 'Roos-Collins, Richard - Water-Power Law Grp for NHI'; 'Roseman, Jesse'; 'Rothert, Steve - AR'; 'Sandkulla, Nicole - BAWSCA'; 'Schutte, Allison - HB'; 'Sears, William - SFPUC'; 'Shumway, Vern - SNF'; 'Shutes, Chris - CSPA'; 'Slay, Ronn - CNRF/AIC'; 'Smith, Jim - MPM'; 'Steindorf, Dave - AW'; 'Stork, Ron - FOR'; 'Stratton, Susan - CA SHPO'; 'Taylor, Mary Jane - CDFG'; 'TeVelde, George A '; 'Thompson, Larry - NOAA-MNFS'; 'Vasquez, Sandy '; 'Verkuil, Colette - TRT/MF'; 'Walters, Eric - MF'; 'Wantuck, Rick - NOAA-NMFS'; 'Welch, Steve - ARTA'; 'Wesselman, Eric - TRT'; 'Wheeler, Dan'; 'Wheeler, Dave'; Wheeler, Douglas P.; 'Williamson, Harry (NPS)'; 'Wilson, Bryan - MF'; 'Winchell, Frank - FERC'; 'Wood, Dave - FR'; 'Wooster, John -NOAA'; 'Workman, Michelle - USFWS'; 'Yoshiyama, Ron'; 'Zipser, Wayne - SCFB'; 'Robert M. Nees'; 'Greg Dias'; 'Joy Warren'; 'Arthur F Godwin'; 'Bill Johnston'; 'Tim O'Laughlin'; 'Steve Boyd'; 'Melissa Williams'; 'Michelle Reimers'; Loy, Carin; Jones, Rick; sharon.coleman@spiegelmcd.com; william.huang@spiegelmcd.com; tramirez@sfwater.org
Subject: RE: Request for Additional Information

John,

Please go ahead and have a vendor do an estimate on scanning the pre-1983 records. Also, please provide the contact information for the vendor that you use so that I can contact them to discuss processing specifications.

Thanks,

Ruth

From: Staples, Rose
Sent: Monday, August 29, 2011 3:57 PM
To: 'Porter, Ruth M.'; Devine, John; Robert M. Nees; Greg Dias; Joy Warren; 'Arthur F. Godwin (agodwin@mrgb.org)'; William R. Johnston; towater@olaughlinparis.com; Steve Boyd; Melissa Williams; Michelle Reimers
Cc: 'Alves, Jim - City of Modesto'; 'Anderson, Craig - USFWS'; 'Asay, Lynette - N-R'; 'Aud, John - SCERD'; 'Barnes, James - BLM'; 'Beuttler, John - CSPA'; 'Bond, Jack - City of Modesto'; 'Boucher, Allison - TRC'; 'Boucher, Dave - Allison - TRC'; 'Bowes, Stephen - NPS'; 'Bowman, Art - CWRMP'; 'Brewer, Doug - TetraTech'; 'Brochini, Anthony - SSMN'; 'Brochini, Tony - NPS'; 'Buckley, John - CSERC'; 'Burt, Charles - CalPoly'; 'Carlin, Michael - SFPUC'; 'Catlett, Kelly - FOR'; 'Charles, Cindy - GWWF'; 'Cory, Philip - TNC'; 'Costa, Jan - Chicken Ranch'; 'Cowan, Jeffrey'; 'Cox, Stanley Rob - TBMWI'; 'Cranston, Peggy - BLM'; 'Cremeen, Rebecca - CSERC'; 'Day, P - MF'; 'Donaldson, Milford Wayne - OHP'; 'Dowd, Maggie-SNF'; 'Drekmeier, Peter - TRT'; 'Edmondson, Steve - NOAA'; 'Eicher, James - BLM'; 'Fety, Lauren - BLM'; 'Findley, Timothy - Hanson Bridgett'; 'Freeman, Beau - CalPoly'; 'Fuller, Reba - TMTC'; 'Furman, Donn W - SFPUC'; 'Ganteinbein, Julie - Water-Power Law Grp'; 'Giglio, Deborah - USFWS'; 'Goode, Ron - NFMT'; 'Gorman, Elaine - YSC'; 'Gutierrez, Monica - NOAA-NMFS'; 'Hastreiter, James L - FERC'; 'Hatch, Jenny - CT'; 'Hayat, Zahra - MF'; 'Hellam, Anita - HH'; 'Heyne, Tim - CDFG'; 'Holden, James '; 'Horn, Jeff - BLM'; 'Horn, Tini'; 'Hughes, Noah'; 'Hughes, Robert - CDFG'; 'Jackman, Jerry '; 'Jackson, Zac - USFWS'; 'Jennings, William - CSPA'; 'Jensen, Art - BAWSCA'; 'Jensen, Laura - TNC'; 'Johannis, Mary'; 'Johnson, Brian - CalTrout'; 'Justin'; 'Kanz, Russ - SWRCB'; 'Keating, Janice'; 'Kempton, Kathryn - NOAA-MNFS'; 'Kinney, Teresa'; 'Koepele, Patrick - TRT'; 'Lein, Joseph'; 'Levin, Ellen - SFPUC'; 'Lewis-Reggie-PRCI'; 'Linkard, David - TRT /RH'; Loy, Carin; 'Lwenya, Roselynn, BVR'; 'Lyons, Bill - MR'; 'Manji, Annie'; 'Marko, Paul '; 'Marshall, Mike - RHH'; 'Martin, Michael - MFFC'; 'Mathiesen, Lloyd - CRRMW'; 'McDaniel, Dan - CDWA'; 'McDevitt, Ray - BAWSCA'; 'McDonnell, Marty - SMRT'; 'McLain, Jeffrey - NOAA-NMFS'; 'Means, Julie - CDFG'; 'Mills, John - TUD'; 'Morningstar Pope, Rhonda - BVR'; 'Motola, Mary - PRCI'; 'O'Brien, Jennifer - CDFG'; 'Orvis, Tom - SCFB'; 'Ott, Bob'; 'Ott, Chris'; 'Pinhey, Nick - City of Modesto'; 'Powell, Melissa - CRRMW'; 'Puccini, Stephen - CDFG'; 'Raeder, Jessie - TRT'; 'Ramirez, Tim - SFPUC'; 'Rea, Maria - NOAA-NMFS'; 'Reed, Rhonda - NOAA-NMFS'; 'Richardson, Kevin - USACE'; 'Robbins, Royal'; 'Romano, David O - N-R'; 'Roos-Collins, Richard - Water-Power Law Grp for NHI'; 'Roseman, Jesse'; 'Rothert, Steve - AR'; 'Sandkulla, Nicole - BAWSCA'; 'Schutte, Allison - HB'; 'Sears, William - SFPUC'; 'Shumway, Vern - SNF'; 'Shutes, Chris - CSPA'; 'Slay, Ronn - CNRF/AIC'; 'Smith, Jim - MPM'; 'Steindorf, Dave - AW'; 'Stork, Ron - FOR'; 'Stratton, Susan - CA SHPO'; 'Taylor, Mary Jane - CDFG'; 'TeVelde, George A '; 'Thompson, Larry - NOAA-MNFS'; 'Vasquez, Sandy '; 'Verkuil, Colette - TRT/MF'; 'Walters, Eric - MF'; 'Wantuck, Rick - NOAA-NMFS'; 'Welch, Steve - ARTA'; 'Wesselman, Eric - TRT'; 'Wheeler, Dan'; 'Wheeler, Dave'; Wheeler, Douglas P.; 'Williamson, Harry (NPS)'; 'Wilson, Bryan - MF'; 'Winchell, Frank - FERC'; 'Wood, Dave - FR'; 'Wooster, John -NOAA'; 'Workman, Michelle - USFWS'; 'Yoshiyama, Ron'; 'Zipser, Wayne - SCFB'; 'Robert M. Nees'; 'Greg

Dias'; 'Joy Warren'; 'Arthur F Godwin'; 'Bill Johnston'; 'Tim O'Laughlin'; 'Steve Boyd'; 'Melissa Williams'; 'Michelle Reimers'; Loy, Carin; Jones, Rick; sharon.coleman@spiegelmcd.com; william.huang@spiegelmcd.com; tramirez@sfwater.org

Subject: RE: Request for Additional Information

New HH-150 copy has been uploaded to the Don Pedro Relicensing website this afternoon. Thank you.

ROSE STAPLES
CPS CAP

HDR Engineering, Inc.
Executive Assistant, Hydropower Services

970 Baxter Boulevard, Suite 301 | Portland, ME 04103
207.239.3857 | f: 207.775.1742
rose.staples@hdrinc.com | hdrinc.com

From: Porter, Ruth M. [mailto:ruth.porter@hoganlovells.com]
Sent: Monday, August 29, 2011 1:26 PM
To: Devine, John; Robert M. Nees; Greg Dias; Joy Warren; 'Arthur F. Godwin (agodwin@mrgb.org)'; William R. Johnston; towater@olaughlinparis.com; Steve Boyd; Melissa Williams; Michelle Reimers
Cc: Staples, Rose; 'Alves, Jim - City of Modesto'; 'Anderson, Craig - USFWS'; 'Asay, Lynette - N-R'; 'Aud, John - SCERD'; 'Barnes, James - BLM'; 'Beuttler, John - CSPA'; 'Bond, Jack - City of Modesto'; 'Boucher, Allison - TRC'; 'Boucher, Dave - Allison - TRC'; 'Bowes, Stephen - NPS'; 'Bowman, Art - CWRMP'; 'Brewer, Doug - TetraTech'; 'Brochini, Anthony - SSMN'; 'Brochini, Tony - NPS'; 'Buckley, John - CSERC'; 'Burt, Charles - CalPoly'; 'Carlin, Michael - SFPUC'; 'Catlett, Kelly - FOR'; 'Charles, Cindy - GWWF'; 'Cory, Philip - TNC'; 'Costa, Jan - Chicken Ranch'; 'Cowan, Jeffrey'; 'Cox, Stanley Rob - TBMWI'; 'Cranston, Peggy - BLM'; 'Cremeen, Rebecca - CSERC'; 'Day, P - MF'; 'Donaldson, Milford Wayne - OHP'; 'Dowd, Maggie-SNF'; 'Drekmeier, Peter - TRT'; 'Edmondson, Steve - NOAA'; 'Eicher, James - BLM'; 'Fety, Lauren - BLM'; 'Findley, Timothy - Hanson Bridgett'; 'Freeman, Beau - CalPoly'; 'Fuller, Reba - TMTC'; 'Furman, Donn W - SFPUC'; 'Ganteinbein, Julie - Water-Power Law Grp'; 'Giglio, Deborah - USFWS'; 'Goode, Ron - NFMT'; 'Gorman, Elaine - YSC'; 'Gutierrez, Monica - NOAA-NMFS'; 'Hastreiter, James L - FERC'; 'Hatch, Jenny - CT'; 'Hayat, Zahra - MF'; 'Hellam, Anita - HH'; 'Heyne, Tim - CDFG'; 'Holden, James '; 'Horn, Jeff - BLM'; 'Horn, Tini'; 'Hughes, Noah'; 'Hughes, Robert - CDFG'; 'Jackman, Jerry '; 'Jackson, Zac - USFWS'; 'Jennings, William - CSPA'; 'Jensen, Art - BAWSCA'; 'Jensen, Laura - TNC'; 'Johannis, Mary'; 'Johnson, Brian - CalTrout'; 'Justin'; 'Kanz, Russ - SWRCB'; 'Keating, Janice'; 'Kempton, Kathryn - NOAA-MNFS'; 'Kinney, Teresa'; 'Koepele, Patrick - TRT'; 'Lein, Joseph'; 'Levin, Ellen - SFPUC'; 'Lewis-Reggie-PRCI'; 'Linkard, David - TRT /RH'; Loy, Carin; 'Lwenya, Roselynn, BVR'; 'Lyons, Bill - MR'; 'Manji, Annie'; 'Marko, Paul '; 'Marshall, Mike - RHH'; 'Martin, Michael - MFFC'; 'Mathiesen, Lloyd - CRRMW'; 'McDaniel, Dan - CDWA'; 'McDevitt, Ray - BAWSCA'; 'McDonnell, Marty - SMRT'; 'McLain, Jeffrey - NOAA-NMFS'; 'Means, Julie - CDFG'; 'Mills, John - TUD'; 'Morningstar Pope, Rhonda - BVR'; 'Motola, Mary - PRCI'; 'O'Brien, Jennifer - CDFG'; 'Orvis, Tom - SCFB'; 'Ott, Bob'; 'Ott, Chris'; 'Pinhey, Nick - City of Modesto'; 'Powell, Melissa - CRRMW'; 'Puccini, Stephen - CDFG'; 'Raeder, Jessie - TRT'; 'Ramirez, Tim - SFPUC'; 'Rea, Maria - NOAA-NMFS'; 'Reed, Rhonda - NOAA-NMFS'; 'Richardson, Kevin - USACE'; 'Robbins, Royal'; 'Romano, David O - N-R'; 'Roos-Collins, Richard - Water-Power Law Grp for NHI'; 'Roseman, Jesse'; 'Rothert, Steve - AR'; 'Sandkulla, Nicole - BAWSCA'; 'Schutte, Allison - HB'; 'Sears, William - SFPUC'; 'Shumway, Vern - SNF'; 'Shutes, Chris - CSPA'; 'Slay, Ronn - CNRF/AIC'; 'Smith, Jim - MPM'; 'Steindorf, Dave - AW'; 'Stork, Ron - FOR'; 'Stratton, Susan - CA SHPO'; 'Taylor, Mary Jane - CDFG'; 'TeVelde, George A '; 'Thompson, Larry - NOAA-MNFS'; 'Vasquez, Sandy '; 'Verkuil, Colette - TRT/MF'; 'Walters, Eric - MF'; 'Wantuck, Rick - NOAA-NMFS'; 'Welch, Steve - ARTA'; 'Wesselman, Eric - TRT'; 'Wheeler, Dan'; 'Wheeler, Dave'; Wheeler, Douglas P.; 'Williamson, Harry (NPS)'; 'Wilson, Bryan - MF'; 'Winchell, Frank - FERC'; 'Wood, Dave - FR'; 'Wooster, John -NOAA'; 'Workman, Michelle - USFWS'; 'Yoshiyama, Ron'; 'Zipser, Wayne - SCFB'; 'Robert

M. Nees'; 'Greg Dias'; 'Joy Warren'; 'Arthur F Godwin'; 'Bill Johnston'; 'Tim O'Laughlin'; 'Steve Boyd'; 'Melissa Williams'; 'Michelle Reimers'; Loy, Carin; Jones, Rick; sharon.coleman@spiegelmcd.com; william.huang@spiegelmcd.com; tramirez@sfwater.org
Subject: RE: Request for Additional Information

John,

Also, page 7 of 10 of the HH-150 document the Districts posted to the relicensing website is illegible. It appears there were some sort of printing or scanning issue. Please provide a legible copy of this document.

Ruth

From: Devine, John [mailto:John.Devine@hdrinc.com]
Sent: Friday, August 19, 2011 1:27 PM
To: Porter, Ruth M.; Robert M. Nees; Greg Dias; Joy Warren; 'Arthur F. Godwin (agodwin@mrgb.org)'; William R. Johnston; towater@olaughlinparis.com; Steve Boyd; Melissa Williams; Michelle Reimers
Cc: Staples, Rose; 'Alves, Jim - City of Modesto'; 'Anderson, Craig - USFWS'; 'Asay, Lynette - N-R'; 'Aud, John - SCERD'; 'Barnes, James - BLM'; 'Beuttler, John - CSPA'; 'Bond, Jack - City of Modesto'; 'Boucher, Allison - TRC'; 'Boucher, Dave - Allison - TRC'; 'Bowes, Stephen - NPS'; 'Bowman, Art - CWRMP'; 'Brewer, Doug - TetraTech'; 'Brochini, Anthony - SSMN'; 'Brochini, Tony - NPS'; 'Buckley, John - CSERC'; 'Burt, Charles - CalPoly'; 'Carlin, Michael - SFPUC'; 'Catlett, Kelly - FOR'; 'Charles, Cindy - GWWF'; 'Cory, Philip - TNC'; 'Costa, Jan - Chicken Ranch'; 'Cowan, Jeffrey'; 'Cox, Stanley Rob - TBMWI'; 'Cranston, Peggy - BLM'; 'Cremeen, Rebecca - CSERC'; 'Day, P - MF'; 'Donaldson, Milford Wayne - OHP'; 'Dowd, Maggie-SNF'; 'Drekmeier, Peter - TRT'; 'Edmondson, Steve - NOAA'; 'Eicher, James - BLM'; 'Fety, Lauren - BLM'; 'Findley, Timothy - Hanson Bridgett'; 'Freeman, Beau - CalPoly'; 'Fuller, Reba - TMTC'; 'Furman, Donn W - SFPUC'; 'Ganteinbein, Julie - Water-Power Law Grp'; 'Giglio, Deborah - USFWS'; 'Goode, Ron - NFMT'; 'Gorman, Elaine - YSC'; 'Gutierrez, Monica - NOAA-NMFS'; 'Hastreiter, James L - FERC'; 'Hatch, Jenny - CT'; 'Hayat, Zahra - MF'; 'Hellam, Anita - HH'; 'Heyne, Tim - CDFG'; 'Holden, James '; 'Horn, Jeff - BLM'; 'Horn, Tini'; 'Hughes, Noah'; 'Hughes, Robert - CDFG'; 'Jackman, Jerry '; 'Jackson, Zac - USFWS'; 'Jennings, William - CSPA'; 'Jensen, Art - BAWSCA'; 'Jensen, Laura - TNC'; 'Johannis, Mary'; 'Johnson, Brian - CalTrout'; 'Justin'; 'Kanz, Russ - SWRCB'; 'Keating, Janice'; 'Kempton, Kathryn - NOAA-MNFS'; 'Kinney, Teresa'; 'Koepele, Patrick - TRT'; 'Lein, Joseph'; 'Levin, Ellen - SFPUC'; 'Lewis-Reggie-PRCI'; 'Linkard, David - TRT /RH'; Loy, Carin; 'Lwenya, Roselynn, BVR'; 'Lyons, Bill - MR'; 'Manji, Annie'; 'Marko, Paul '; 'Marshall, Mike - RHH'; 'Martin, Michael - MFFC'; 'Mathiesen, Lloyd - CRRMW'; 'McDaniel, Dan - CDWA'; 'McDevitt, Ray - BAWSCA'; 'McDonnell, Marty - SMRT'; 'McLain, Jeffrey - NOAA-NMFS'; 'Means, Julie - CDFG'; 'Mills, John - TUD'; 'Morningstar Pope, Rhonda - BVR'; 'Motola, Mary - PRCI'; 'O'Brien, Jennifer - CDFG'; 'Orvis, Tom - SCFB'; 'Ott, Bob'; 'Ott, Chris'; 'Pinhey, Nick - City of Modesto'; 'Powell, Melissa - CRRMW'; 'Puccini, Stephen - CDFG'; 'Raeder, Jessie - TRT'; 'Ramirez, Tim - SFPUC'; 'Rea, Maria - NOAA-NMFS'; 'Reed, Rhonda - NOAA-NMFS'; 'Richardson, Kevin - USACE'; 'Robbins, Royal'; 'Romano, David O - N-R'; 'Roos-Collins, Richard - Water-Power Law Grp for NHI'; 'Roseman, Jesse'; 'Rothert, Steve - AR'; 'Sandkulla, Nicole - BAWSCA'; 'Schutte, Allison - HB'; 'Sears, William - SFPUC'; 'Shumway, Vern - SNF'; 'Shutes, Chris - CSPA'; 'Slay, Ronn - CNRF/AIC'; 'Smith, Jim - MPM'; 'Steindorf, Dave - AW'; 'Stork, Ron - FOR'; 'Stratton, Susan - CA SHPO'; 'Taylor, Mary Jane - CDFG'; 'TeVelde, George A '; 'Thompson, Larry - NOAA-MNFS'; 'Vasquez, Sandy '; 'Verkuil, Colette - TRT/MF'; 'Walters, Eric - MF'; 'Wantuck, Rick - NOAA-NMFS'; 'Welch, Steve - ARTA'; 'Wesselman, Eric - TRT'; 'Wheeler, Dan'; 'Wheeler, Dave'; Wheeler, Douglas P.; 'Williamson, Harry (NPS)'; 'Wilson, Bryan - MF'; 'Winchell, Frank - FERC'; 'Wood, Dave - FR'; 'Wooster, John -NOAA'; 'Workman, Michelle - USFWS'; 'Yoshiyama, Ron'; 'Zipser, Wayne - SCFB'; 'Robert M. Nees'; 'Greg Dias'; 'Joy Warren'; 'Arthur F Godwin'; 'Bill Johnston'; 'Tim O'Laughlin'; 'Steve Boyd'; 'Melissa Williams'; 'Michelle Reimers'; Loy, Carin; Jones, Rick; sharon.coleman@spiegelmcd.com; william.huang@spiegelmcd.com; tramirez@sfwater.org
Subject: RE: Request for Additional Information

Ruth,

Regarding your most recent email:

[1] As we mentioned in our prior email, the pre-1983 records are not available electronically and are extensive consisting of daily log sheets, summary forms, and hand-written P-173/174s. Reproducing these documents will be a costly undertaking. The Districts are willing to obtain an estimate of the cost to have an outside print shop or service reproduce all of these documents so you may decide whether to deposit the funds necessary to obtain your own copies. Alternatively, you or your clients are welcome to come to TID to view the documents and mark those you want copied. The second alternative may be far less costly and more efficient for you and your clients. Please let us know your wishes on this matter.

[2] As your email states, our response stated that the water bank "was allowed to go negative" once. As you know, day-to-day project operating decisions are made using **real time** information; that is, as it is immediately available. Real time data is the basis of day-to-day decision making, including decisions regarding the volume of the "water bank". Any decision to allow the "water bank" to go negative must occur using this real time data. Months after real time decisions are made, the US Geological Survey can, and frequently does, make adjustments to its water gauge measurements and publishes final flows. Of course, the Districts and CCSF cannot wait 6 months to a year for final USGS data to make real time decisions. The Districts and CCSF, however, have agreed for record keeping purposes to use the USGS final flow data for the "official" water bank accounting in order to use the official USGS published data for consistency in record keeping. Real time decisions made based on real time data are not revisited. The Districts and CCSF use the best information available at the time to make many decisions, including whether the water bank is likely to go negative. The effect of using real time data can readily be seen in the information we provided. Using real time data, the water bank was allowed to go negative in 1988, as we mentioned. The P-174 records show that, using final USGS data, the water bank was also negative in 1990, 1991, and 1992. This reflects the difference between real time data and records based on final USGS flows.

[3] Regarding your item (3), again, we would be pleased to have you come to TID and review the pre-1983 records as an alternative.

[4] We have nothing to add to this item.

Thank you for your continuing interest in the Don Pedro relicensing.

JOHN DEVINE P.E.
HDR Engineering, Inc.
Senior Vice President, Hydropower Services

970 Baxter Boulevard Suite 301 | Portland, ME 04103
207.775.4495 | c: 207.776.2206 | f: 207.775.1742
john.devine@hdrinc.com | hdrinc.com

From: Porter, Ruth M. [mailto:ruth.porter@hoganlovells.com]
Sent: Thursday, August 11, 2011 2:22 PM
To: Devine, John; Robert M. Nees; Greg Dias; Joy Warren; 'Arthur F. Godwin (agodwin@mrgb.org)'; William R. Johnston; towater@olaughlinparis.com; Steve Boyd; Melissa Williams; Michelle Reimers
Cc: Staples, Rose; 'Alves, Jim - City of Modesto'; 'Anderson, Craig - USFWS'; 'Asay, Lynette - N-R'; 'Aud, John - SCERD'; 'Barnes, James - BLM'; 'Beuttler, John - CSPA'; 'Bond, Jack - City of Modesto'; 'Boucher, Allison - TRC'; 'Boucher, Dave - Allison - TRC'; 'Bowes, Stephen - NPS'; 'Bowman, Art - CWRMP'; 'Brewer, Doug - TetraTech'; 'Brochini, Anthony - SSMN'; 'Brochini, Tony - NPS'; 'Buckley, John - CSERC'; 'Burt, Charles - CalPoly'; 'Carlin, Michael - SFPUC'; 'Catlett, Kelly - FOR'; 'Charles, Cindy - GWWF'; 'Cory, Philip - TNC'; 'Costa, Jan - Chicken Ranch'; 'Cowan, Jeffrey'; 'Cox, Stanley Rob - TBMWI'; 'Cranston, Peggy - BLM'; 'Cremeen, Rebecca - CSERC'; 'Day, P - MF'; 'Donaldson, Milford Wayne - OHP'; 'Dowd, Maggie-SNF'; 'Drekmeier, Peter - TRT'; 'Edmondson, Steve - NOAA'; 'Eicher, James - BLM'; 'Fety, Lauren - BLM'; 'Findley, Timothy - Hanson Bridgett'; 'Freeman, Beau - CalPoly'; 'Fuller, Reba - TMTC'; 'Furman, Donn W - SFPUC'; 'Ganteinbein, Julie - Water-Power Law Grp'; 'Giglio, Deborah - USFWS'; 'Goode, Ron - NFMT'; 'Gorman, Elaine - YSC'; 'Gutierrez, Monica - NOAA-NMFS'; 'Hastreiter, James L - FERC'; 'Hatch, Jenny - CT'; 'Hayat, Zahra - MF'; 'Hellam, Anita - HH'; 'Heyne, Tim - CDFG'; 'Holden, James '; 'Horn, Jeff - BLM'; 'Horn, Tini'; 'Hughes, Noah'; 'Hughes, Robert - CDFG'; 'Jackman, Jerry '; 'Jackson, Zac - USFWS'; 'Jennings, William - CSPA'; 'Jensen, Art - BAWSCA'; 'Jensen, Laura - TNC'; 'Johannis, Mary'; 'Johnson, Brian - CalTrout'; 'Justin'; 'Kanz, Russ - SWRCB'; 'Keating, Janice'; 'Kempton, Kathryn - NOAA-MNFS'; 'Kinney, Teresa'; 'Koepele, Patrick - TRT'; 'Lein, Joseph'; 'Levin, Ellen - SFPUC'; 'Lewis-Reggie-PRCI'; 'Linkard, David - TRT /RH'; Loy, Carin; 'Lwenya, Roselynn, BVR'; 'Lyons, Bill - MR'; 'Manji, Annie'; 'Marko, Paul '; 'Marshall, Mike - RHH'; 'Martin, Michael - MFFC'; 'Mathiesen, Lloyd - CRRMW'; 'McDaniel, Dan - CDWA'; 'McDevitt, Ray - BAWSCA'; 'McDonnell, Marty - SMRT'; 'McLain, Jeffrey - NOAA-NMFS'; 'Means, Julie - CDFG'; 'Mills, John - TUD'; 'Morningstar Pope, Rhonda - BVR'; 'Motola, Mary - PRCI'; 'O'Brien, Jennifer - CDFG'; 'Orvis, Tom - SCFB'; 'Ott, Bob'; 'Ott, Chris'; 'Pinhey, Nick - City of Modesto'; 'Powell, Melissa - CRRMW'; 'Puccini, Stephen - CDFG'; 'Raeder, Jessie - TRT'; 'Ramirez, Tim - SFPUC'; 'Rea, Maria - NOAA-NMFS'; 'Reed, Rhonda - NOAA-NMFS'; 'Richardson, Kevin - USACE'; 'Robbins, Royal'; 'Romano, David O - N-R'; 'Roos-Collins, Richard - Water-Power Law Grp for NHI'; 'Roseman, Jesse'; 'Rothert, Steve - AR'; 'Sandkulla, Nicole - BAWSCA'; 'Schutte, Allison - HB'; 'Sears, William - SFPUC'; 'Shumway, Vern - SNF'; 'Shutes, Chris - CSPA'; 'Slay, Ronn - CNRF/AIC'; 'Smith, Jim - MPM'; 'Steindorf, Dave - AW'; 'Stork, Ron - FOR'; 'Stratton, Susan - CA SHPO'; 'Taylor, Mary Jane - CDFG'; 'TeVelde, George A '; 'Thompson, Larry - NOAA-MNFS'; 'Vasquez, Sandy '; 'Verkuil, Colette - TRT/MF'; 'Walters, Eric - MF'; 'Wantuck, Rick -

NOAA-NMFS'; 'Welch, Steve - ARTA'; 'Wesselman, Eric - TRT'; 'Wheeler, Dan'; 'Wheeler, Dave'; Wheeler, Douglas P.; 'Williamson, Harry (NPS)'; 'Wilson, Bryan - MF'; 'Winchell, Frank - FERC'; 'Wood, Dave - FR'; 'Wooster, John -NOAA'; 'Workman, Michelle - USFWS'; 'Yoshiyama, Ron'; 'Zipser, Wayne - SCFB'; 'Robert M. Nees'; 'Greg Dias'; 'Joy Warren'; 'Arthur F Godwin'; 'Bill Johnston'; 'Tim O'Laughlin'; 'Steve Boyd'; 'Melissa Williams'; 'Michelle Reimers'; Loy, Carin; Jones, Rick; sharon.coleman@spiegelmcd.com; william.huang@spiegelmcd.com; tramirez@sfwater.org
Subject: RE: Request for Additional Information

John,

Several things on this:

1. When you say "[a]ccording to our records, the 'water bank' was allowed to go negative once" what records are the Districts relying on to support that statement? Your previous e-mail reported that the pre-October 1983 forms are only available in hard copy and that you have not reviewed those records for completeness. The Districts' original response to Item No. 23 in the June 16, 2011 tracking list stated that they only consented once to a SF request to go negative in the water bank through the history of the Project. Thus, the Districts plainly have accounting records for the water bank that provide the historical balance information. These are the records that were originally requested on April 1, 2011. This has gone on long enough. The Districts need to produce these records immediately.

2. Saying that the water bank "was allowed to go negative once" is no different than saying "MID-TID have only consented once" to the creation of a negative balance. Restore Hetch Hetchy asked whether there has ever been a negative balance created without the Districts' prior consent. Your most recent reply is unresponsive.

3. Regarding the pre-1983 records, multiple participants would now like to review these materials. Thus, the Districts should bear the financial burden associated with making these records available to participants unless it truly would be unduly burdensome. In the context of a relicensing proceeding for a major hydro facility, I am not sure that "several" thousand dollars would qualify. About the pre-1983 documents, your previous e-mail indicated that these documents are in binders and that scanning would involve removing and replacing staples. Apparently, now the documents are in binders, stapled, and "large sheets". A few questions:

- Where are these records currently located?
- Approximately how many binders hold these records?
- Are the binders three-hole punch?
- What is the width of the binders?
- When you say "large sheets" what size paper are you referring to? It would be rather unusual to store large-format documents in a binder.

4. Regarding the compensation for the negative balance in the water bank, the June 2, 1988 agreement specifies that San Francisco would pay the Districts the amount necessary to fully compensate them for all damages suffered on or before August 15, 1888. That agreement also specifies that the amount San Francisco paid would include "the cost to the Districts of the time spent by their staff members in calculating the amount of damages." How is it possible that you could have no record of any payment from San Francisco or even the Districts' calculation of what that payment should be?

Ruth

From: Devine, John [mailto:John.Devine@hdrinc.com]
Sent: Wednesday, August 10, 2011 5:05 PM
To: Porter, Ruth M.; Robert M. Nees; Greg Dias; Joy Warren; 'Arthur F. Godwin (agodwin@mrgb.org)'; William R. Johnston; towater@olaughlinparis.com; Steve Boyd; Melissa Williams; Michelle Reimers
Cc: Staples, Rose; 'Alves, Jim - City of Modesto'; 'Anderson, Craig - USFWS'; 'Asay, Lynette - N-R'; 'Aud, John - SCERD'; 'Barnes, James - BLM'; 'Beuttler, John - CSPA'; 'Bond, Jack - City of Modesto'; 'Boucher, Allison - TRC'; 'Boucher, Dave - Allison - TRC'; 'Bowes, Stephen - NPS'; 'Bowman, Art - CWRMP'; 'Brewer, Doug - TetraTech'; 'Brochini, Anthony - SSMN'; 'Brochini, Tony - NPS'; 'Buckley, John - CSERC'; 'Burt, Charles - CalPoly'; 'Carlin, Michael - SFPUC'; 'Catlett, Kelly - FOR'; 'Charles, Cindy - GWWF'; 'Cory, Philip - TNC'; 'Costa, Jan - Chicken Ranch'; 'Cowan, Jeffrey'; 'Cox, Stanley Rob - TBMWI'; 'Cranston, Peggy - BLM'; 'Cremeen, Rebecca - CSERC'; 'Day, P - MF'; 'Donaldson, Milford Wayne - OHP'; 'Dowd, Maggie-SNF'; 'Drekmeier, Peter - TRT'; 'Edmondson, Steve - NOAA'; 'Eicher, James - BLM'; 'Fety, Lauren - BLM'; 'Findley, Timothy - Hanson Bridgett'; 'Freeman, Beau - CalPoly'; 'Fuller, Reba - TMTC'; 'Furman, Donn W - SFPUC'; 'Ganteinbein, Julie - Water-Power Law Grp'; 'Giglio, Deborah - USFWS'; 'Goode, Ron - NFMT'; 'Gorman, Elaine - YSC'; 'Gutierrez, Monica - NOAA-NMFS'; 'Hastreiter, James L - FERC'; 'Hatch, Jenny - CT'; 'Hayat, Zahra - MF'; 'Hellam, Anita - HH'; 'Heyne, Tim - CDFG'; 'Holden, James '; 'Horn, Jeff - BLM'; 'Horn, Tini'; 'Hughes, Noah'; 'Hughes, Robert - CDFG'; 'Jackman, Jerry '; 'Jackson, Zac - USFWS'; 'Jennings, William - CSPA'; 'Jensen, Art - BAWSCA'; 'Jensen, Laura - TNC'; 'Johannis, Mary'; 'Johnson, Brian - CalTrout'; 'Justin'; 'Kanz, Russ - SWRCB'; 'Keating, Janice'; 'Kempton, Kathryn - NOAA-MNFS'; 'Kinney, Teresa'; 'Koepele, Patrick - TRT'; 'Lein, Joseph'; 'Levin, Ellen - SFPUC'; 'Lewis-Reggie-PRCI'; 'Linkard, David - TRT /RH'; Loy, Carin; 'Lwenya, Roselynn, BVR'; 'Lyons, Bill - MR'; 'Manji, Annie'; 'Marko, Paul '; 'Marshall, Mike - RHH'; 'Martin, Michael - MFFC'; 'Mathiesen, Lloyd - CRRMW'; 'McDaniel, Dan - CDWA'; 'McDevitt, Ray - BAWSCA'; 'McDonnell, Marty - SMRT'; 'McLain, Jeffrey - NOAA-NMFS'; 'Means, Julie - CDFG'; 'Mills, John - TUD'; 'Morningstar Pope, Rhonda - BVR'; 'Motola, Mary - PRCI'; 'O'Brien, Jennifer - CDFG'; 'Orvis, Tom - SCFB'; 'Ott, Bob'; 'Ott, Chris'; 'Pinhey, Nick - City of Modesto'; 'Powell, Melissa - CRRMW'; 'Puccini, Stephen - CDFG'; 'Raeder, Jessie - TRT'; 'Ramirez, Tim - SFPUC'; 'Rea, Maria - NOAA-NMFS'; 'Reed, Rhonda - NOAA-NMFS'; 'Richardson, Kevin - USACE'; 'Robbins, Royal'; 'Romano, David O - N-R'; 'Roos-Collins, Richard - Water-Power Law Grp for NHI'; 'Roseman, Jesse'; 'Rothert, Steve - AR'; 'Sandkulla, Nicole - BAWSCA'; 'Schutte, Allison - HB'; 'Sears, William - SFPUC'; 'Shumway, Vern - SNF'; 'Shutes, Chris - CSPA'; 'Slay, Ronn - CNRF/AIC'; 'Smith, Jim - MPM'; 'Steindorf, Dave - AW'; 'Stork, Ron - FOR'; 'Stratton, Susan - CA SHPO'; 'Taylor, Mary Jane - CDFG'; 'TeVelde, George A '; 'Thompson, Larry - NOAA-MNFS'; 'Vasquez, Sandy '; 'Verkuil, Colette - TRT/MF'; 'Walters, Eric - MF'; 'Wantuck, Rick - NOAA-NMFS'; 'Welch, Steve - ARTA'; 'Wesselman, Eric - TRT'; 'Wheeler, Dan'; 'Wheeler, Dave'; Wheeler, Douglas P.; 'Williamson, Harry (NPS)'; 'Wilson, Bryan - MF'; 'Winchell, Frank - FERC'; 'Wood, Dave - FR'; 'Wooster, John -NOAA'; 'Workman, Michelle - USFWS'; 'Yoshiyama, Ron'; 'Zipser, Wayne - SCFB'; 'Robert M. Nees'; 'Greg Dias'; 'Joy Warren'; 'Arthur F Godwin'; 'Bill Johnston'; 'Tim O'Laughlin'; 'Steve Boyd'; 'Melissa Williams'; 'Michelle Reimers'; Loy, Carin; Jones, Rick; sharon.coleman@spiegelmcd.com; william.huang@spiegelmcd.com; tramirez@sfwater.org
Subject: RE: Request for Additional Information

Ruth,

The Districts have undertaken a search of their records for the information you requested. We have located the following information in electronic format and will be loading it onto the Don Pedro website tomorrow. They are extensive files. Rose Staples will be sending an email with instructions on where to find the files on the website.

[1] Daily log Form 11 from 1983 to 2009
[2] Roll-up calculation Form 174 from 1983 to 2009
[3] Post-provisional flow Form 173 from 1983 to 2009
[4] Form HH-150 from 1983 to 2009

According to our records, the "water bank" was allowed to go negative once. That occurred in 1988. We have not been able to locate the records on the compensation received.

The "water bank" storage calculation has not undergone any changes since the commencement of Don Pedro operations.

Regarding pre-1983 information, we have only found hand-written records of these forms. They are large sheets and they number well into the thousands of pages. We have not reviewed them for completeness. The cost will be significant for copying or scanning. We will have to send them to an outside shop because of the paper size, number of sheets and condition of the sheets. The cost is likely to be several thousand dollars. Do you want us to proceed? Please let me know"

From: Porter, Ruth M. [mailto:ruth.porter@hoganlovells.com]
Sent: Friday, August 05, 2011 7:16 PM
To: Devine, John; Robert M. Nees; Greg Dias; Joy Warren; 'Arthur F. Godwin (agodwin@mrgb.org)'; William R. Johnston; towater@olaughlinparis.com; Steve Boyd; Melissa Williams; Michelle Reimers
Cc: Staples, Rose; 'Alves, Jim - City of Modesto'; 'Anderson, Craig - USFWS'; 'Asay, Lynette - N-R'; 'Aud, John - SCERD'; 'Barnes, James - BLM'; 'Beuttler, John - CSPA'; 'Bond, Jack - City of Modesto'; 'Boucher, Allison - TRC'; 'Boucher, Dave - Allison - TRC'; 'Bowes, Stephen - NPS'; 'Bowman, Art - CWRMP'; 'Brewer, Doug - TetraTech'; 'Brochini, Anthony - SSMN'; 'Brochini, Tony - NPS'; 'Buckley, John - CSERC'; 'Burt, Charles - CalPoly'; 'Carlin, Michael - SFPUC'; 'Catlett, Kelly - FOR'; 'Charles, Cindy - GWWF'; 'Cory, Philip - TNC'; 'Costa, Jan - Chicken Ranch'; 'Cowan, Jeffrey'; 'Cox, Stanley Rob - TBMWI'; 'Cranston, Peggy - BLM'; 'Cremeen, Rebecca - CSERC'; 'Day, P - MF'; 'Donaldson, Milford Wayne - OHP'; 'Dowd, Maggie- SNF'; 'Drekmeier, Peter - TRT'; 'Edmondson, Steve - NOAA'; 'Eicher, James - BLM'; 'Fety, Lauren - BLM'; 'Findley, Timothy - Hanson Bridgett'; 'Freeman, Beau - CalPoly'; 'Fuller, Reba - TMTC'; 'Furman, Donn W - SFPUC'; 'Ganteinbein, Julie - Water-Power Law Grp'; 'Giglio, Deborah - USFWS'; 'Goode, Ron - NFMT'; 'Gorman, Elaine - YSC'; 'Gutierrez, Monica - NOAA-NMFS'; 'Hastreiter, James L - FERC'; 'Hatch, Jenny - CT'; 'Hayat, Zahra - MF'; 'Hellam, Anita - HH'; 'Hersh-Burdick, Rachael - USACE'; 'Heyne, Tim - CDFG'; 'Holden, James '; 'Horn, Jeff - BLM'; 'Horn, Tini'; 'Hughes, Noah'; 'Hughes, Robert - CDFG'; 'Jackman, Jerry '; 'Jackson, Zac - USFWS'; 'Jennings, William - CSPA'; 'Jensen, Art - BAWSCA'; 'Jensen, Laura - TNC'; 'Johannis, Mary'; 'Johnson, Brian - CalTrout'; 'Justin'; 'Kanz, Russ - SWRCB'; 'Keating, Janice'; 'Kempton, Kathryn - NOAA-MNFS'; 'Kinney, Teresa'; 'Koepele, Patrick - TRT'; 'Lein, Joseph'; 'Levin, Ellen - SFPUC'; 'Lewis-Reggie-PRCI'; 'Linkard, David - TRT /RH'; Loy, Carin; 'Lwenya, Roselynn, BVR'; 'Lyons, Bill - MR'; 'Manji, Annie'; 'Marko, Paul '; 'Marshall, Mike - RHH'; 'Martin, Michael - MFFC'; 'Mathiesen, Lloyd - CRRMW'; 'McDaniel, Dan -CDWA'; 'McDevitt, Ray - BAWSCA'; 'McDonnell, Marty - SMRT'; 'McLain, Jeffrey - NOAA-NMFS'; 'Means, Julie - CDFG'; 'Mills, John - TUD'; 'Morningstar Pope, Rhonda - BVR'; 'Motola,

Mary - PRCI'; 'O'Brien, Jennifer - CDFG'; 'Orvis, Tom - SCFB'; 'Ott, Bob'; 'Ott, Chris'; 'Pinhey, Nick - City of Modesto'; 'Powell, Melissa - CRRMW'; 'Puccini, Stephen - CDFG'; 'Raeder, Jessie - TRT'; 'Ramirez, Tim - SFPUC'; 'Rea, Maria - NOAA-NMFS'; 'Reed, Rhonda - NOAA-NMFS'; 'Richardson, Kevin - USACE'; 'Robbins, Royal'; 'Romano, David O - N-R'; 'Roos-Collins, Richard - Water-Power Law Grp for NHI'; 'Roseman, Jesse'; 'Rothert, Steve - AR'; 'Sandkulla, Nicole - BAWSCA'; 'Schutte, Allison - HB'; 'Sears, William - SFPUC'; 'Shumway, Vern - SNF'; 'Shutes, Chris - CSPA'; 'Slay, Ronn - CNRF/AIC'; 'Smith, Jim - MPM'; 'Steindorf, Dave - AW'; 'Stork, Ron - FOR'; 'Stratton, Susan - CA SHPO'; 'Taylor, Mary Jane - CDFG'; 'TeVelde, George A '; 'Thompson, Larry - NOAA-MNFS'; 'Vasquez, Sandy '; 'Verkuil, Colette - TRT/MF'; 'Walters, Eric - MF'; 'Wantuck, Rick - NOAA-NMFS'; 'Welch, Steve - ARTA'; 'Wesselman, Eric - TRT'; 'Wheeler, Dan'; 'Wheeler, Dave'; Wheeler, Douglas P.; 'Williamson, Harry (NPS)'; 'Wilson, Bryan - MF'; 'Winchell, Frank - FERC'; 'Wood, Dave - FR'; 'Wooster, John -NOAA'; 'Workman, Michelle - USFWS'; 'Yoshiyama, Ron'; 'Zipser, Wayne - SCFB'; 'Robert M. Nees'; 'Greg Dias'; 'Joy Warren'; 'Arthur F Godwin'; 'Bill Johnston'; 'Tim O'Laughlin'; 'Steve Boyd'; 'Melissa Williams'; 'Michelle Reimers'; Loy, Carin; Jones, Rick; sharon.coleman@spiegelmcd.com; william.huang@spiegelmcd.com; tramirez@sfwater.org
Subject: RE: Request for Additional Information

John,

Thank you for the update. We look forward to receiving the initial set of documents next week. I will touch base with my client and get back to you about the pre-1983 documents.

Ruth

From: Devine, John [mailto:John.Devine@hdrinc.com]
Sent: Friday, August 05, 2011 3:28 PM
To: Porter, Ruth M.; Robert M. Nees; Greg Dias; Joy Warren; 'Arthur F. Godwin (agodwin@mrgb.org)'; William R. Johnston; towater@olaughlinparis.com; Steve Boyd; Melissa Williams; Michelle Reimers
Cc: Staples, Rose; 'Alves, Jim - City of Modesto'; 'Anderson, Craig - USFWS'; 'Asay, Lynette - N-R'; 'Aud, John - SCERD'; 'Barnes, James - BLM'; 'Beuttler, John - CSPA'; 'Bond, Jack - City of Modesto'; 'Boucher, Allison - TRC'; 'Boucher, Dave - Allison - TRC'; 'Bowes, Stephen - NPS'; 'Bowman, Art - CWRMP'; 'Brewer, Doug - TetraTech'; 'Brochini, Anthony - SSMN'; 'Brochini, Tony - NPS'; 'Buckley, John - CSERC'; 'Burt, Charles - CalPoly'; 'Carlin, Michael - SFPUC'; 'Catlett, Kelly - FOR'; 'Charles, Cindy - GWWF'; 'Cory, Philip - TNC'; 'Costa, Jan - Chicken Ranch'; 'Cowan, Jeffrey'; 'Cox, Stanley Rob - TBMWI'; 'Cranston, Peggy - BLM'; 'Cremeen, Rebecca - CSERC'; 'Day, P - MF'; 'Donaldson, Milford Wayne - OHP'; 'Dowd, Maggie-SNF'; 'Drekmeier, Peter - TRT'; 'Edmondson, Steve - NOAA'; 'Eicher, James - BLM'; 'Fety, Lauren - BLM'; 'Findley, Timothy - Hanson Bridgett'; 'Freeman, Beau - CalPoly'; 'Fuller, Reba - TMTC'; 'Furman, Donn W - SFPUC'; 'Ganteinbein, Julie - Water-Power Law Grp'; 'Giglio, Deborah - USFWS'; 'Goode, Ron - NFMT'; 'Gorman, Elaine - YSC'; 'Gutierrez, Monica - NOAA-NMFS'; 'Hastreiter, James L - FERC'; 'Hatch, Jenny - CT'; 'Hayat, Zahra - MF'; 'Hellam, Anita - HH'; 'Hersh-Burdick, Rachael - USACE'; 'Heyne, Tim - CDFG'; 'Holden, James '; 'Horn, Jeff - BLM'; 'Horn, Tini'; 'Hughes, Noah'; 'Hughes, Robert - CDFG'; 'Jackman, Jerry '; 'Jackson, Zac - USFWS'; 'Jennings, William - CSPA'; 'Jensen, Art - BAWSCA'; 'Jensen, Laura - TNC'; 'Johannis, Mary'; 'Johnson, Brian - CalTrout'; 'Justin'; 'Kanz, Russ - SWRCB'; 'Keating, Janice'; 'Kempton, Kathryn - NOAA-MNFS'; 'Kinney, Teresa'; 'Koepele, Patrick - TRT'; 'Lein, Joseph'; 'Levin, Ellen - SFPUC'; 'Lewis-Reggie-PRCI'; 'Linkard, David - TRT /RH'; Loy, Carin; 'Lwenya, Roselynn, BVR'; 'Lyons, Bill - MR'; 'Manji, Annie'; 'Marko, Paul '; 'Marshall, Mike - RHH'; 'Martin, Michael - MFFC'; 'Mathiesen, Lloyd - CRRMW'; 'McDaniel, Dan -CDWA'; 'McDevitt, Ray - BAWSCA'; 'McDonnell, Marty - SMRT'; 'McLain, Jeffrey - NOAA-NMFS'; 'Means, Julie - CDFG'; 'Mills, John - TUD'; 'Morningstar Pope, Rhonda - BVR'; 'Motola, Mary - PRCI'; 'O'Brien, Jennifer - CDFG'; 'Orvis, Tom - SCFB'; 'Ott, Bob'; 'Ott, Chris'; 'Pinhey, Nick - City of Modesto'; 'Powell, Melissa - CRRMW'; 'Puccini, Stephen - CDFG'; 'Raeder, Jessie - TRT'; 'Ramirez, Tim - SFPUC'; 'Rea, Maria - NOAA-NMFS'; 'Reed, Rhonda - NOAA-NMFS'; 'Richardson, Kevin - USACE'; 'Robbins, Royal'; 'Romano, David O - N-R'; 'Roos-Collins, Richard - Water-Power Law Grp for NHI'; 'Roseman, Jesse'; 'Rothert, Steve - AR'; 'Sandkulla, Nicole - BAWSCA'; 'Schutte, Allison - HB'; 'Sears, William -

SFPUC'; 'Shumway, Vern - SNF'; 'Shutes, Chris - CSPA'; 'Slay, Ronn - CNRF/AIC'; 'Smith, Jim - MPM'; 'Steindorf, Dave - AW'; 'Stork, Ron - FOR'; 'Stratton, Susan - CA SHPO'; 'Taylor, Mary Jane - CDFG'; 'TeVelde, George A '; 'Thompson, Larry - NOAA-MNFS'; 'Vasquez, Sandy '; 'Verkuil, Colette - TRT/MF'; 'Walters, Eric - MF'; 'Wantuck, Rick - NOAA-NMFS'; 'Welch, Steve - ARTA'; 'Wesselman, Eric - TRT'; 'Wheeler, Dan'; 'Wheeler, Dave'; Wheeler, Douglas P.; 'Williamson, Harry (NPS)'; 'Wilson, Bryan - MF'; 'Winchell, Frank - FERC'; 'Wood, Dave - FR'; 'Wooster, John -NOAA'; 'Workman, Michelle - USFWS'; 'Yoshiyama, Ron'; 'Zipser, Wayne - SCFB'; 'Robert M. Nees'; 'Greg Dias'; 'Joy Warren'; 'Arthur F Godwin'; 'Bill Johnston'; 'Tim O'Laughlin'; 'Steve Boyd'; 'Melissa Williams'; 'Michelle Reimers'; Loy, Carin; Jones, Rick; sharon.coleman@spiegelmcd.com; william.huang@spiegelmcd.com; tramirez@sfwater.org
Subject: RE: Request for Additional Information

Ruth,

To report our progress on this matter, we have located the information you were requesting and will provide the information that is available electronically to you (or load it on the website). It is our intent to complete this by next Tuesday. The information consists of Forms 11, 173, 174, and 150 which exist in electronic format for the period October 1983 through December 2007. The forms prior to October 1983 exist as hard copy only and will need to be scanned. That will require disassembling binders, scanning, and reassembling binders, including staple removal and re-attachment. Do you also want this earlier information? There may be a charge for copying this information, but we have not yet estimated what that would be.

We are still researching the question relating to if, and how often, CCSF has gone negative in the water bank since 1971 (also when and for how long), and if there was compensation. We are hopeful of having this information to you next week as well.

We do believe that the water bank accounting methodology has not changed since the completion of the Project.

John

From: Porter, Ruth M. [mailto:ruth.porter@hoganlovells.com]
Sent: Wednesday, July 06, 2011 8:13 PM
To: Devine, John
Cc: Staples, Rose; 'Alves, Jim - City of Modesto'; 'Anderson, Craig - USFWS'; 'Asay, Lynette - N-R'; 'Aud, John - SCERD'; 'Barnes, James - BLM'; 'Beuttler, John - CSPA'; 'Bond, Jack - City of Modesto'; 'Boucher, Allison - TRC'; 'Boucher, Dave - Allison - TRC'; 'Bowes, Stephen - NPS'; 'Bowman, Art - CWRMP'; 'Brewer, Doug - TetraTech'; 'Brochini, Anthony - SSMN'; 'Brochini, Tony - NPS'; 'Buckley, John - CSERC'; 'Burt, Charles - CalPoly'; 'Carlin, Michael - SFPUC'; 'Catlett, Kelly - FOR'; 'Charles, Cindy - GWWF'; 'Cory, Philip -

TNC'; 'Costa, Jan - Chicken Ranch'; 'Cowan, Jeffrey'; 'Cox, Stanley Rob - TBMWI'; 'Cranston, Peggy - BLM'; 'Cremeen, Rebecca - CSERC'; 'Day, P - MF'; 'Donaldson, Milford Wayne - OHP'; 'Dowd, Maggie- SNF'; 'Drekmeier, Peter - TRT'; 'Edmondson, Steve - NOAA'; 'Eicher, James - BLM'; 'Fety, Lauren - BLM'; 'Findley, Timothy - Hanson Bridgett'; 'Freeman, Beau - CalPoly'; 'Fuller, Reba - TMTC'; 'Furman, Donn W - SFPUC'; 'Ganteinbein, Julie - Water-Power Law Grp'; 'Giglio, Deborah - USFWS'; 'Goode, Ron - NFMT'; 'Gorman, Elaine - YSC'; 'Gutierrez, Monica - NOAA-NMFS'; 'Hastreiter, James L - FERC'; 'Hatch, Jenny - CT'; 'Hayat, Zahra - MF'; 'Hellam, Anita - HH'; 'Hersh-Burdick, Rachael - USACE'; 'Heyne, Tim - CDFG'; 'Holden, James '; 'Horn, Jeff - BLM'; 'Horn, Tini'; 'Hughes, Noah'; 'Hughes, Robert - CDFG'; 'Jackman, Jerry '; 'Jackson, Zac - USFWS'; 'Jennings, William - CSPA'; 'Jensen, Art - BAWSCA'; 'Jensen, Laura - TNC'; 'Johannis, Mary'; 'Johnson, Brian - CalTrout'; 'Justin'; 'Kanz, Russ - SWRCB'; 'Keating, Janice'; 'Kempton, Kathryn - NOAA-MNFS'; 'Kinney, Teresa'; 'Koepele, Patrick - TRT'; 'Lein, Joseph'; 'Levin, Ellen - SFPUC'; 'Lewis-Reggie-PRCI'; 'Linkard, David - TRT /RH'; Loy, Carin; 'Lwenya, Roselynn, BVR'; 'Lyons, Bill - MR'; 'Manji, Annie'; 'Marko, Paul '; 'Marshall, Mike - RHH'; 'Martin, Michael - MFFC'; 'Mathiesen, Lloyd - CRRMW'; 'McDaniel, Dan -CDWA'; 'McDevitt, Ray - BAWSCA'; 'McDonnell, Marty - SMRT'; 'McLain, Jeffrey - NOAA-NMFS'; 'Means, Julie - CDFG'; 'Mills, John - TUD'; 'Morningstar Pope, Rhonda - BVR'; 'Motola, Mary - PRCI'; 'O'Brien, Jennifer - CDFG'; 'Orvis, Tom - SCFB'; 'Ott, Bob'; 'Ott, Chris'; 'Pinhey, Nick - City of Modesto'; 'Powell, Melissa - CRRMW'; 'Puccini, Stephen - CDFG'; 'Raeder, Jessie - TRT'; 'Ramirez, Tim - SFPUC'; 'Rea, Maria - NOAA-NMFS'; 'Reed, Rhonda - NOAA-NMFS'; 'Richardson, Kevin - USACE'; 'Robbins, Royal'; 'Romano, David O - N-R'; 'Roos-Collins, Richard - Water-Power Law Grp for NHI'; 'Roseman, Jesse'; 'Rothert, Steve - AR'; 'Sandkulla, Nicole - BAWSCA'; 'Schutte, Allison - HB'; 'Sears, William - SFPUC'; 'Shumway, Vern - SNF'; 'Shutes, Chris - CSPA'; 'Slay, Ronn - CNRF/AIC'; 'Smith, Jim - MPM'; 'Steindorf, Dave - AW'; 'Stork, Ron - FOR'; 'Stratton, Susan - CA SHPO'; 'Taylor, Mary Jane - CDFG'; 'TeVelde, George A '; 'Thompson, Larry - NOAA-MNFS'; 'Vasquez, Sandy '; 'Verkuil, Colette - TRT/MF'; 'Walters, Eric - MF'; 'Wantuck, Rick - NOAA-NMFS'; 'Welch, Steve - ARTA'; 'Wesselman, Eric - TRT'; 'Wheeler, Dan'; 'Wheeler, Dave'; Wheeler, Douglas P.; 'Williamson, Harry (NPS)'; 'Wilson, Bryan - MF'; 'Winchell, Frank - FERC'; 'Wood, Dave - FR'; 'Wooster, John -NOAA'; 'Workman, Michelle - USFWS'; 'Yoshiyama, Ron'; 'Zipser, Wayne - SCFB'; 'Robert M. Nees'; 'Greg Dias'; 'Joy Warren'; 'Arthur F Godwin'; 'Bill Johnston'; 'Tim O'Laughlin'; 'Steve Boyd'; 'Melissa Williams'; 'Michelle Reimers'; Loy, Carin; Jones, Rick; sharon.coleman@spiegelmcd.com; william.huang@spiegelmcd.com; tramirez@sfwater.org
Subject: RE: Request for Additional Information

John,

Thank you for your response. To clarify: the original request dated April 1, 2011 was made by another relicensing participant. My client's original request was that of June 22, 2011. In that request, I noted that other relicensing participants had previously requested the relevant materials on April 1, 2011. Regarding the April 1 request, it appeared that the Districts were the ones ultimately responsible for providing the requested materials given that:

(1) the Districts tracked these requests on their Progress Tracking List for the proceeding;
(2) the Districts' Progress Tracking List dated June 16, 2011 reflected responses to these requests even though the requests were supposedly directed at CCSF;
(3) the Districts posted materials responsive to these requests on the Don Pedro relicensing website; and
(4) the April 1st request was made at a relicensing participant meeting held by the Districts to "an invited guest speaker" who happens to own the rights to 1/3 of water storage in the Don Pedro Project.

As you note, CCSF is not currently a licensee of the Don Pedro Project. CCSF is, however, a necessary party to any proceeding before the Commission pertaining to minimum flow requirements. Moreover, according to the PAD, "[t]he Districts and CCSF alike have been active and willing partners in efforts to improve and protect the anadromous fisheries in the lower Tuolumne River and they intend to continue this active involvement in the future." PAD at 1-3. In light of CCSF's active involvement in these issues and the Districts' cooperative relationship with CCSF, Restore Hetch Hetchy believed that the Districts were ultimately responsible for responding to these requests with the assistance of CCSF to the extent necessary. Given the amount of time that passed since the initial

request was made, Restore Hetch Hetchy submitted a follow-up request to ensure that the requested materials were provided in a timely fashion.

Regarding 18 C.F.R. 5.6(c), Restore Hetch Hetchy's request does, in fact, meet the definition of an information request under this section. First, the PAD states that Don Pedro is used to provide a water bank for CCSF. PAD at 3-2. The PAD also states that when CCSF has a credit in its water bank account "CCSF may intercept and divert waters of the Tuolumne River in amount that will reduce the inflow into Don Pedro Reservoir to less than the Districts would otherwise be entitled." PAD at 3-19. In addition, the PAD states that "[d]ue in large part to CCSF's out-of-basin diversions upstream of the Project, the total releases from the Don Pedro Project have averaged approximately 1.6 million ac-ft annually (WY 1975 to 2009)." PAD at 4-7. Because the operations of the water bank play a significant role in the amount of water kept in storage in Don Pedro and the timing of flow releases, these operations plainly qualify as a "known or potential resource impact" of the Project. Therefore, records regarding the operations of that water bank qualify as "source of information" on a "known or potential resource impact." The Districts' failure to reference this valuable source of information in the PAD does not excuse the Districts from providing the requested materials. Moreover, the Districts' suggested reading of the regulation would create the perverse incentive for applicants to omit relevant information from the PAD to avoid having to provide that information to relicensing participants.

Given that Restore Hetch Hetchy requested electronic copies of the materials, I am unsure what reproduction costs you are referring to. We are happy to cover reasonable costs associated with responding these requests, but we would like to discuss the Districts' collection and production methodology to ensure that such costs are reasonable in that instance.

Ruth Porter

Counsel for Restore Hetch Hetchy

From: Devine, John [mailto:John.Devine@hdrinc.com]
Sent: Tuesday, July 05, 2011 9:21 AM
To: Porter, Ruth M.
Cc: Staples, Rose; 'Alves, Jim - City of Modesto'; 'Anderson, Craig - USFWS'; 'Asay, Lynette - N-R'; 'Aud, John - SCERD'; 'Barnes, James - BLM'; 'Beuttler, John - CSPA'; 'Bond, Jack - City of Modesto'; 'Boucher, Allison - TRC'; 'Boucher, Dave - Allison - TRC'; 'Bowes, Stephen - NPS'; 'Bowman, Art - CWRMP'; 'Brewer, Doug - TetraTech'; 'Brochini, Anthony - SSMN'; 'Brochini, Tony - NPS'; 'Buckley, John - CSERC'; 'Burt, Charles - CalPoly'; 'Carlin, Michael - SFPUC'; 'Catlett, Kelly - FOR'; 'Charles, Cindy - GWWF'; 'Cory, Philip - TNC'; 'Costa, Jan - Chicken Ranch'; 'Cowan, Jeffrey'; 'Cox, Stanley Rob - TBMWI'; 'Cranston, Peggy - BLM'; 'Cremeen, Rebecca - CSERC'; 'Day, P - MF'; 'Donaldson, Milford Wayne - OHP'; 'Dowd, Maggie-SNF'; 'Drekmeier, Peter - TRT'; 'Edmondson, Steve - NOAA'; 'Eicher, James - BLM'; 'Fety, Lauren - BLM'; 'Findley, Timothy - Hanson Bridgett'; 'Freeman, Beau - CalPoly'; 'Fuller, Reba - TMTC'; 'Furman, Donn W - SFPUC'; 'Ganteinbein, Julie - Water-Power Law Grp'; 'Giglio, Deborah - USFWS'; 'Goode, Ron - NFMT'; 'Gorman, Elaine - YSC'; 'Gutierrez, Monica - NOAA-NMFS'; 'Hastreiter, James L - FERC'; 'Hatch, Jenny - CT'; 'Hayat, Zahra - MF'; 'Hellam, Anita - HH'; 'Hersh-Burdick, Rachael - USACE'; 'Heyne, Tim - CDFG'; 'Holden, James '; 'Horn, Jeff - BLM'; 'Horn, Tini'; 'Hughes, Noah'; 'Hughes, Robert - CDFG'; 'Jackman, Jerry '; 'Jackson, Zac - USFWS'; 'Jennings, William - CSPA'; 'Jensen, Art - BAWSCA'; 'Jensen, Laura - TNC'; 'Johannis, Mary'; 'Johnson, Brian - CalTrout'; 'Justin'; 'Kanz, Russ - SWRCB'; 'Keating, Janice'; 'Kempton, Kathryn - NOAA-MNFS'; 'Kinney, Teresa'; 'Koepele, Patrick - TRT'; 'Lein, Joseph'; 'Levin, Ellen - SFPUC'; 'Lewis-Reggie-PRCI'; 'Linkard, David - TRT /RH'; Loy, Carin; 'Lwenya, Roselynn, BVR'; 'Lyons, Bill - MR'; 'Manji, Annie'; 'Marko, Paul '; 'Marshall, Mike - RHH'; 'Martin, Michael - MFFC'; 'Mathiesen, Lloyd - CRRMW'; 'McDaniel, Dan -CDWA'; 'McDevitt, Ray - BAWSCA'; 'McDonnell, Marty - SMRT'; 'McLain, Jeffrey - NOAA-NMFS'; 'Means, Julie - CDFG'; 'Mills, John - TUD'; 'Morningstar Pope, Rhonda - BVR'; 'Motola, Mary - PRCI'; 'O'Brien, Jennifer - CDFG'; 'Orvis, Tom - SCFB'; 'Ott, Bob'; 'Ott, Chris'; 'Pinhey, Nick - City of

Modesto'; 'Powell, Melissa - CRRMW'; 'Puccini, Stephen - CDFG'; 'Raeder, Jessie - TRT'; 'Ramirez, Tim - SFPUC'; 'Rea, Maria - NOAA-NMFS'; 'Reed, Rhonda - NOAA-NMFS'; 'Richardson, Kevin - USACE'; 'Robbins, Royal'; 'Romano, David O - N-R'; 'Roos-Collins, Richard - Water-Power Law Grp for NHI'; 'Roseman, Jesse'; 'Rothert, Steve - AR'; 'Sandkulla, Nicole - BAWSCA'; 'Schutte, Allison - HB'; 'Sears, William - SFPUC'; 'Shumway, Vern - SNF'; 'Shutes, Chris - CSPA'; 'Slay, Ronn - CNRF/AIC'; 'Smith, Jim - MPM'; 'Steindorf, Dave - AW'; 'Stork, Ron - FOR'; 'Stratton, Susan - CA SHPO'; 'Taylor, Mary Jane - CDFG'; 'TeVelde, George A '; 'Thompson, Larry - NOAA-MNFS'; 'Vasquez, Sandy '; 'Verkuil, Colette - TRT/MF'; 'Walters, Eric - MF'; 'Wantuck, Rick - NOAA-NMFS'; 'Welch, Steve - ARTA'; 'Wesselman, Eric - TRT'; 'Wheeler, Dan'; 'Wheeler, Dave'; Wheeler, Douglas P.; 'Williamson, Harry (NPS)'; 'Wilson, Bryan - MF'; 'Winchell, Frank - FERC'; 'Wood, Dave - FR'; 'Wooster, John -NOAA'; 'Workman, Michelle - USFWS'; 'Yoshiyama, Ron'; 'Zipser, Wayne - SCFB'; 'Robert M. Nees'; 'Greg Dias'; 'Joy Warren'; 'Arthur F Godwin'; 'Bill Johnston'; 'Tim O'Laughlin'; 'Steve Boyd'; 'Melissa Williams'; 'Michelle Reimers'; Loy, Carin; Jones, Rick
Subject: RE: Request for Additional Information

Ruth,

I am in receipt of your most recent email of June 30 (6:23 PM, PDT). I would like to point out that your client's original request for additional information was directed at **CCSF**, not the Districts, at a relicensing meeting on April 1 sponsored by the Districts at which CCSF was an invited guest speaker. CCSF responded that it was willing to provide the requested information, but of course CCSF is not a FERC licensee, did not have to provide the information under any FERC-licensing obligation, and is not bound by any ILP regulations.

By email dated June 22, you have now requested certain portions of the original data request be provided by the Districts. The data you seek is extensive and goes back 40 years. Districts believe it may have this data and is willing to provide it, but it may take considerable time and effort to locate, copy and transmit the information. The Districts do not believe this request meets the definition of an information request under Section 5.6 (c)(2) of FERC's regulations. Your request was made directly to **CCSF** at the April 1 meeting, and was not a request for source documents cited in the PAD. Information about "water bank" accounting methods and historical balances does not qualify as *"information on the existing environment"* or *"known or potential resource impacts"*. Section 5.6 (c)(2) reads:

(2) *Availability of source information and studies*. The sources of information on the existing environment and known or potential resource impacts included in the descriptions and summaries must be referenced in the relevant section of the document, and in an appendix to the document. The information must be provided upon request to recipients of the Pre-Application Document. A potential applicant must provide the requested information within 20 days from receipt of the request. Potential applicants and requesters are strongly encouraged to use electronic means or compacts disks to distribute studies and other forms of information, but a potential applicant must, upon request, provide the information in hard copy form. The potential applicant is also strongly encouraged to include with

the Pre-Application Document any written protocol for distribution consistent with this paragraph to which it has agreed with agencies, Indian tribes, or other entities.

Our reading of 5.6(c)(2) is that it requires the licensees to furnish sources of information *referenced* in the PAD within 20 days of request. None of the materials you seek were referenced in the PAD —all of these materials were requested in meetings with relicensing participants. Therefore, while the Districts are willing to provide the requested documents, to the extent we have them, we are uncertain just how long it will take.

Please be aware that there may be costs associated with compiling, reproducing and transmitting these documents in accordance with California and/or FERC regulations. We will keep you up to date on our progress.

Regards,

John Devine, P.E.
Senior Vice President
HDR|DTA
970 Baxter Blvd, Suite 301| Portland, ME | 04103
Office: 207.775.4495 | Fax: 207.775.1742
Cell: 207-776-2206

From: Porter, Ruth M. [mailto:ruth.porter@hoganlovells.com]
Sent: Thursday, June 30, 2011 9:23 PM
To: Devine, John
Cc: Staples, Rose; 'Alves, Jim - City of Modesto'; 'Anderson, Craig - USFWS'; 'Asay, Lynette - N-R'; 'Aud, John - SCERD'; 'Barnes, James - BLM'; 'Beuttler, John - CSPA'; 'Bond, Jack - City of Modesto'; 'Boucher, Allison - TRC'; 'Boucher, Dave - Allison - TRC'; 'Bowes, Stephen - NPS'; 'Bowman, Art - CWRMP'; 'Brewer, Doug - TetraTech'; 'Brochini, Anthony - SSMN'; 'Brochini, Tony - NPS'; 'Buckley, John - CSERC'; 'Burt, Charles - CalPoly'; 'Carlin, Michael - SFPUC'; 'Catlett, Kelly - FOR'; 'Charles, Cindy - GWWF'; 'Cory, Philip - TNC'; 'Costa, Jan - Chicken Ranch'; 'Cowan, Jeffrey'; 'Cox, Stanley Rob - TBMWI'; 'Cranston, Peggy - BLM'; 'Cremeen, Rebecca - CSERC'; 'Day, P - MF'; 'Donaldson, Milford Wayne - OHP'; 'Dowd, Maggie-SNF'; 'Drekmeier, Peter - TRT'; 'Edmondson, Steve - NOAA'; 'Eicher, James - BLM'; 'Fety, Lauren - BLM'; 'Findley, Timothy - Hanson Bridgett'; 'Freeman, Beau - CalPoly'; 'Fuller, Reba - TMTC'; 'Furman, Donn W - SFPUC'; 'Ganteinbein, Julie - Water-Power Law Grp'; 'Giglio, Deborah - USFWS'; 'Goode, Ron - NFMT';

'Gorman, Elaine - YSC'; 'Gutierrez, Monica - NOAA-NMFS'; 'Hastreiter, James L - FERC'; 'Hatch, Jenny - CT'; 'Hayat, Zahra - MF'; 'Hellam, Anita - HH'; 'Hersh-Burdick, Rachael - USACE'; 'Heyne, Tim - CDFG'; 'Holden, James '; 'Horn, Jeff - BLM'; 'Horn, Tini'; 'Hughes, Noah'; 'Hughes, Robert - CDFG'; 'Jackman, Jerry '; 'Jackson, Zac - USFWS'; 'Jennings, William - CSPA'; 'Jensen, Art - BAWSCA'; 'Jensen, Laura - TNC'; 'Johannis, Mary'; 'Johnson, Brian - CalTrout'; 'Justin'; 'Kanz, Russ - SWRCB'; 'Keating, Janice'; 'Kempton, Kathryn - NOAA-MNFS'; 'Kinney, Teresa'; 'Koepele, Patrick - TRT'; 'Lein, Joseph'; 'Levin, Ellen - SFPUC'; 'Lewis-Reggie-PRCI'; 'Linkard, David - TRT /RH'; Loy, Carin; 'Lwenya, Roselynn, BVR'; 'Lyons, Bill - MR'; 'Manji, Annie'; 'Marko, Paul '; 'Marshall, Mike - RHH'; 'Martin, Michael - MFFC'; 'Mathiesen, Lloyd - CRRMW'; 'McDaniel, Dan -CDWA'; 'McDevitt, Ray - BAWSCA'; 'McDonnell, Marty - SMRT'; 'McLain, Jeffrey - NOAA-NMFS'; 'Means, Julie - CDFG'; 'Mills, John - TUD'; 'Morningstar Pope, Rhonda - BVR'; 'Motola, Mary - PRCI'; 'O'Brien, Jennifer - CDFG'; 'Orvis, Tom - SCFB'; 'Ott, Bob'; 'Ott, Chris'; 'Pinhey, Nick - City of Modesto'; 'Powell, Melissa - CRRMW'; 'Puccini, Stephen - CDFG'; 'Raeder, Jessie - TRT'; 'Ramirez, Tim - SFPUC'; 'Rea, Maria - NOAA-NMFS'; 'Reed, Rhonda - NOAA-NMFS'; 'Richardson, Kevin - USACE'; 'Robbins, Royal'; 'Romano, David O - N-R'; 'Roos-Collins, Richard - Water-Power Law Grp for NHI'; 'Roseman, Jesse'; 'Rothert, Steve - AR'; 'Sandkulla, Nicole - BAWSCA'; 'Schutte, Allison - HB'; 'Sears, William - SFPUC'; 'Shumway, Vern - SNF'; 'Shutes, Chris - CSPA'; 'Slay, Ronn - CNRF/AIC'; 'Smith, Jim - MPM'; 'Steindorf, Dave - AW'; 'Stork, Ron - FOR'; 'Stratton, Susan - CA SHPO'; 'Taylor, Mary Jane - CDFG'; 'TeVelde, George A '; 'Thompson, Larry - NOAA-MNFS'; 'Vasquez, Sandy '; 'Verkuil, Colette - TRT/MF'; 'Walters, Eric - MF'; 'Wantuck, Rick - NOAA-NMFS'; 'Welch, Steve - ARTA'; 'Wesselman, Eric - TRT'; 'Wheeler, Dan'; 'Wheeler, Dave'; Wheeler, Douglas P.; 'Williamson, Harry (NPS)'; 'Wilson, Bryan - MF'; 'Winchell, Frank - FERC'; 'Wood, Dave - FR'; 'Wooster, John -NOAA'; 'Workman, Michelle - USFWS'; 'Yoshiyama, Ron'; 'Zipser, Wayne - SCFB'; 'Robert M. Nees'; 'Greg Dias'; 'Joy Warren'; 'Arthur F Godwin'; 'Bill Johnston'; 'Tim O'Laughlin'; 'Steve Boyd'; 'Melissa Williams'; 'Michelle Reimers'; Loy, Carin; Jones, Rick
Subject: RE: Don Pedro Website Upload Today Include Updated PTL and Revised RedLine Bathymetry Study Plan

John,

Thank you for the update. To be clear: it is our expectation that the Districts will provide the requested data on or before July 12th in accordance with the requirements of 18 C.F.R. § 5.6(c)(2). Given that the Districts have had over three months to compile most of this information since relicensing participants initially requested it on April 1st, it is unclear why the Districts would need more than the 20 days permitted under the regulations to provide the requested data. If the Districts do not intend to meet this deadline, please advise so that we can discuss next steps.

Ruth Porter

Counsel for Restore Hetch Hetchy

From: Devine, John [mailto:John.Devine@hdrinc.com]
Sent: Thursday, June 30, 2011 1:38 PM
To: Devine, John; Porter, Ruth M.
Cc: Staples, Rose; 'Alves, Jim - City of Modesto'; 'Anderson, Craig - USFWS'; 'Asay, Lynette - N-R'; 'Aud, John - SCERD'; 'Barnes, James - BLM'; 'Beuttler, John - CSPA'; 'Bond, Jack - City of Modesto'; 'Boucher, Allison - TRC'; 'Boucher, Dave - Allison - TRC'; 'Bowes, Stephen - NPS'; 'Bowman, Art - CWRMP'; 'Brewer, Doug - TetraTech'; 'Brochini, Anthony - SSMN'; 'Brochini, Tony - NPS'; 'Buckley, John - CSERC'; 'Burt, Charles - CalPoly'; 'Carlin, Michael - SFPUC'; 'Catlett, Kelly - FOR'; 'Charles, Cindy - GWWF'; 'Cory, Philip - TNC'; 'Costa, Jan - Chicken Ranch'; 'Cowan, Jeffrey'; 'Cox, Stanley Rob - TBMWI'; 'Cranston, Peggy - BLM'; 'Cremeen, Rebecca - CSERC'; 'Day, P - MF'; 'Donaldson, Milford Wayne - OHP'; 'Dowd, Maggie-SNF'; 'Drekmeier, Peter - TRT'; 'Edmondson, Steve - NOAA'; 'Eicher, James - BLM'; 'Fety, Lauren - BLM'; 'Findley, Timothy - Hanson Bridgett'; 'Freeman, Beau - CalPoly'; 'Fuller, Reba - TMTC'; 'Furman, Donn W -

SFPUC'; 'Ganteinbein, Julie - Water-Power Law Grp'; 'Giglio, Deborah - USFWS'; 'Goode, Ron - NFMT'; 'Gorman, Elaine - YSC'; 'Gutierrez, Monica - NOAA-NMFS'; 'Hastreiter, James L - FERC'; 'Hatch, Jenny - CT'; 'Hayat, Zahra - MF'; 'Hellam, Anita - HH'; 'Hersh-Burdick, Rachael - USACE'; 'Heyne, Tim - CDFG'; 'Holden, James '; 'Horn, Jeff - BLM'; 'Horn, Tini'; 'Hughes, Noah'; 'Hughes, Robert - CDFG'; 'Jackman, Jerry '; 'Jackson, Zac - USFWS'; 'Jennings, William - CSPA'; 'Jensen, Art - BAWSCA'; 'Jensen, Laura - TNC'; 'Johannis, Mary'; 'Johnson, Brian - CalTrout'; 'Justin'; 'Kanz, Russ - SWRCB'; 'Keating, Janice'; 'Kempton, Kathryn - NOAA-MNFS'; 'Kinney, Teresa'; 'Koepele, Patrick - TRT'; 'Lein, Joseph'; 'Levin, Ellen - SFPUC'; 'Lewis-Reggie-PRCI'; 'Linkard, David - TRT /RH'; Loy, Carin; 'Lwenya, Roselynn, BVR'; 'Lyons, Bill - MR'; 'Manji, Annie'; 'Marko, Paul '; 'Marshall, Mike - RHH'; 'Martin, Michael - MFFC'; 'Mathiesen, Lloyd - CRRMW'; 'McDaniel, Dan -CDWA'; 'McDevitt, Ray - BAWSCA'; 'McDonnell, Marty - SMRT'; 'McLain, Jeffrey - NOAA-NMFS'; 'Means, Julie - CDFG'; 'Mills, John - TUD'; 'Morningstar Pope, Rhonda - BVR'; 'Motola, Mary - PRCI'; 'O'Brien, Jennifer - CDFG'; 'Orvis, Tom - SCFB'; 'Ott, Bob'; 'Ott, Chris'; 'Pinhey, Nick - City of Modesto'; 'Powell, Melissa - CRRMW'; 'Puccini, Stephen - CDFG'; 'Raeder, Jessie - TRT'; 'Ramirez, Tim - SFPUC'; 'Rea, Maria - NOAA-NMFS'; 'Reed, Rhonda - NOAA-NMFS'; 'Richardson, Kevin - USACE'; 'Robbins, Royal'; 'Romano, David O - N-R'; 'Roos-Collins, Richard - Water-Power Law Grp for NHI'; 'Roseman, Jesse'; 'Rothert, Steve - AR'; 'Sandkulla, Nicole - BAWSCA'; 'Schutte, Allison - HB'; 'Sears, William - SFPUC'; 'Shumway, Vern - SNF'; 'Shutes, Chris - CSPA'; 'Slay, Ronn - CNRF/AIC'; 'Smith, Jim - MPM'; 'Steindorf, Dave - AW'; 'Stork, Ron - FOR'; 'Stratton, Susan - CA SHPO'; 'Taylor, Mary Jane - CDFG'; 'TeVelde, George A '; 'Thompson, Larry - NOAA-MNFS'; 'Vasquez, Sandy '; 'Verkuil, Colette - TRT/MF'; 'Walters, Eric - MF'; 'Wantuck, Rick - NOAA-NMFS'; 'Welch, Steve - ARTA'; 'Wesselman, Eric - TRT'; 'Wheeler, Dan'; 'Wheeler, Dave'; Wheeler, Douglas P.; 'Williamson, Harry (NPS)'; 'Wilson, Bryan - MF'; 'Winchell, Frank - FERC'; 'Wood, Dave - FR'; 'Wooster, John -NOAA'; 'Workman, Michelle - USFWS'; 'Yoshiyama, Ron'; 'Zipser, Wayne - SCFB'; 'Robert M. Nees'; 'Greg Dias'; 'Joy Warren'; 'Arthur F Godwin'; 'Bill Johnston'; 'Tim O'Laughlin'; 'Steve Boyd'; 'Melissa Williams'; 'Michelle Reimers'; Loy, Carin; Jones, Rick
Subject: RE: Don Pedro Website Upload Today Include Updated PTL and Revised RedLine Bathymetry Study Plan

Ruth,

To keep you updated on our progress towards responding to your requests of June 22, the Districts are continuing to conduct a search of their files for the data you requested. We will update you when we have a firm schedule for providing you what relevant information we can find.

John

From: Devine, John
Sent: Wednesday, June 22, 2011 3:15 PM
To: Porter, Ruth M.
Cc: Staples, Rose; Alves, Jim - City of Modesto; Anderson, Craig - USFWS; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Brochini, Tony - NPS; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez,

Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis-Reggie-PRCI; Linkard, David - TRT /RH; Loy, Carin; Lwenya, Roselynn, BVR; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - PRCI; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Vasquez, Sandy ; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas P.; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB; Robert M. Nees; Greg Dias; Joy Warren; Arthur F Godwin; Bill Johnston; Tim O'Laughlin; Steve Boyd; Melissa Williams; Michelle Reimers; Loy, Carin; Jones, Rick
Subject: RE: Don Pedro Website Upload Today Include Updated PTL and Revised RedLine Bathymetry Study Plan

Ruth,

I believe I understand your requests. I will discuss these items with the Districts and get back to you with our response.

John

From: Porter, Ruth M. [mailto:ruth.porter@hoganlovells.com]
Sent: Wednesday, June 22, 2011 12:45 PM
To: Devine, John
Cc: Staples, Rose; Alves, Jim - City of Modesto; Anderson, Craig - USFWS; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Brochini, Tony - NPS; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick

- TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis-Reggie-PRCI; Linkard, David - TRT /RH; Loy, Carin; Lwenya, Roselynn, BVR; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - PRCI; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Vasquez, Sandy ; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas P.; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB; Robert M. Nees; Greg Dias; Joy Warren; Arthur F Godwin; Bill Johnston; Tim O'Laughlin; Steve Boyd; Melissa Williams; Michelle Reimers; Loy, Carin; Jones, Rick
Subject: RE: Don Pedro Website Upload Today Include Updated PTL and Revised RedLine Bathymetry Study Plan

John:

According to the June 16, 2011 Progress Tracking List referenced below, the Districts/CCSF have responded to Item Nos. 21, 23, and 24. As discussed below, the materials provided in response to Item Nos. 21 and 23 are either unresponsive or not fully responsive to the Relicensing Participant requests. Moreover, no response has actually been provided for Item No. 24 despite the Progress Tracking List's statement that responsive materials were attached. Therefore, as discussed below, Restore Hetch Hetchy has a number of follow-up requests. Note that these requests are made pursuant to 18 C.F.R. § 5.6 (c)(2) and are therefore subject to the timing requirements specified therein.

Item No. 21: This request: (1) asks the CCSF to provide the historical water bank "account balance" that the Districts have provided to CCSF and (2) asks for documentation on the water bank accounting method. The attached response to Item No. 21 contains the Instructions for Water Bank Accounting of Hetch Hetchy Water and Power, Modesto Irrigation District, and Turlock Irrigation District dated April 1971 ("Instructions"). Thus, assuming that the Districts and CCSF have not modified the accounting method since April 1971, it appears that part two of this request has been satisfied. The response provided utterly ignores, however, the first part of the request seeking the historical water bank account balance.

Therefore as a follow-up to this item, Restore Hetch Hetchy requests that the Districts:

(1) Provide the historical water bank "account balance," as requested; and
(2) Confirm that the Districts and CCSF have not modified the water bank accounting method since April 1971. In the event the water bank accounting method has been modified subsequently, Restore Hetch Hetchy requests that the Districts provide documentation regarding any new accounting methods used.

Item No. 23: This request asks what compensation CCSF provides to the Districts when CCSF's water bank account has a negative balance. In response to this request, the updated Progress Tracking List states "MID-TID have only consented once to SF request to 'go-negative' in the water bank through the history of the Project. See attached 'Response 23.'" The attached Response 23 is an agreement between Hetch Hetchy Water and Power and the Districts dated June 2, 1988 ("Agreement"). This Agreement, among other things states "[t]he letter agreement of May 27, 1988 and the consent therein

granted shall stand terminated as of June 2, 1988. Such termination shall not affect the Districts' right to compensation thereunder." Agreement at 2. Moreover, the Agreement also provides that "San Francisco shall pay to the Districts on or before August 15, 1988, the amount of money necessary to fully compensate the Districts for all damages suffered by them as a result of the existence of the debit balance." *Id.*

Therefore, as a follow-up to this item, Restore Hetch Hetchy requests that the Districts:

(1) State whether there has ever been a negative balance in CCSF's water bank without the prior consent of MID-TID, and, to the extent applicable, provide the date(s) and duration(s) of those negative balances;
(2) Provide a copy of the May 27, 1988 letter agreement that was referenced in the June 2, 1988 agreement;
(3) Provide a list any compensation that the Districts have received from CCSF or any divisions thereof as a result of a negative balance in the water bank account. This list should include: (i) the date and amount of any monetary payments for damages the Districts incurred; and (2) an explanation of how the damages were calculated.

Item No. 24: This request asks CCSF to provide copies of the water balance reports it sends to the Districts. Despite the fact that the Progress Tracking List states First, the Instructions state that CCSF, MID, and TID developed a written form called "Hetch Hetchy Water and Power System, Daily Operating Summary Form "See attached 'Response 24' for water bank accounting," no such document is posted on the Don Pedro Relicensing website. Regarding these water balance reports, according to the Instructions provided in response to Item No. 21, the Districts and CCSF should have records of several forms used for water bank accounting:HH-11," which is a form that CCSF completes on a monthly basis with data furnished by the Districts and CCSF operating personnel on a daily basis.

- Second, the Instructions state that the daily "Bank Account" status is computed by CCSF and then furnished to the Districts at the end of each month on "Tuolumne River Flow Accounting" Form P-174.
- Third, three to five months later, the status information furnished by CCSF on Form P-174 is compared to the data collected from gauging stations that is compiled on "Study of the Tuolumne River Watershed" form P-173. Form P-173 complies the computed daily flows and average reservoir contents by months and serves as the official record of storage and stream flows for Raker Act compliance.
- Finally, after Form P-174 is compared to Form P-173, CCSF issues a "Bank Account Adjustment" Form HH-150, which shows CCSF's net credit balance at the end of the latest month, adjusted by any difference with the latest monthly official recording.

Therefore, as a follow-up to this item, Restore Hetch Hetchy requests that:

(1) CCSF provide copies of all "Hetch Hetchy Water and Power System, Daily Operating Summary" Form HH-11 in PDF format;
(2) The Districts provide copies of all completed "Tuolumne River Flow Accounting" Form P-174 in PDF format;
(3) The Districts provide copies of all completed "Study of the Tuolumne River Watershed" Form P-173 in PDF format; and

(4) The Districts provide copies of all completed "Bank Account Adjustment" Form HH-150 in PDF format.

Please feel free to contact me if you have any questions regarding these requests.

Regards,

Ruth Porter

Counsel for Restore Hetch Hetchy

Ruth Porter
Attorney at Law

Hogan Lovells US LLP
Columbia Square
555 Thirteenth Street, NW
Washington, DC 20004

Tel: +1 202 637 5600
Direct: +1 202 637 6516
Fax: +1 202 637 5910
Email: ruth.porter@hoganlovells.com
www.hoganlovells.com

Please consider the environment before printing this e-mail.

From: Staples, Rose [mailto:Rose.Staples@hdrinc.com]
Sent: Thursday, June 16, 2011 7:55 PM
To: Alves, Jim - City of Modesto; Anderson, Craig - USFWS; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Brochini, Tony - NPS; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis-Reggie-PRCI; Linkard, David - TRT /RH; Loy, Carin; Lwenya, Roselynn, BVR; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - PRCI; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth M.; Powell, Melissa - CRRMW;

Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Vasquez, Sandy ; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas P.; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John - NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Subject: Don Pedro Website Upload Today Include Updated PTL and Revised RedLine Bathymetry Study Plan

I have uploaded to the Don Pedro Relicensing Website today an updated Progress Tracking List (PTL) with some Districts and CCSF responses. In addition, I have uploaded a red-line version of the Bathymetry Study Plan, which reflects suggestions and comments received from the Relicensing Participants during the June 2 Bathymetry Study Plan conference call.

Both of these documents, and attachments to the PTL, can be found as the first two ANNOUNCEMENTS on the INTRODUCTION page of the website www.donpedro-relicensing.com.

Rose Staples CPS CAP
Executive Assistant
HDR|DTA
970 Baxter Boulevard | Portland ME | 04103
Office: 207-775-4495 | Direct: 207-239-3857 | Fax: 207-775-1742
Email rose.staples@hdrinc.com

From: Devine, John
Sent: Tuesday, August 30, 2011 8:28 AM
To: Annie Manji; Staples, Rose
Cc: Steve - AR' 'Rothert; Dave - AW' 'Steindorf; 'Bill Johnston'; William -CSPA' 'Jennings; Paul ' 'Marko; John - CSPA' 'Beuttler; Jim - MPM' 'Smith; Bill - MR' 'Lyons; Bob' 'Ott; Steve - ARTA' 'Welch; Art - BAWSCA' 'Jensen; Nicole - BAWSCA' 'Sandkulla; Allison - TRC' 'Boucher; Dave -Allison - TRC' 'Boucher; James - BLM' 'Eicher; Lauren - BLM' 'Fety; Rhonda - BVR' 'Morningstar Pope; Roselynn BVR' 'Lwenya; James - BLM' 'Barnes; Jeff -BLM' 'Horn; Peggy - BLM' 'Cranston; Beau - CalPoly' 'Freeman; Charles - CalPoly' 'Burt; Jenny - CT' 'Hatch; Cindy - GWWF' 'Charles; Mary - PRCI' 'Motola; Dan' 'Wheeler; Dave' 'Wheeler; John - CSERC' 'Buckley; Rebecca - CSERC' 'Cremeen; Jim Canaday; Jennifer O'Brien; Julie Means; Mary Jane Taylor; Bob Hughes; Stephen Puccini; Tim Heyne; Royal' 'Robbins; Ronn - CNRF/AIC' 'Slay; John - SCERD' 'Aud; Frank - FERC' 'Winchell; James.Hastreiter@ferc.gov; Kelly - FOR' 'Catlett; Ron - FOR' 'Stork; Maggie-SNF' 'Dowd; Vern - SNF' 'Shumway; Craig - USFWS' 'Anderson; Deborah -USFWS' 'Giglio; Michelle - USFWS' 'Workman; Zac - USFWS' 'Jackson; Harry (NPS)' 'Williamson; Janice' 'Keating; Jesse' 'Roseman; Allison - HB' 'Schutte; Ray - BAWSCA' 'McDevitt; Timothy - HansonBridgett' 'Findley; Loy, Carin; Jones, Rick; Staples, Rose; Mike - RHH' 'Marshall; Douglas P. Wheeler; ruth.porter@hoganlovells.com; Joseph' 'Lein; Noah' 'Hughes; Chris' 'Ott; Ron - NFMT' 'Goode; Teresa' 'Kinney; 'Justin'; James ' 'Holden; Art - CWRMP' 'Bowman; Dave - FR' 'Wood; David - TRT /RH' 'Linkard; Melissa - CRRMW' 'Powell; George A ' 'TeVelde; 'Greg Dias'; 'Joy Warren'; 'MelissaWilliams'; Jan -Chicken Ranch' 'Costa; Lloyd - CRRMW' 'Mathiesen; Stanley Rob - TBMWI' 'Cox; Reba - TMTC' 'Fuller; Jim - City ofModesto' 'Alves; Jack - City of Modesto' 'Bond; Nick - City of Modesto' 'Pinhey; Bryan - MF' 'Wilson; Colette - TRT/MF' 'Verkuil; Eric - MF' 'Walters; P - MF' 'Day; Zahra - MF' 'Hayat; 'Arthur F Godwin'; Chris - CSPA' 'Shutes; David O - N-R' 'Romano; Lynette - N-R' 'Asay; Jeffrey - NOAA-NMFS' 'McLain; John -NOAA' 'Wooster; Kathryn - NOAA-MNFS' 'Kempton; Larry - NOAA-MNFS' 'Thompson; Maria - NOAA-NMFS' 'Rea; Monica - NOAA-NMFS' 'Gutierrez; Rhonda - NOAA-NMFS' 'Reed; Rick - NOAA-NMFS' 'Wantuck; Steve - NOAA' 'Edmondson; Stephen - NPS' 'Bowes; Tony - NPS' 'Brochini; 'Tim O'Laughlin'; Dan -CDWA' 'McDaniel; Milford Wayne - OHP' 'Donaldson; Susan - CA SHPO' 'Stratton; Jeffrey' 'Cowan; Jerry ' 'Jackman; Donn W - SFPUC' 'Furman; Ellen - SFPUC' 'Levin; Michael - SFPUC' 'Carlin; tramirez@sfwater.org; William - SFPUC' 'Sears; Marty - SMRT' 'McDonnell; John - TUD' 'Mills; sharon.coleman@spiegelmcd.com; william.huang@spiegelmcd.com; Tom - SCFB' 'Orvis; Wayne - SCFB' 'Zipser; Anthony - SSMN' 'Brochini; Michael - MFFC' 'Martin; Sandy ' 'Vasquez; 'Lewis-Reggie-PRCI'; Doug - TetraTech' 'Brewer; 'Michelle Reimers'; 'Robert M. Nees'; 'Steve Boyd'; Laura - TNC' 'Jensen; Philip - TNC' 'Cory; Brian - CalTrout' 'Johnson; Eric - TRT' 'Wesselman; Jessie - TRT' 'Raeder; Patrick - TRT' 'Koepele; Peter - TRT' 'Drekmeier; Ron' 'Yoshiyama; Kevin - USACE' 'Richardson; Mary' 'Johannis; Russ - SWRCB' 'Kanz; Julie -Water-Power Law Grp' 'Ganteinbein; Richard - Water-Power Law Grp forNHI' 'Roos-Collins; Anita - HH' 'Hellam; Tini' 'Horn; Elaine - YSC' 'Gorman; Robert M. Nees; Greg Dias; Joy Warren; 'Arthur F Godwin'; William

R. Johnston; 'Tim O'Laughlin'; Steve Boyd; Loy, Carin
Subject:RE: Request for Additional Information

Annie,

Thank you for the reminders. Our response follows.

[1] Regarding PTL Item #16 that deals with the Districts' pre-1914 appropriative rights, this question/request was asked by Richard Roos-Collins. We responded to this request on June 5, but neglected to copy all parties. We will upload to the website our June 5 response to Richard which includes the list of all pre-1914 rights.

[2] Regarding PTL Item #13 regarding the Districts riparian water rights, our response is provided below:

(i) the Districts do not rely upon riparian rights for irrigation purposes.

(ii) there may be riparian landowners within the District boundaries that rely upon riparian water rights for all or a portion of their water needs. However, the Districts' service of those lands does not include any riparian water rights; therefore, since no lands are served with any District riparian rights, there is no map we can produce, nor data on seasons or amounts. Furthermore, the Districts have no way of identifying which landowners within their service areas are using riparian water, the amount of use, or the season of use.

(iii) the Districts do have a riparian claim for power use at Don Pedro powerhouse and TID has one for its powerhouse at La Grange; these are provided in the Districts Triennial Reports, Enclosure 3 and 5.

We will upload today these answers to your questions.

Again, thank you for the reminder.

JOHN DEVINE, P.E.
HDR Engineering, Inc.
Senior Vice President, Hydropower Services

970 Baxter Boulevard Suite 301 | Portland, ME 04103
207.775.4495 | c: 207.776.2206 | f: 207.775.1742 john.devine@hdrinc.com | hdrinc.com

From: Jessie Raeder [jessie@tuolumne.org]
Sent: Thursday, September 01, 2011 5:48 PM
To: 'Jessie Raeder'; Devine, John; 'Alves, Jim - City of Modesto'; 'Anderson, Craig - USFWS'; 'Asay, Lynette - N-R'; 'Aud, John - SCERD'; 'Barnes, James - BLM'; 'Barnes, Peter - SWRCB'; 'Beuttler, John - CSPA'; 'Blake, Martin'; 'Bond, Jack - City of Modesto'; 'Boucher, Allison - TRC'; 'Boucher, Dave - Allison - TRC'; 'Bowes, Stephen - NPS'; 'Bowman, Art - CWRMP'; 'Brewer, Doug - TetraTech'; 'Brochini, Anthony - SSMN'; 'Brochini, Tony - NPS'; 'Buckley, John - CSERC'; 'Burt, Charles - CalPoly'; 'Cadagan, Jerry'; 'Carlin, Michael - SFPUC'; 'Catlett, Kelly - FOR'; 'Charles, Cindy - GWWF'; 'Cismowski, Gail - SWRCB'; 'Costa, Jan - Chicken Ranch'; 'Cowan, Jeffrey'; 'Cox, Stanley Rob - TBMWI'; 'Cranston, Peggy - BLM'; 'Cremeen, Rebecca - CSERC'; 'Day, P - MF'; 'Derwin, Maryann Moise'; 'Donaldson, Milford Wayne - OHP'; 'Dowd, Maggie-SNF'; 'Drekmeier, Peter - TRT'; 'Edmondson, Steve - NOAA'; 'Eicher, James - BLM'; 'Fety, Lauren - BLM'; 'Findley, Timothy - Hanson Bridgett'; 'Freeman, Beau - CalPoly'; 'Fuller, Reba - TMTC'; 'Furman, Donn W - SFPUC'; 'Ganteinbein, Julie - Water-Power Law Grp'; 'Giglio, Deborah - USFWS'; 'Goode, Ron - NFMT'; 'Gorman, Elaine - YSC'; 'Grader, Zeke'; 'Gutierrez, Monica - NOAA-NMFS'; 'Hackamack, Robert'; 'Hastreiter, James L - FERC'; 'Hatch, Jenny - CT'; 'Hayat, Zahra - MF'; 'Hayden, Ann'; 'Hellam, Anita - HH'; 'Heyne, Tim - CDFG'; 'Holden, James '; 'Holm, Lisa'; 'Horn, Jeff - BLM'; 'Horn, Tini'; 'Hughes, Noah'; 'Hughes, Robert - CDFG'; 'Hume, Noah - Stillwater'; 'Jackman, Jerry '; 'Jackson, Zac - USFWS'; 'Jennings, William - CSPA'; 'Jensen, Art - BAWSCA'; 'Jensen, Laura - TNC'; 'Johannis, Mary'; 'Johnson, Brian - CalTrout'; 'Justin'; 'Kanz, Russ - SWRCB'; 'Keating, Janice'; 'Kempton, Kathryn - NOAA-MNFS'; 'Kinney, Teresa'; 'Koepele, Patrick - TRT'; 'Lein, Joseph'; 'Levin, Ellen - SFPUC'; 'Lewis-Reggie-PRCI'; 'Linkard, David - TRT /RH'; Loy, Carin; 'Lwenya, Roselynn, BVR'; 'Lyons, Bill - MR'; 'Madden, Dan'; 'Manji, Annie'; 'Marko, Paul '; 'Marshall, Mike - RHH'; 'Martin, Michael - MFFC'; 'Mathiesen, Lloyd - CRRMW'; 'McDaniel, Dan -CDWA'; 'McDevitt, Ray - BAWSCA'; 'McDonnell, Marty - SMRT'; 'McLain, Jeffrey - NOAA-NMFS'; 'Means, Julie - CDFG'; 'Mills, John - TUD'; 'Morningstar Pope, Rhonda - BVR'; 'Motola, Mary - PRCI'; 'O'Brien, Jennifer - CDFG'; 'Orvis, Tom - SCFB'; 'Ott, Bob'; 'Ott, Chris'; 'Paul, Duane - Cardno'; 'Pinhey, Nick - City of Modesto'; 'Pool, Richard'; 'Porter, Ruth - RHH'; 'Powell, Melissa - CRRMW'; 'Puccini, Stephen - CDFG'; 'Ramirez, Tim - SFPUC'; 'Rea, Maria - NOAA-NMFS'; 'Reed, Rhonda - NOAA-NMFS'; 'Richardson, Kevin - USACE'; 'Ridenour, Jim'; 'Robbins, Royal'; 'Romano, David O - N-R'; 'Roos-Collins, Richard - Water-Power Law Grp for NHI'; 'Roseman, Jesse'; 'Rothert, Steve - AR'; 'Sander, Max - TNC'; 'Sandkulla, Nicole - BAWSCA'; 'Schutte, Allison - HB'; 'Sears, William - SFPUC'; 'Shipley, Robert'; 'Shumway, Vern - SNF'; 'Shutes, Chris - CSPA'; 'Sill, Todd'; 'Slay, Ronn - CNRF/AIC'; 'Smith, Jim - MPM'; Staples, Rose; 'Steindorf, Dave - AW'; 'Stork, Ron - FOR'; 'Stratton, Susan - CA SHPO'; 'Taylor, Mary Jane - CDFG'; 'Terpstra, Thomas'; 'TeVelde, George A '; 'Thompson, Larry - NOAA-MNFS'; 'Vasquez, Sandy '; 'Verkuil, Colette - TRT/MF'; 'Vierra, Chris'; 'Walters, Eric - MF'; 'Wantuck, Rick - NOAA-NMFS'; 'Welch, Steve - ARTA'; 'Wesselman, Eric - TRT'; 'Wheeler, Dan'; 'Wheeler, Dave'; 'Wheeler, Douglas - RHH'; 'Wilcox, Scott - Stillwater'; 'Williamson, Harry (NPS)'; 'Wilson, Bryan -

MF'; 'Winchell, Frank - FERC'; 'Wood, Dave - FR'; 'Wooster, John -NOAA'; 'Workman, Michelle - USFWS'; 'Yoshiyama, Ron'; 'Zipser, Wayne - SCFB'
Subject: RE: Results of doodlepoll and updated meeting schedule.

Sorry about that - I meant Tuesday the 13th, not Thursday the 13th.
Jessie

From: Jessie Raeder [mailto:jessie@tuolumne.org]
Sent: Thursday, September 01, 2011 2:43 PM
To: 'Devine, John'; 'Alves, Jim - City of Modesto'; 'Anderson, Craig - USFWS'; 'Asay, Lynette - N-R'; 'Aud, John - SCERD'; 'Barnes, James - BLM'; 'Barnes, Peter - SWRCB'; 'Beuttler, John - CSPA'; 'Blake, Martin'; 'Bond, Jack - City of Modesto'; 'Boucher, Allison - TRC'; 'Boucher, Dave - Allison - TRC'; 'Bowes, Stephen - NPS'; 'Bowman, Art - CWRMP'; 'Brewer, Doug - TetraTech'; 'Brochini, Anthony - SSMN'; 'Brochini, Tony - NPS'; 'Buckley, John - CSERC'; 'Burt, Charles - CalPoly'; 'Cadagan, Jerry'; 'Carlin, Michael - SFPUC'; 'Catlett, Kelly - FOR'; 'Charles, Cindy - GWWF'; 'Cismowski, Gail - SWRCB'; 'Costa, Jan - Chicken Ranch'; 'Cowan, Jeffrey'; 'Cox, Stanley Rob - TBMWI'; 'Cranston, Peggy - BLM'; 'Cremeen, Rebecca - CSERC'; 'Day, P - MF'; 'Derwin, Maryann Moise'; 'Donaldson, Milford Wayne - OHP'; 'Dowd, Maggie-SNF'; 'Drekmeier, Peter - TRT'; 'Edmondson, Steve - NOAA'; 'Eicher, James - BLM'; 'Fety, Lauren - BLM'; 'Findley, Timothy - Hanson Bridgett'; 'Freeman, Beau - CalPoly'; 'Fuller, Reba - TMTC'; 'Furman, Donn W - SFPUC'; 'Ganteinbein, Julie - Water-Power Law Grp'; 'Giglio, Deborah - USFWS'; 'Goode, Ron - NFMT'; 'Gorman, Elaine - YSC'; 'Grader, Zeke'; 'Gutierrez, Monica - NOAA-NMFS'; 'Hackamack, Robert'; 'Hastreiter, James L - FERC'; 'Hatch, Jenny - CT'; 'Hayat, Zahra - MF'; 'Hayden, Ann'; 'Hellam, Anita - HH'; 'Heyne, Tim - CDFG'; 'Holden, James '; 'Holm, Lisa'; 'Horn, Jeff - BLM'; 'Horn, Tini'; 'Hughes, Noah'; 'Hughes, Robert - CDFG'; 'Hume, Noah - Stillwater'; 'Jackman, Jerry '; 'Jackson, Zac - USFWS'; 'Jennings, William - CSPA'; 'Jensen, Art - BAWSCA'; 'Jensen, Laura - TNC'; 'Johannis, Mary'; 'Johnson, Brian - CalTrout'; 'Justin'; 'Kanz, Russ - SWRCB'; 'Keating, Janice'; 'Kempton, Kathryn - NOAA-MNFS'; 'Kinney, Teresa'; 'Koepele, Patrick - TRT'; 'Lein, Joseph'; 'Levin, Ellen - SFPUC'; 'Lewis-Reggie-PRCI'; 'Linkard, David - TRT /RH'; 'Loy, Carin'; 'Lwenya, Roselynn, BVR'; 'Lyons, Bill - MR'; 'Madden, Dan'; 'Manji, Annie'; 'Marko, Paul '; 'Marshall, Mike - RHH'; 'Martin, Michael - MFFC'; 'Mathiesen, Lloyd - CRRMW'; 'McDaniel, Dan -CDWA'; 'McDevitt, Ray - BAWSCA'; 'McDonnell, Marty - SMRT'; 'McLain, Jeffrey - NOAA-NMFS'; 'Means, Julie - CDFG'; 'Mills, John - TUD'; 'Morningstar Pope, Rhonda - BVR'; 'Motola, Mary - PRCI'; 'O'Brien, Jennifer - CDFG'; 'Orvis, Tom - SCFB'; 'Ott, Bob'; 'Ott, Chris'; 'Paul, Duane - Cardno'; 'Pinhey, Nick - City of Modesto'; 'Pool, Richard'; 'Porter, Ruth - RHH'; 'Powell, Melissa - CRRMW'; 'Puccini, Stephen - CDFG'; 'Ramirez, Tim - SFPUC'; 'Rea, Maria - NOAA-NMFS'; 'Reed, Rhonda - NOAA-NMFS'; 'Richardson, Kevin - USACE'; 'Ridenour, Jim'; 'Robbins, Royal'; 'Romano, David O - N-R'; 'Roos-Collins, Richard - Water-Power Law Grp for NHI'; 'Roseman, Jesse'; 'Rothert, Steve - AR'; 'Sander, Max - TNC'; 'Sandkulla, Nicole - BAWSCA'; 'Schutte, Allison - HB'; 'Sears, William - SFPUC'; 'Shipley, Robert'; 'Shumway, Vern - SNF'; 'Shutes, Chris - CSPA'; 'Sill, Todd'; 'Slay, Ronn - CNRF/AIC'; 'Smith, Jim - MPM'; 'Staples, Rose'; 'Steindorf, Dave - AW'; 'Stork, Ron - FOR'; 'Stratton, Susan - CA SHPO'; 'Taylor, Mary Jane - CDFG'; 'Terpstra, Thomas'; 'TeVelde, George A '; 'Thompson, Larry - NOAA-MNFS'; 'Vasquez, Sandy '; 'Verkuil, Colette - TRT/MF'; 'Vierra, Chris'; 'Walters, Eric - MF'; 'Wantuck, Rick - NOAA-NMFS'; 'Welch, Steve - ARTA'; 'Wesselman, Eric - TRT'; 'Wheeler, Dan'; 'Wheeler, Dave'; 'Wheeler, Douglas - RHH'; 'Wilcox, Scott - Stillwater'; 'Williamson, Harry (NPS)'; 'Wilson, Bryan - MF'; 'Winchell, Frank - FERC'; 'Wood, Dave - FR'; 'Wooster, John -NOAA'; 'Workman, Michelle - USFWS'; 'Yoshiyama, Ron'; 'Zipser, Wayne - SCFB'
Subject: RE: Results of doodlepoll and updated meeting schedule.

John,

Regarding the Economics subgroup meeting, I am curious to know why Thursday the 13th was chosen, when 4 more people could attend on Monday the 12th (which was the date that clearly had the most availability). Seems to defeat the point of a doodle poll? This is very unfortunate

for TRT, which was one of the groups that had requested this meeting, since our two leads on this topic, Peter Drekmeier and Patrick Koepele, cannot attend that day. We think it's also unfortunate because Ellen Levin cannot attend on the 13th (whereas she can on the 12th) as CCSF will certainly play a large role in this subject area.

Jessie

Jessie Raeder
Relicensing Coordinator
Tuolumne River Trust
415-882-7252 ext. 301
jessie@tuolumne.org

From: Staples, Rose [mailto:Rose.Staples@hdrinc.com] **On Behalf Of** Devine, John
Sent: Thursday, September 01, 2011 2:08 PM
To: Alves, Jim - City of Modesto; Anderson, Craig - USFWS; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Barnes, Peter - SWRCB; Beuttler, John - CSPA; Blake, Martin; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Brochini, Tony - NPS; Buckley, John - CSERC; Burt, Charles - CalPoly; Cadagan, Jerry; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cismowski, Gail - SWRCB; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Derwin, Maryann Moise; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Grader, Zeke; Gutierrez, Monica - NOAA-NMFS; Hackamack, Robert; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hayden, Ann; Hellam, Anita - HH; Heyne, Tim - CDFG; Holden, James ; Holm, Lisa; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Hume, Noah - Stillwater; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis-Reggie-PRCI; Linkard, David - TRT /RH; Loy, Carin; Lwenya, Roselynn, BVR; Lyons, Bill - MR; Madden, Dan; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - PRCI; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Paul, Duane - Cardno; Pinhey, Nick - City of Modesto; Pool, Richard; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Ridenour, Jim; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sander, Max - TNC; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shipley, Robert; Shumway, Vern - SNF; Shutes, Chris - CSPA; Sill, Todd; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; Terpstra, Thomas; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Vasquez, Sandy ; Verkuil, Colette - TRT/MF; Vierra, Chris; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA;

Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Wilcox, Scott - Stillwater; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Subject: Results of doodlepoll and updated meeting schedule.

First, I would like to thank those who participated in the recent doodlepoll. Based on the poll, here is what we have come up with for meeting dates.

[1] The **Socioeconomic Study Plan subgroup** will meet on **Tuesday afternoon, September 13 from 1:30 to 5:00 PM in Modesto** at a meeting location still to be identified.

[2] Due to a small response on the W&AR -5 and -6 subgroup meeting and a lack of consensus on a date, we'll just keep those two study plans within the overall **Water & Aquatic RWG** meeting already scheduled for all day on **Thursday, September 15 at MID**. However, there is plenty to cover in this meeting because we still have to discuss those study requests not adopted by the Districts and we also need to continue to discuss the proposed studies. For that reason, I believe we all need to be ready for a long day of meeting on September 15 (possibly break for dinner, then return), and even a continuation of the meeting on **Friday, September 16**. We will have Live Meeting and a conference line to aid participation. I recognize the inconvenience of this schedule, but spending this bit of extra time on the W&AR issues on September 15 and 16 will benefit all of us down the road as we move towards the Revised Study Plan document. If there was a preference for a two-day meeting to be held September 14 and 15 instead of September 15 and 16, that would be fine with the Districts. Please let us know.

[3] The **Recreation RWG** is still scheduled to meet on **Wednesday morning, September 14 at MID** – no change there.

[4] The **Cultural RWG** is well along and will be holding their next meeting by **conference call on Wednesday afternoon, September 15**.

[5] The **Terrestrial RWG** is scheduled to meet on **Thursday morning, September 15 at MID**.

Detailed agenda will follow next week.

Thank you for your patience and continuing interest in the relicensing of Don Pedro

JOHN DEVINE
P.E.

HDR Engineering, Inc.
Senior Vice President, Hydropower Services

970 Baxter Boulevard Suite 301 | Portland, ME 04103
207.775.4495 | c: 207.776.2206 | f: 207.775.1742
john.devine@hdrinc.com | hdrinc.com

From: Staples, Rose
Sent: Friday, September 02, 2011 5:48 PM
To: Alves, Jim - City of Modesto; Anderson, Craig - USFWS; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Barnes, Peter - SWRCB; Beuttler, John - CSPA; Blake, Martin; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Brochini, Tony - NPS; Buckley, John - CSERC; Burt, Charles - CalPoly; Cadagan, Jerry; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cismowski, Gail - SWRCB; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Derwin, Maryann Moise; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Grader, Zeke; Gutierrez, Monica - NOAA-NMFS; Hackamack, Robert; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hayden, Ann; Hellam, Anita - HH; Heyne, Tim - CDFG; Holden, James ; Holm, Lisa; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Hume, Noah - Stillwater; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis-Reggie-PRCI; Linkard, David - TRT /RH; Loy, Carin; Lwenya, Roselynn, BVR; Lyons, Bill - MR; Madden, Dan; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - PRCI; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Paul, Duane - Cardno; Pinhey, Nick - City of Modesto; Pool, Richard; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Ridenour, Jim; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sander, Max - TNC; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shipley, Robert; Shumway, Vern - SNF; Shutes, Chris - CSPA; Sill, Todd; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; Terpstra, Thomas; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Vasquez, Sandy ; Verkuil, Colette - TRT/MF; Vierra, Chris; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Wilcox, Scott - Stillwater; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB

Subject: Don Pedro Project - Water Rights Lists of Pre-1914 Documents
Attachments: Water Rights Lists of Pre-1914 Documents..pdf

These lists of the Districts' Water Rights are being provided in response to PTL #16. For background information, please reference Item #16 on the updated Progress Tracking List (PTL) which is being uploaded to the relicensing website later today.

ROSE STAPLES
CPS CAP

HDR Engineering, Inc.
Executive Assistant, Hydropower Services

970 Baxter Boulevard, Suite 301 | Portland, ME 04103
207.239.3857 | f: 207.775.1742
rose.staples@hdrinc.com| hdrinc.com

1. THE LA GRANGE DITCH RIGHT (66cfs)

1.1 May 18, 1871, Water Claim by E. Green and A.D. Allen for 3,000 miners inches. Recorded Tuolumne County at the request of R.P. Denoon, June 8, 1871. Claims. Vol. 8. p. 543.

1.2 July 3, 1871 Indenture conveying property and water right from Edmond Green and A.D. Allen to the La Grange Ditch and Hydraulic Mining Company. Recorded Stanislaus County. July 10, 1871. Deeds. Vol. 6, p. 455-460.

1.2.1 December 1, 1906. Indenture conveying property known as the "Hardin Ranch" which would be overflowed by a dam 100 feet high built at the narrows , or gorge, upon said north fork of the Tuolumne River, from La Grange Ditch and Hydraulic Mining Co. to La Grange Water & Power Company. Recorded Tuolumne County. January 16, 1909. Deeds. Book "A" , Vol. 67, p. 88-91.

1.3 May 21, 1907. Indenture conveying La Grange Property and Water Right from La Grange Ditch and Hydraulic Mining Co. to La Grange Water & Power Co. No amount of right specified. Recorded Stanislaus County. January 15, 1908. Deeds. Vol. 120, p. 83-88.

1.4 September 19, 1908. Indenture confirming deeds of December 1, 1906 and May 21, 1907, from La Grange Ditch and Hydraulic Mining Co. to La Grange Water & Power Co. (A) Recorded Tuolumne County. March 1, 1909. Book "A", Vol. 67, p. 162-163, and (B) Stanislaus County. January 15, 1909. Deeds. Vol. 120, p. 89.

1.5 January 14, 1909. Indenture from La Grange Water & Power Co. transferring property, but not water right of 5,000 miners' inches, to La Grange Gold Dredging Co.. Recorded Stanislaus County. January 15, 1909. Deeds. Vol. 120, p. 90-92.

1.6 May 23, 1911. La Grange Water and Power Co. water right transferred to Yosemite Power Co. Recorded Stanislaus County. ~~May 23~~ October 4, 1911. Deeds. Vol. 136, p. 594.

1.7 December 29, 1916. Yosemite Power Co. conveys 300 miners' inches of original 5,000 miners' inches of water right to La Grange Gold Dredging Co. Recorded Stanislaus County. January 4, 1917. Deeds. Vol. 237, p. 334-336.

1.7.1 August 2, 1917. Yosemite Power Co. conveyed 100 miners' inches of water for duration of dredging operations, and a permanent right to 167 miners' inches of water for irrigation (not to exceed a maximum equivalent of 100 miners' inches continuous flow annual consumption) of original filing of 5,000 miners' inches to La Grange Gold Dredging Co. Recorded Stanislaus County. October 5, 1917. Deeds. Vol. 250, p. 629-630.

1.7.2 August 2, 1917. La Grange Gold Dredging Co. transferred under a Quit Claim Deed a penstock site to Yosemite Power Co. Recorded Stanislaus County. October 5, 1917. Deeds. Vol. 250, p. 631.

1.8 September 26, 1917. Deed from the Yosemite Power Company to Sierra and San Francisco Power Company transferring 66 cfs water right. Recorded Stanislaus County. October 10, 1917. Deeds. Vol. 250, p. 632-635.

1.9 September 27, 1917. Stipulated Judgement in the Superior Court of the County of Stanislaus Turlock Irrigation District and Modesto Irrigation District vs. La Grange Water and Power Company and La Grange Gold Dredging Company awarding Yosemite Power Company 66 cfs from the natural flow of the Tuolumne River all times when the flow of the river amounts to at least 66 cfs and all of the natural flow if the natural flow is less than 66 cfs. Recorded Stanislaus County . September 27, 1917. Judgement Book. Vol. 9. p. 350. Case No. ???

1.10 October 9, 1917. La Grange Gold Dredging Company and Yosemite Power Company by Deed of Quit Claim conveyed all property including "all water ditches, canals, privileges,...appurtenant to...said reservoir...." to Sierra and San Francisco Power Company. Recorded Stanislaus County. October 10, 1917. Deeds. Vol 250, p. 636-637.

1.11 January 24, 1920. Deed from Sierra and San Francisco Power Company selling 60 cfs for six months of each year, under certain conditions, to Waterford Irrigation District. Recorded Stanislaus County. February 2, 1920. Deeds. Vol. 299. p. 109-112.

1.12 October 26, 1921. Deed from Sierra and San Francisco Power Company and Pacific Gas and Electric Company transferring 66 cfs water right to Turlock Irrigation District and Modesto Irrigation District. Recorded Tuolumne County. May 12, 1922 . Book A, Deeds. Vol. 85. p. 1; Recorded Stanislaus County. July 6, 1923. Official Records. Vol. 24. p. 473-481.

1.13 December 14, 1977. State of California, Certificate of Filing, Annexation of the Waterford Irrigation District to the Modesto Irrigation District and the Dissolution of the Waterford Irrigation District. Recorded Stanislaus County, Official Records. Vol. 3000, p. 516-535.

1.14 December 15, 1977. Deed and Bill of Sale from the Waterford Irrigation District to the Modesto Irrigation District. Recorded in Stanislaus County, Official Records, July 14, 1989. Document No. 054104. 15p.

2. THE WHEATON RIGHT (10,000 cfs)

2.1 January 16, 1855, Posting of water claims by the Franklin Water Company. Recorded in the Tuolumne County Records. January 23, 1855. Claims, Vol. 1. p. 156.

2.2 November 27, 1855, Franklin and French Bar Water Company change to the Stanislaus Water Company. Recorded in Stanislaus County Records, November 30, 1855. Miscellaneous Records, Vol. 1. p. 8.

2.3 November 27, 1855. Stanislaus Water Company Certificate of Organization. Recorded in Stanislaus County Records. February 1, 1856. Miscellaneous Records, Vol. 1. pp. 10-11.

2.4 January 18, 1862, Filing of claim by Elam Dye. Recorded in Stanislaus County Records. January 18, 1862. Miscellaneous Records, Vol . 1. p. 73.

2.5 May 28, 1862, Grant of Stanislaus Water Company to Elam Dye. Recorded in Stanislaus County Records. May 29, 1862. Deeds, Vol . 2. pp. 391-392.

2.6 June 15, 1863, Grant from Elam Dye to John Reedy and John Bixby. Recorded in Stanislaus County Records. September 19,1863. Deeds, Vol . 3. pp. 195-196.

2.7 May 7, 1868, Indenture from John Bixby to John Reedy. Recorded in Stanislaus County Records. May 14, 1868. Deeds, Vol . 4. pp. 355-356.

2.8 September 6, 1870, Deed from John Reedy to Michael Kelly. Recorded in Stanislaus County Records. September 6, 1870. Deeds, Vol . 6. pp. 466-467.

2.9 September 16, 1870, Deed from John Reedy to Michael Kelly. Recorded in Stanislaus County Records. September 26, 1870. Deeds, Vol . 6. pp. 495-496.

2.10 May 1, 1871, Notice of Appropriation by Michael Kelly. Recorded in Stanislaus County Records. May 23, 1871. Miscellaneous Records, Vol . 1. p. 500.

2.11 May 1, 1871, Agreement Michael Kelly to J.M. Thompson. Recorded in Stanislaus County Records. May 27, 1871. Miscellaneous Records, Vol . 1. p. 501.

2.12 June 26, 1871, Deed to transfer of water, ditch and privileges from Michael Kelly to J.M. Thompson, Charles Elliot and M.A. Wheaton. Recorded in the Stanislaus County Records, June 27, 1871. Deeds, Vol. 7. pp 434-435.

2.13 August 26, 1871, Deed to transfer of one fourth part of above June 26, 1871 transfer, from J.M. Thompson to John Burcham. Recorded in the Stanislaus County Records, September 27, 1871. Vol. 7 Deeds. pp 627-629.

2.14 November 8, 1871, Deed to fix of ownership of water, ditch, property and privileges as follows: John Burcham 23/32, M.A. Wheaton 6/32 & Charles Elliott 3/32. Recorded in the Stanislaus County Records, November 18, 1871, Deeds. Vol. 8. pp 114-116.

2.15 May 18, 1872, Claim of 500,000 inches (10,000 cfs) of water flowing in the Tuolumne River by John Burcham, M.A. Wheaton & Charles Elliott. Recorded in the Stanislaus County Records, May 20, 1872. Miscellaneous Records. Vol. 2. pp 12-13.

2.16 July 30, 1872, Deed to transfer of water right, dam, ditch, improvements, rights and privileges by John Burcham, M.A. Wheaton, Charles Elliott, Abner Doble and I.W. Spaulding to J.S. Doe. Recorded in the Stanislaus County Records, August 5, 1872. Deeds. Vol. 8. pp 698-700.

2.17 January 27, 1873, Deed to transfer of right title and interest in water right and improvements from J.S. Doe, M.A. Wheaton, John Burcham and Charles Elliott to Stanislaus Water Company. Recorded in the Stanislaus County Records, January 31, 1873. Deeds. Vol. 10. pp 49-50.

2.18 December 31, 1873, Deed to sell and convey all property belonging to Stanislaus Water Company including water rights of the Tuolumne River, dam, ditch and easements, rights and improvements to M.A. Wheaton. Recorded in the Stanislaus County Records, January 29, 1874. Deeds. Vol. 11. p 637.

2.19 June 11, 1890, Transfer of water right, dam and other property from M.A. Wheaton to Modesto Irrigation District, Recorded in the Stanislaus County Records, June 28, 1890. Deeds. Vol. 48. pp 45-49.

2.20 August 15,1890, Transfer of water rights and property from M.A. Wheaton to Modesto and Turlock Irrigation Districts. Recorded in the Stanislaus County Records. August 19, 1890. Deeds. Vol. 48. pp 96-99.

3. THE TURLOCK IRRIGATION DISTRICT POSTINGS

3.1 June 20, 1887, for 225,000 M.I. at 150 ft. North of Mining Company House. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 263-265.

3.2 June 20, 1887, for 225,000 M.I. at 40 ft. above Wheaton Dam. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 265-267.

3.3 June 20, 1887, for 225,000 M.I. at 40 ft. below Wheaton Dam. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 267-268.

3.4 August 9, 1887, for 225,000 M.I. at 40 ft. below Wheaton Dam. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 285-287.

3.5 August 9, 1887, for 225,000 M.I. at 150 ft. North of Mining Company House. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 287-288.

3.6 August 9, 1887, for 225,000 M.I. at 150 ft. above Wheaton Dam. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 289-290.

3.7 September 20, 1887, for 225,000 M.I. at Wheaton Dam. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 313-315.

3.8.1 September 20, 1887, for 225,000 M.I. at 150 ft. North of Mining Company House. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 315-316

3.8.2 September 20, 1887, for 225,000 M.I. at 150 ft. North of Mining Company House. Recorded in the Tuolumne County Records. Claims. Vol. 9. pp. 20-21.

3.9.1 November 18, 1887, for 225,000 M.I. at 150 ft. North of Mining Company House. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 353-354.

3.9.2 November 18, 1887, for 225,000 M.I. at 150 ft. North of Mining Company House. Recorded in the Tuolumne County Records. Claims. Vol. 9, pp.24-25.

3.10 November 18, 1887, for 225,000 M.I. at Wheaton Dam. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 355-356.

3.11 January 14, 1888, for 225,000 M.I. at Wheaton Dam. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 372-374.

3.12.1 January 14, 1888, for 225,000 M.I. at 150 ft. North of Mining Company House. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 374-375.

3.12.2 January 14, 1888, for 225,000 M.I. at 150 ft. North of Mining Company House. Recorded in the Tuolumne County Records. Claims. Vol. 9. pp. 27.

3.13 March 26, 1888, for 225,000 M.I. at Wheaton Dam. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 422-423.

3.14 March 26, 1888, for 225,000 M.I. at 150 ft. North of Mining Company House. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 423-424.

3.15 May 14, 1888, for 225,000 M.I. at opposite Mining Company House. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 446-447.

3.16 May 14, 1888, for 225,000 M.I. at near Wheaton Dam. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 447-448.

3.17 July 16, 1888, for 225,000 M.I. at 150 ft. North of Mining Company House. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 485-486.

3.18 July 16, 1888, for 225,000 M.I. at or near Wheaton Dam. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 487-488.

3.19 September 11, 1888, for 225,000 M.I. at 150 ft. North of Mining Company House. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 496-498.

3.20 September 11, 1888, for 225,000 M.I. at or near Wheaton Dam. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 498-499.

3.21 November 9, 1888, for 225,000 M.I. at 100 ft. North of Mining Company House. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 508-509.

3.22 November 9, 1888, for 225,000 M.I. at or near Wheaton Dam. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 509-511.

3.23 January 5, 1889, for 225,000 M.I. at Wheaton Dam. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 520-521.

3.24 January 5, 1889, for 225,000 M.I. at 150 ft. North of Mining Company House. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 522-523.

3.25 January 10, 1890, for 200,000 M.I. at 2,400 ft. East of County Line. Recorded in the Tuolumne County Records. Claims. Vol. 9. p. 79.

4. THE MODESTO IRRIGATION DISTRICT POSTINGS

4.1 August 18, 1887, for 50,000 M.I. at near the East Line of Section 17. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 301-302.

4.2 August 24, 1887, for 50,000 M.I. at near the West Line of Section 16. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 302-303.

4.3 April 10, 1889, 250,000 M.I. at near Silva's Ferry. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 557.

4.4 July 28, 1889, 250,000 M.I. at near Silva's Ferry. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 570-571.

4.5 September 25, 1889, 250,000 M.I. at near Silva's Ferry. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 581-582.

4.6 November 25, 1889, 250,000 M.I. at near Silva's Ferry. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 590.

4.7 January 25, 1890, 250,000 M.I. at near Silva's Ferry. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 595-596.

4.8 February 19, 1890, 250,000 M.I. at about 400 ft. above Kelly's Ferry. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 597-598.

4.9 February 19, 1890, 250,000 M.I. at about 1,600 ft. above Kelly's Ferry. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 599-600.

4.10 April 19, 1890, 250,000 M.I. at about 1,600 ft. above Kelly's Ferry. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 5. pp. 634-635.

4.11 June 21, 1890, for 250,000 M.I. at near Wheaton Dam. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 6. pp. 3-4.

5. MODESTO IRRIGATION DISTRICT APPROPRIATION
(40,000 Acre-feet Storage Right)

5.1 October 1, 1908, for 50,000 M.I. at the joint dam of the MID and the TID for irrigation, power and all other purposes and more particularly filling 40,000 acre feet of storage for irrigating lands now and hereafter included in the MID. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 10. pp. 99-100.

6. TURLOCK IRRIGATION DISTRICT APPROPRIATION
(100,000 Acre-Feet Storage Right)

6.1 August 31, 1911, for 200,000 M.I. at the head of its canal for filling 100,000 acre feet of storage for use in irrigating lands in theTID. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 12. pp. 243-244.

7. NOTICE OF APPROPRIATION OF WATERS OF THE TUOLUMNE RIVER by J.M. Finley (13,000 M.I. - 260 CFS)

7.1 February 27, 1913, for 13,000 M.I. at the La Grange Dam for irrigation and domestic use on lands in Stanislaus County in the vicinity of Waterford. Recorded in the Stanislaus County Records. Miscellaneous Records. Vol. 14. p. 59.

7.2 March 21, 1916, Transfer of Finley Appropriation to Waterford Irrigation District. Recorded in the Stanislaus County Records March 27, 1916. Deeds. Vol. 227. pp. 524-525.

From: Staples, Rose
Sent: Friday, September 02, 2011 8:02 PM
To: Alves, Jim - City of Modesto; Anderson, Craig - USFWS; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Barnes, Peter - SWRCB; Beuttler, John - CSPA; Blake, Martin; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Brochini, Tony - NPS; Buckley, John - CSERC; Burt, Charles - CalPoly; Cadagan, Jerry; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cismowski, Gail - SWRCB; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Derwin, Maryann Moise; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Grader, Zeke; Gutierrez, Monica - NOAA-NMFS; Hackamack, Robert; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hayden, Ann; Hellam, Anita - HH; Heyne, Tim - CDFG; Holden, James ; Holm, Lisa; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Hume, Noah - Stillwater; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis-Reggie-PRCI; Linkard, David - TRT /RH; Loy, Carin; Lwenya, Roselynn, BVR; Lyons, Bill - MR; Madden, Dan; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - PRCI; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Paul, Duane - Cardno; Pinhey, Nick - City of Modesto; Pool, Richard; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Ridenour, Jim; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sander, Max - TNC; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shipley, Robert; Shumway, Vern - SNF; Shutes, Chris - CSPA; Sill, Todd; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; Terpstra, Thomas; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Vasquez, Sandy ; Verkuil, Colette - TRT/MF; Vierra, Chris; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Wilcox, Scott - Stillwater; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB

Subject: Updated Progress Tracking List (PTL) Uploaded to Don Pedro Project Relicensing Website

An updated PTL has been uploaded to the Don Pedro website (in the INTRODUCTION/ANNOUNCEMENTS section). It contains items from the August 23-24 RWG Meetings, as well as responses to some of those items--and responses to some of the prior items. Also note the CLOSED ITEM section at the back of the document, as quite a few items (all marked as closed "08/31/2011") have now been moved to this section. Thank you.

ROSE STAPLES
CPS CAP

HDR Engineering, Inc.
Executive Assistant, Hydropower Services

970 Baxter Boulevard, Suite 301 | Portland, ME 04103
207.239.3857 | f: 207.775.1742
rose.staples@hdrinc.com| hdrinc.com

Don Pedro Progress Tracking List

Items completed are shaded in gray and will be moved to the CLOSED ITEM worksheet before the next issue of the Progress Tracking List (PTL) is uploaded to the Relicensing Website.
Red Text indicates either NEW items or NEW responses/status updates added since the last upload.
(RP = Relicensing Participant) - Last Updated 9/02/2011 by R Staples

Item No.	*Source of Item*	*Item*	*Date Requested*	*Date Due*	*Responsible Party*	*Action Taken/Status*	*Date Closed*
		Items 1-12 Closed					
13	RPs	Where, and when, is riparian water used--and how is it separated from storage? Is riparian water the water used on lands that meet the definition of "riparian lands"? Include a map of the lands that are served under a riparian claim. Provide season and amounts of water provided on those lands under claim of riparian right.	4/1/2011	n/a	Districts	**(1) The Districts do not rely upon riparian rights for irrigation purposes. (2) There may be riparian landowners within the Districts' boundaries that rely upon riparian water rights for all or a portion of their water needs. However, the Districts' service of those lands does not include any riparian water rights; therefore, since no lands are served with any Districts' riparian rights, there is no map to produce, nor data on seasons or amounts. Furthermore, the Districts have no way of identifying which landowners within their service areas are using riparian water, the amount of use, or the season of use. (3) The Districts do have a riparian claim for power use at Don Pedro powerhouse and TID has one for its powerhouse at La Grange; these are provided in the Districts' Triennial Reports, Enclosure 3 and 5.**	
		Items 14-15 Closed					
16	RPs	Provide copies of the Districts' pre-1914 appropriative rights, as noted or recorded in accordance with the state laws at the time.	4/1/2011	n/a	Districts	**The list of the Districts' water rights was forwarded to the original requestor, Richard Roos-Collins on June 5, 2011. The list was forwarded to the full Relicensing Participants' list on September 2, 2011.**	

Item No.	Source of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
		Items 17-28 Closed					
29	Recreation RWG Mtg	NPS to provide new ORV guidelines applicable to the Project area.	4/19/2011	4/29/2011	NPS	At the May 18 Recreation RWG meeting, NPS to provide guidelines prior to June 10.	
		Items 30-45 closed					
46	Water / Aquatic / Terrestrial RWG Mtg	The question was asked if pikeminnow population has increased over time? Districts to locate and distribute Tim Ford report developed using known information.	4/20/2011	n/a	Districts	**This is the Ford and Brown (2002) report, available on the TRTAC website.**	
		Items 47-51 closed					
52	Water / Aquatic / Terrestrial RWG Mtg	It was asked what impact does flow have on moving predators out of prime spawning and rearing habitat?	4/20/2011	n/a	Districts	**This is a question that will be addressed in study plan W&AR-5.**	
		Items 53-57 closed					
58	Water / Aquatic / Terrestrial RWG Mtg	Districts were advised to consider the relationship between pollinator species, vernal pools, and special-status plants.	4/20/2011	n/a	Districts	**This is addressed in study plans TR-1 and TR-6.**	
59	Water / Aquatic / Terrestrial RWG Mtg	Concern was raised about effect of dispersed recreation on sensitive areas (e.g. serpentine soils). Consider modifying current plan?	4/20/2011	n/a	Districts	**This is addressed in study plans RR-1, TR-1, and TR-4.**	
		Items 60-64 closed					
65	Water / Aquatic / Terrestrial RWG Mtg	It was indicated that the Districts would likely be asked for a PM&E measure for periodic eagle monitoring. It was asked if the Districts would accept this; and if so, it would obviate the need for study now.	4/20/2011	n/a	Districts	**Bald Eagle study is under discussion in the Terrestrial RWG meetings.**	
		Items 66-73 closed					

Item No.	Source of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
74	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked to plot escapement vs total acre-feet released to the lower Tuolumne.	4/20/2011	n/a	Districts	Plots of escapement vs lagged flow (flow 3 years prior to a given run) are under preparation (a) period of record (b) since the completion of New Pedro Dam (escapement from 1974 to 2010 vs flows from 1971-2007).	
		Item 75 closed					
76	Water / Aquatic / Terrestrial RWG Mtg	It was mentioned that other potential data gaps were (1) potential to improve salmon success if timing of fall pulse flows were adjusted for actual water temperatures, (2) relationship between predation and water temperature, and (3) possible acoustic tagging of bass to track movements under different temperature and flow regimes.	4/20/2011	n/a	Districts	**This is addressed in study plans W&AR-5, 7, and 9. Also, the Districts are planning to recalibrate the HEC-5Q stream temperature model and this may be useful for this item.**	
		Items 77-85 closed					
86	Recreation RWG Mtg	Lower Tuolumne River boating study scope.	5/18/2011	7/25/2011	Districts	P Koepele to provide related information. Boating study may extend from Route 132 bridge to Turlock Lake State Park. Legion Park is an undesirable put-in because of the old Dennet Dam remnants.	
87	Water/Aquatic RWG Meeting	Don Pedro bathymetry work: A separate conference call was agreed-upon to discuss the ongoing bathymetry work.	5/19/2011	6/2/2011	Districts	Districts issued the data gathering protocol on May 27th and held a conference call on June 2. R Kranz and A Manji participated. Districts agreed to issue a redline version of the May 27th protocol to clarify/describe questions raised.	
88	Water/Aquatic RWG Meeting	Reservoir 3-D Model: RPs raised three concerns to be addressed in the July 25 Proposed Study Plan (PSP): (1) ease of use/compulational time frame, (2) accuracy, and (3) ability for RPs to make model runs	5/19/2011	7/25/2011	Districts	**Districts responded in the July 25, 2011 Proposed Study Plan (PSP). Final details on the compulational time frames will depend on RPs individual computers.**	

Item No.	Source of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
89	Water/Aquatic RWG Meeting	Temperature Modeling: RPs raised a question of whether the reach of river between Don Pedro Dam and La Grange Dam will be modified and if additional temperature data needs to be collected in this reach.	5/19/2011	7/25/2011	Districts	**Districts responded in the July 25, 2011 Proposed Study Plan (PSP). Additional data collection is underway and the reach will be included.**	
		Item 90 closed					
91	Water/Aquatic RWG Meeting	CEQA information: RPs noted that CEQA requires addressing the new greenhouse gas regulations	5/19/2011	No date	Districts	**Noted.**	
92	Water/Aquatic RWG Meeting	RPs reported that flows greater than 6,000 cfs affect Lower Tuolumne River farmland. Farmers asked how and when decisions are made on flow releases.	5/19/2011	No date	Districts	**Districts have met with Lower Tuolume Farmers (LTF). W&AR-2 will further consider this issue.**	
93	**Terrestrial RWG Meeting**	**Scope of Terrestrial-based study plans.**	**5/19/2011**	**7/25/2011**	**Districts & RPs**	**Districts are proposing to conduct studies where there are Project effects, not every acre inside the Project Boundary. RPs may not agree. Districts developed a Project Effects map for discussion at the August 23 RWG meeting.**	
94	**Terrestrial RWG Meeting**	**Extent of dispersed recreational use.**	**5/19/2011**	**7/25/2011**	**Districts**	**Dispersed recreational areas primarily defined as areas that are both "usable and accessible". This issue has been incorporated into study plans RR-1, TR-1, and TR-4.**	
		Items 95-96 closed					
97	**Water/Aquatic RWG Meeting**	**Jim Hastreiter will distribute FERC's guidance document clarifying "Project nexus" and the ILP process, which is expected to be published in September.**	**8/23/2011**	**No date**	**FERC**		
98	**Water/Aquatic RWG Meeting**	**Conduct doodlepoll to schedule salmonids sub-group (W&AR-5 and -6).**	**8/23/2011**	**No date**	**Districts**	**Doddlepoll conducted; reference John Devine email of 09/01/2011.**	

Item No.	Source of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
99	Water/Aquatic RWG Meeting	Richard Roos-Collins and Jim Hastreiter to contact NMFS regarding attending salmonids sub-group and/or regularly scheduled RWG meetings.	8/23/2011	No date	Roos-Collins/FERC	Call held on 08/29/2011.	
100	Water/Aquatic RWG Meeting	Conduct doodlepoll to schedule socioeconomics sub-group (W&AR-15).	8/23/2011	No date	Districts	Doddlepoll conducted; reference John Devine email of 09/01/2011.	
101	Water/Aquatic RWG Meeting	Show Peter Drekmeier where full natural flow data are located on the Project web-site.	8/23/2011	No date	Districts	Done on 08/29/2011.	
102	Water/Aquatic RWG Meeting	Communicate any computer system requirements on the MIKE 3-D Temperature Model.	8/23/2011	No date	Districts	Districts will put this information in the study plan.	
103	Water/Aquatic RWG Meeting	Communicate results of investigation on old Don Pedro Dam and whether or not the gates are open.	8/23/2011	No date	Districts	In study plan.	
104	Water/Aquatic RWG Meeting	Post superimposition study report on web-site.	8/23/2011	No date	Districts	Districts will post.	
105	Water/Aquatic RWG Meeting	Provide documentation on other SJ Chinook population models on web-site.	8/23/2011	No date			
106	Water/Aquatic RWG Meeting	Provide SWRCB the recreation use levels data.	8/23/2011	No date			
107	Water/Aquatic RWG Meeting	Create new study plan for lower Tuolumne River temperature model that describes recalibration of the HEC-5Q Model.	8/23/2011	No date	Districts	Districts will provide in the Updated Study Plan.	
108	Water/Aquatic RWG Meeting	Conservation Groups and Tim O'Laughlin agreed to establish a "non-flow measures" discussion group.	8/23/2011	No date	CG/O'Laughlin		
109	Water/Aquatic RWG Meeting	Post documentation on the ORCM model on the web-site.	8/23/2011	No date			
110	Terrestrial RWG Meeting	Conduct a doddlepoll to schedule a conference call between now and the September RWG meeting to discuss wetlands methodology.	8/23/2011	No date	Districts	Done.	

Item No.	Source of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
111	Terrestrial RWG Meeting	Obtain more information from DPRA regarding on-going annual bald eagle surveys.	8/23/2011	No date	Districts		
112	Recreation RWG Mtg	Districts to circulate visitor survey to RPs for their review and comments prior to September RWG meeting.	8/24/2011	No date	Districts	Districts emailed to RPs for comments on 08/31/2011. Comments due to the Districts by 09/06/2011.	
113	Recreation RWG Mtg	Obtain more details from DPRA regarding dispersed recreation.	8/24/2011	No date	Districts		

Don Pedro Progress Tracking List

CLOSED ITEMS

Item No.	Souce of Item	Item	Date Requested	Date Due	Responsible Party	Action Taken/Status	Date Closed
1	RP	Poll of RPs for meeting availability and resource area interests.	2/28/2011	3/8/2011	Districts	Created Doodle Poll questionaire and sent it to RPs via email on 3/2/2011. Responses due 03/07/2011. Poll completed 03/07/2011; 2011 meeting dates announced to RPs via email on 03/15/2011 and have been posted on website calendar.	5/13/2011
2	CSPA; CDFG; and TRT	Use of an independent facilitator.	2/28/2011	n/a	n/a	Request documented; Districts' response emailed to RPs on 03/07/2011.	5/13/2011
3	Several RPs	Alternating the meeting locations for future meetings.	2/28/2011	3/11/2011	Districts	Request for alternating meeting locations to be considered. Districts' response emailed to RPs on 03/15/2011.	5/13/2011
4	Several RPs	Use of web conferencing as part of future meetings.	2/28/2011	3/11/2011	Districts	Request for web conferencing as part of the meeting to be considered. Districts' response emailed to RPs on 03/15/2011.	5/13/2011
5	NGOs	RPs not to have to pay for PAD reproduction costs.	2/28/2011	3/11/2011	Districts	Request for RPs not to have to pay for PAD reproduction costs to be considered. Districts' response emailed to RPs on 03/15/2011.	5/13/2011
6	Several RPs	Procedure for managing study plan revisions on the Don Pedro website.	2/28/2011	3/18/2011	Districts	At the August 23-24 RWG meetings, the Districts described the process for sharing study plan revisions on the Don Pedro website.	8/31/2011

7	Several RPs	Exhibit G or other Project Boundary Maps for tailwater and Gasburg Creek areas.	2/28/2011	3/11/2011	Districts	Project Boundary Maps to be uploaded to the Don Pedro website. Two Project Boundary maps (showing area below the Don Pedro Dam) have been uploaded and RPs advised via email 03/15/2011.	5/13/2011
8	Districts	RP review of Relicensing Participants List in PAD (Appendix B) to identify additional parties interested in the relicensing.	2/28/2011	3/18/2011	RPs	RPs to advise Districts of additional interested parties and their contact information, if known. Additional names have been received and added to the Relicensing Participants Contact Email List.	5/13/2011
9	NHI	"Discussion of Cummulative Impacts" to be an agenda item for the April 19-20 meeting.	2/28/2011	04/19-20/2011	Districts	"Discussion of Cummulative Impacts" to be added to the agenda for the April 19-20 RP meeting. Project effects were discussed at the April 19-20 RWG meetings.	5/13/2011
10	RPs	Uploading of Meeting Slides to the Don Pedro ebsite.	2/28/2011	3/11/2011	Districts	Slides used at the Feb 28 RP meeting to be uploaded to the Don Pedro website. Meeting presentation slides have been uploaded and RPs advised via email 03/15/2011.	5/13/2011
11	RPs	Provide a copy of this year's snow surveys used for forecasting.	4/1/2011	n/a	Districts	Snow survey data are from the DWR CDEC website. The Districts and CCSF help pay for that information, but DWR does the forecasting. Http://cdec.water.ca.gov/snow/current/snow/. A spreadsheet of historic values accompanies this tracking list.	7/01/2011
12	RPs	Provide an historic account of the times and duration since project commencement that the reservoir has been into the flood conservation pool during the applicable period-frequency, number of occurrences, duration, and	4/1/2011	n/a	Districts	A spreadsheet containing the requested information accompanies this tracking list.	7/01/2011

14	RPs	How long does the reservoir normally stay at the peak elevation it reaches in any year?	4/1/2011	n/a	Districts	In average to wet years, and depending on runoff rates, Don Pedro reaches its maximum level for the year between the last week in June and the second week in July--and then starts to drop off quickly due to the runoff ending and releases for irrigation increasing. The reservoir remains at its highest level for the year for a very short period, from a day to a week.	7/01/2011
15	RPs	Provide the unimpaired flows at La Grange and the historical flows at La Grange since the Project began operating.	4/1/2011	n/a	Districts	The two spreadsheets containing the requested information accompanies this tracking list.	7/01/2011
17	RPs	Provide pre-settlement, post-new Don Pedro flows and reservoir elevations similar to which is provided in the PAD for post-settlement	4/1/2011	n/a	Districts	See answer to Item 15 for flows. A spreadsheet containing the requested reservoir information also accompanies this tracking list	7/01/2011
18	RPs	What model will be used to develop the Project Operations Model?	4/1/2011	n/a	Districts	This topic was discussed at the May 19 Aquatic/Water RWG meeting. The Districts will prepare and submit a Proposed Study Plan in its July 25 PSP.	7/01/2011
19	RPs to CCSF	Is there a technical document that describes in some detail the operations of the HHWP?	4/1/2011	n/a	CCSF	See the Regional Water System Hetch Hetchy Water&Power Operations Plan (URS 2006) at https://infrastructure.sfwater.org/fds/fds.aspx?lib=HHWP&doc=127205&data=3	7/01/2011
20	RPs to CCSF	What is the projected future water demand estimated by CCSF? Are new water storage resources being planned to meet the demand?	4/1/2011	n/a	CCSF	See the Draft 2010 UWMP at http://sfwater.org/mto_main.cfm/MC_ID/13/MSC_ID/165/MTO_ID/286	7/01/2011
21	RPs to CCSF	Provide the historical water bank "account balance" that the Districts have provided CCSF. Also, provide documentation on water bank accounting method.	4/1/2011	n/a	CCSF	See attached "Response 21" for Instructions for Water Bank Accounting document (CCSF&Districts, 1971)	7/01/2011

22	RPs to CCSF	Explain how the Don Pedro FERC relicensing process can affect CCSF.	4/1/2011	n/a	CCSF	See attached "Response 22" for ALJ process testimony. Also see FEIS for Reservoir Release Requirement at Don Pedro; and pages 2-36 to 2-39, and page 2-42 to 2-43 of WSIP PEIR at http://sfwater.org/Project.cfm/MC_ID/35/MSC_ID/393/MTO_ID/649/PRJ_ID/216	7/01/2011
23	RPs to CCSF	What compensation does CCSF provide the Districts when CCSF's water bank account has a negative balance?	4/1/2011	n/a	CCSF	MID-TID have only consented once to SF request to "go negative" in the water bank through the history of the Project. See attached "Response 23".	7/01/2011
24	RPs to CCSF	Could CCSF provide copies of the water balance reports it sends to the Districts?	4/1/2011	n/a	CCSF	The Districts uploaded the information to the Relicensing Website under DOCUMENTS\RHH Forms Request\August 1011--and relicensing participants were notified of their location via email on 08/11/2011.	08/31/2011
25	RPs to CCSF	Does CCSF have a water balance model it could share with relicensing participants? Or could CCSF provide portions of its water model to the Districts' water balance model?	4/1/2011	n/a	CCSF	Yes, a watershed-wide water balance model is being developed.	7/01/2011
26	RPs to CCSF	What quantity of water in acre feet will CCSF take annually from the river in the next 40 years, compared to same in the last 10 years? What will be the effect on pre-flood releases below Don Pedro?	4/1/2011	n/a	CCSF	See the Draft 2010 UWMP at http://sfwater.org/mto_main.cfm/MC_ID/13/MSC_ID/165/MTO_ID/286 and the WSIP PEIR at http://sfwater.org/Project.cfm/MC_ID/35/MSC_ID/393/MTO_ID/649/PRJ_ID/216	7/01/2011
27	Recreation RWG Mtg	Districts were asked to Investigate relationship of the Project Boundary and the downstream Wild & Scenic River Boundary.	4/19/2011	n/a	Districts	The Districts can confirm that the Wild and Scenic Boundary overlaps into the Project Boundary, but not to Ward's Ferry. The Districts are continuing to seek more precise information.	7/01/2011

28	Recreation RWG Mtg	Districts were asked to consider performing a "feasibility" or "site suitability" study of relocating or improving current take-out	4/19/2011	4/29/11; extended to 5/05/11, then 5/18/11	Districts	In the May 18 Recreation RWG meeting, the Districts agreed to including this study in the PSP to be filed on July 25.	7/01/2011
30	Recreation RWG Mtg	Districts' debris maintenance and log-jam removal/management appreciated. Districts were asked if it will continue as part of the new license?	4/19/2011	n/a	Districts	FERC will determine the new license's terms. The Districts are likely to continue their current practices.	7/01/2011
31	Recreation RWG Mtg	The question was asked that if dispersed recreational use was found to be impacting rare or sensitive plant areas, would Districts restrict such use?	4/19/2011	n/a	Districts	Districts responded to this during the meeting, noting that the new license application is likely to contain identification of unique or sensitive habitats, and it is not uncommon to restrict recreation access to those areas. In fact, some areas of the reservoir shoreline are already restricted.	
32	Recreation RWG Mtg	Districts were asked if they were planning to prepare a study plan for surveying recreational users to identify unmet demand, satisfaction levels, and need for additional facilities?	4/19/2011	4/29/2011; extended to 5/05/11; then 5/18/11	Districts	The Districts have prepared the RR-1 Recreation Facility Condition and Public Accessibility Assessment Study Plan, which is in the Proposed Study Plan (PSP) filed with FERC on July 25, 2011.	08/31/2011
33	Recreation RWG Mtg	Districts were asked if the current flows on the lower Tuolumne are boatable and compatible with other uses (fishing)?	4/19/2011	n/a	Districts	Districts responded via email 5/05/11.	

34	Recreation RWG Mtg	Districts were asked to consider the following study needs: (1) boatable flows on lower Tuolumne River (were fishery flows boatable) and possible need for additional put-ins/take-outs, (2) suitability of Wards Ferry take-out, (3) recreational use levels, visitor preferences and satisfaction, unmet demand, (4) existing facility condition assessment, including ADA accessiblility, and (5) visual quality assessment, possibly photo documentation of visual quality at different water levels or landscape features to be brought into future planning of recreation improvements.	4/19/2011	n/a	Districts	See responses to Items 28, 32, 33, 43, and 57.	
35	Recreation RWG Mtg	The Districts were asked if Turlock Lake was stocked; and if so, with what?	4/19/2011	n/a	Districts	The Department of Fish and Game stocks catchable rainbows in this lake from April through October, normally a time when plants in low elevation reservoirs are suspended, because the water entering the lake from the Tuolumne River at La Grange Dam keeps the lake relatively cool. The DFG plants 5,000 pounds of rainbows annually in Turlock Lake. The trout are raised at the Moccasin Creek Fish Hatchery. Also, Allison Boucher reports that only rainbow trout are stocked, no warm water species.	7/01/2011
36	Cultural RWG Mtg	Study plan should include the requirement for field investigators to have California archaeology experience.	4/19/2011	n/a	Districts	Study plan will include.	
37	Cultural RWG Mtg	Consistent standards of investigation must be used from area to area, probably adopt the BLM standards.	4/19/2011	n/a	Districts	Historic Properties and TCP Study Plans have been revised to specify that the BLM guidelines will be followed.	7/01/2011

38	Cultural RWG Mtg	James Barnes, BLM archaeologist, should be copied on all correspondence with the SHPO regarding Section 106 consultation.	4/19/2011	n/a	Districts	Will occur.	
39	Cultural RWG Mtg	Agreement should be reached prior to field studies on how to handle discovery of human remains--and human remains on BLM lands. BLM does not delegate responsibility to FERC for handling human remains on BLM lands. The NID/PG&E process was satisfactory, including the providing of site records to BLM, why sites were not evaluated if this were to occur, and the content of Technical Memos.	4/19/2011	n/a	Districts	The Districts are working with the tribes and agencies to revise the language in the study plans regarding discovery of human remains.	7/01/2011
40	Cultural RWG Mtg	It was suggested that the Districts visit the newly opened UC Davis collection.	4/19/2011	n/a	Districts	Districts will do.	
41	Cultural RWG Mtg	James Barnes to give suggestions for how to consider/approach isolets.	4/19/2011	n/a	BLM	The Districts are working with James Barnes to include an appropriate definition of isolets to be issued for the Historic Properties Study Plan	7/01/2011
42	Cultural RWG Mtg	It was emphasized that "protect and preserve is the goal".	4/19/2011	n/a	Districts	Districts acknowledge this goal.	
43	Water / Aquatic / Terrestrial RWG Mtg	It was asked if it was the Districts' intention to perform a study that would develop a clear understanding of how flow relates to other stressors to the anadromous fisheries? Or perform a "limiting factors analysis" of each salmon life stage compared to individual	4/20/2011	4/29/2011; extended to 5/05/2011	Districts	Districts responded via email 5/05/11.	
44	Water / Aquatic / Terrestrial RWG Mtg	The question was asked if Turlock Lake and Modesto Reservoir were stocked, by whom, and with what? Also, does Turlock Lake spill into the Tuolumne River?	4/20/2011	n/a	Districts	See response to Item #35.	7/01/2011
45	Water / Aquatic / Terrestrial RWG Mtg	The qustion was asked where did the population of rainbow trout in La Grange Reservoir come from?	4/20/2011	n/a	Districts	It was noted at the meeting that no one knew the origin of this population..	

47	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked to provide a citation for study done for Merced Project relicensing on riffle habitat use.	4/20/2011	n/a	Districts	Allison Boucher provided the citation.	7/01/2011
48	Water / Aquatic / Terrestrial RWG Mtg	It was pointed out that CDFG recently issued a draft EIR on section dredging that was still open for comment.	4/20/2011	n/a	n/a	No action required.	
49	Water / Aquatic / Terrestrial RWG Mtg	R Kanz requested a copy of the ongoing IFIM study plan be forwarded to him. It was also asked if any disease studies been conducted on anadromous fish in the Tuolumne River? CDFG to look into this and respond.	4/20/2011	n/a	Districts & CDFG	A copy of the IFIM plan has been posted to the Relicensing Website. CDFG's response is in progress.	7/01/2011
50	Water / Aquatic / Terrestrial RWG Mtg	Question raised about period of time over which O. mykiss tracking occurred?	4/20/2011	n/a	Districts	Tracking of six O. mykiss during 2010 was done from April 1 to November 1. The study results are contained in Volume II of the Don Pedro PAD (Page 5-115)	7/01/2011
51	Water / Aquatic / Terrestrial RWG Mtg	The question was asked if a study should be undertaken to determine effect on predator location in river with changing water temperature?	4/20/2011	n/a	Districts	N Hume responded during the meeting that he believed this could be addressed with existing data.	
53	Water / Aquatic / Terrestrial RWG Mtg	The question was raised about the status of other native species in the lower Tuolumne River (including lamprey, sturgeon, and cyprinids)? It was also noted that reports of sturgeon in the Tuolumne have occurred; this was clarified to be an anecdotal observation by a riparian water user near the Grayson Ranch in late summer.	4/20/2011	n/a	Districts	Locations of all fish species encountered during all seining, snorkel, RST, and other surveys have been documented. FERC Report 2002-9 includes a detailed assessment of flow and resident fish communities by Ford and Brown (2002). No corroboration of sturgeon observations has been made by routine sampling or other sources.	7/01/2011

54	Water / Aquatic / Terrestrial RWG Mtg	Question raised about the status of mussels in the lower Tuolumne River? Is this a data gap? It was reported that anecdotal observations were that prior to 1995 there were many mussels in the river and that now there are very few. Idea was offered that stranding may be a potential cause. It was pointed out that the Project no longer peaks, but RPs noted that flows change in accordance with seasonal downstream flow requirements.	4/20/2011	n/a	Districts	The Districts responded via email 5/05/11.	
55	Water / Aquatic / Terrestrial RWG Mtg	Districts were encouraged to refer to counties' weed watch list for additional information on invasive weeds.	4/20/2011	n/a	Districts	Districts will contact counties.	
56	Water / Aquatic / Terrestrial RWG Mtg	Districts were advised to refer to a study of cottonwoods in the Central Valley.	4/20/2011	n/a	Districts	The Districts advised in the meeting that this study, performed by Stella et al, was summarized in the PAD.	
57	Water / Aquatic / Terrestrial RWG Mtg	It was pointed out that the Districts were not proposing to perform a study dedicated to wetlands mapping and the potental project effects on wetlands. RPs wondered if this would not be needed/useful	4/20/2011	4/29/2011; extended to 5/05/2011	Districts	The Districts responded via email 5/05/11.	
60	Water / Aquatic / Terrestrial RWG Mtg	Concern about proposed size of areas to be studied around project facilities.	4/20/2011	na/a	Districts	Districts responded during the meeting that a possible approach to coming to site-specific agreement would be for BLM staff to join field investigators in the field to perform beta testing of appropriate area to study based on actual site observations. Study would have to be modified to indicate such an approach. It was noted that BLM may have limited staff time.	

61	Water / Aquatic / Terrestrial RWG Mtg	Districts were advised that the protocols for CRLF that were in the YT/DS study plan were acceptable.	4/20/2011	n/a	Districts	No response required.	
62	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked to upload copy of proposed WPT protocols to the website	4/20/2011	n/a	Districts	Districts will do.	
63	Water / Aquatic / Terrestrial RWG Mtg	Zac Jackson to forward report which included observations of WPT downstream of the project.	4/20/2011	n/a	USFWS	The report has been forwarded.	
64	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked to Include Critical Habitat maps in the ESA study plan.	4/20/2011	n/a	Districts	At the meeting, the Districts agreed to include Critical Habitat maps in the study plan.	
66	Water / Aquatic / Terrestrial RWG Mtg	Regarding water quality study plan, Is oxidation-reduction occurring at reservoir bottom?	4/20/2011	n/a	Districts	The Study Plan will add a field measurement of oxidation-reduction to the Study Plan for hypolimnion samples, where physically practical. Don Pedro's great depth poses logistic difficulties for sampling water within centimeters of the bottom sediments.	7/01/2011
67	Water / Aquatic / Terrestrial RWG Mtg	Regarding water quality study plan, will reservoir bathymetry be able to distinguish original ground from sediment?	4/20/2011	n/a	Districts	The type of bathymetric survey which we are performing will not provide detailed sedimentation estimates. We can get a general idea by comparing the existing operations reservoir stage/elevation and volume table to the area/capacity curve that we develop using the new bathymetric model, but a direct comparison would not be precise.	7/01/2011

68	Water / Aquatic / Terrestrial RWG Mtg	Districts should consider getting ADCP readings between old Don Pedro and the new Don Pedro.	4/20/2011	n/a	Districts	The Districts will consider getting ADCP readings at this location. ADCP readings could be useful to determine if there are any velocity gradients that exist over the old dam, and if any eddying/mixing is occurring downstream of the old dam. Key consideration will be (1) to determine whether or not ADCP is reliable at the depths that would be required here, (2) the feasibility of obtaining measurements at several reservoir elevations (the dynamics of flow over that old dam will change drastically depending on the depth of water over it, and (3) if it would be more straightforward to simply be sure to take several temperature profiles upstream, at and below the old dam, to get an understanding for the thermal mixing dynamics.	7/01/2011
69	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked if there would be a separate study plan for the 3D temperature model development?	4/20/2011	n/a	Districts	The Districts are developing a study plan for the 3D temperature model development.	
70	Water / Aquatic / Terrestrial RWG Mtg	It was suggested the Districts get data on flows and temps in Moccasin Creek; thought CCSF would have it?	4/20/2011	n/a	Districts	Districts will do.	
71	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked if they would prepare a Study Plan for a Socioeconomic Study? It was suggested it would be needed for CEQA.	4/20/2011	4/29/2011; extended to 5/05/2011	Districts	Districts responded via email 5/05/11.	

72	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked if they planned to conduct an analysis of projected population growth and irrigination use compared to their water rights? Study potential effects of such growth on water quality (due to less water being in the river)	4/20/2011	4/29/2011; extended to 5/05/2011	Districts	Districts responded via email 05/05/11.	
73	Water / Aquatic / Terrestrial RWG Mtg	Districts were asked if they were going to evaluate benefits to fisheries with more flow being released to the river. Suggested that high-flow benefits was a data gap	4/20/2011	n/a	Districts	Districts indiciated in meeting that the current IFIM study is investigating that issue. Also, data from prior monitoring could also address that question.	
75	Water / Aquatic / Terrestrial RWG Mtg	It was suggested that a data gap existed as no data on number of salmon emerging from the gravel and the number leaving the Tuolumne.	4/20/2011	n/a	Districts	Districts responded in the meeting that they were uncertain how a one- or two-year study of this would inform any such gap, nor could they think of how to conduct such a study, nor could RPs when asked	
77	Water / Aquatic / Terrestrial RWG Mtg	The Districts were asked if they were planning any reservoir fish population studies?	4/20/2011	n/a	Districts	Districts responded in the meeting that the reservoir fishery included both good cold and warm water fishery and both were healthy and viable based on the data it had. Reservoir fishery is primarily a stocked fishery. Because there was no evidence of a problem, therefore no apparent Project effect, the study would not be justified under the ILP.	
78	Water / Aquatic / Terrestrial RWG Mtg	It was requested the Districts provide a GIS layer describing the Project Boundary to the BLM.	4/20/2011	n/a	Districts	Districts will do.	
79	Cultural RWG Mtg	Provide redline and clean copy of next revision of both Historic Properties and TCP study plans incorporating changes discussed at 5/18/11 meeting.	5/18/2011	6/3/2011	Districts	Districts to revise both Historic Properties and TCP study plan. The Districts provided both clean and redline copies of CR-1 Historic Properties Study and CR-2 Native American Traditional Cultural Properties Study in the Proposed Study Plan (PSP) filed with FERC on 07/25/2011.	08/31/2011

80	Cultural RWG Mtg	R Fuller to provide information on preferred process for handling of human remains to be included in Study Plan.	5/18/2011	6/10/2011	R Fuller	D Risse, HDR, to follow up. The information was provided by R Fuller and included in the CR-1 Historic Properties Study Plan in the Proposed Study Plan (PSP) filed with FERC on 07/25/2011	08/31/2011
81	Cultural RWG Mtg	F Winchell, FERC, requested that Districts send a separate letter to FERC requesting Section 106 designation of authority for Section 106 consultation.	5/18/2011	6/10/2011	HDR	The Districts requested such designation in its NOI and and the designation was subsequently received from FERC in its Notice filed 04/08/2011. However, in response to Frank Winchell's request, the Districts also filed a separate letter of confirmation with FERC on 08/05/2011.	08/31/2011
82	Recreation RWG Mtg	Work group members are planning to request a visitor use survey.	5/18/2011	6/10/2011	Work Group RPs	Districts will respond in the July 25, 2011 Proposed Study Plan (PSP). RR-1 Recreation Facility Condition and Public Accessibility Assessment Study Plan in the Proposed Study Plan (PSP) filed with FERC on 07/28/2011 includes a Visitor Survey.	08/31/2011
83	Recreation RWG Mtg	Districts asked to provide 2002/2003 recreation user survey DPRA conducted.	5/18/2011	6/3/2011	Districts	Completed; information posted.	7/01/2011
84	Recreation RWG Mtg	RPs asked Districts to confirm they would prepare a study plan of assessing improvements to the Wards Ferry takeout.	5/18/2011	6/3/2011	Districts	This was confirmed in the May 18th meeting (see PTL #28); the Districts also indicated they would not have a draft study plan issued before 06/10/2011.	7/01/2011
85	Recreation RWG Mtg	RPs asked if Facility Study Assessment Study Plan draft would be issued by June 3	5/18/2011	6/3/2011	Districts	Districts uploaded draft study plan on 06/03/2011.	7/01/2011
90	Water/Aquatic RWG Meeting	Operations Modeling: A question was asked whether the Districts would consider use of HEC RESSIM model instead of the Excel platform proposed.	5/19/2011	7/25/2011	Districts	Districts responded in the Proposed Study Plan (PSP) filed with FERC on 07/25/2011.	08/31/2011

95	Terrestrial RWG Meeting	BLM asked if an invasive species or special-status species were located, would the Districts document the entire population?	5/19/2011	7/25/2011	Districts	Districts responded that "in general-yes" and would include further confirming language in the July 25, 2011 Proposed Study Plan. The Districts noted in TR-1 Special-Status Plants Study and TR-4 Noxious Weed Survey in the Proposed Study Plan (PSP) filed with FERC on 07/25/2011 that if "occurrences are located, the study area will be expanded to the full extent of the occurence or the Project Boundary, whichever is less."	08/31/2011

96	Aquatics	Clarification of "data gap" study request addressed in email of 5 May 2011. It was advised that the April 20th request was that the Districts undertake a study to evaluate the relative effects of project ops and other stressors on these fisheries in the lower Tuolumne. How do project ops affect each of these fisheries--its population, geographic distribution, age distribution, or habitat, whether overall or by life stage? Can you distinguish the effects of the project relative to other stressors? To the statement that certain non-project stressors are "among the most significant", 5 questions were asked: (1) What do you mean by significant? (2) What is the basis for conclusion that non-project stressors listed have significant effects? (3) Since a comparative term was used ("among the most significant"), what evidence in the existing record is the basis for the comparison? (4) Does the existing record show whether project ops are a stressor for these fisheries? and (5) Does the existing record show whether the project ops are a significant stressor?	5/18/2011	7/25/2011	Districts	Email Response of June 14, 2011 to the five questions asked: (1) It means having an "influence", (2) The existing data and studies undertaken by the Districts and others provide the information from which this conclusion is drawn. We would refer you to the various studies on the TR TAC website and the ALJ testimony, (3) Response to question 2 provides the general sources of the information; all of these documents might not yet be on the record of the relicensing proceeding, (4) We are sure there are many differing opinions on this question. We encourage you to review the data available on the TR TAC, the PAD, and the FERC website to help inform your opinion, and (5) Please see response above.	7/01/2011

From: Brown, Carol
Sent: Thursday, September 08, 2011 7:48 PM
To: denean@buenavistatribe.com; office@cvmt.net; tmtc@mlode.com; jsaunders@parks.ca.gov; Alves, Jim - City of Modesto; Anderson, Craig - USFWS; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Barnes, Peter - SWRCB; Beuttler, John - CSPA; Blake, Martin; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brenneman, Beth - BLM; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Brochini, Tony - NPS; Buckley, John - CSERC; Buckley, Mark; Burt, Charles - CalPoly; Cadagan, Jerry; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cismowski, Gail - SWRCB; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Derwin, Maryann Moise; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Grader, Zeke; Gutierrez, Monica - NOAA-NMFS; Hackamack, Robert; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hayden, Ann; Hellam, Anita - HH; Heyne, Tim - CDFG; Holden, James ; Holm, Lisa; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Hume, Noah - Stillwater; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Kordella, Lesley - FERC; Lein, Joseph; Levin, Ellen - SFPUC; Lewis-Reggie-PRCI; Linkard, David - TRT /RH; Loy, Carin; Lwenya, Roselynn, BVR; Lyons, Bill - MR; Madden, Dan; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Martin, Ramon - USFWS; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - PRCI; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Paul, Duane - Cardno; Pinhey, Nick - City of Modesto; Pool, Richard; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Ridenour, Jim; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sander, Max - TNC; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shipley, Robert; Shumway, Vern - SNF; Shutes, Chris - CSPA; Sill, Todd; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stone, Vicki ; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; Terpstra, Thomas; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Vasquez, Sandy ; Verkuil, Colette - TRT/MF; Vierra, Chris; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Wilcox, Scott - Stillwater; Williamson, Harry (NPS); Willy, Alison - FWS;

	Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John - NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Cc:	Loy, Carin
Subject:	Don Pedro Project Relicensing Study Plans Available for Review

Hello All,

Revised Study Plans have been uploaded to the Don Pedro Project Relicensing website for your review and discussion at the RWG meetings next week. The Study Plans are located in the Studies/RWG Study Plan Development area of the website located here:

http://www.donpedro-relicensing.com/documents.aspx

Thank you,
Carol

CAROL BROWN

HDR Engineering, Inc.
Project Administrator

2379 Gateway Oaks, Suite 200 | Sacramento, CA 95833
916.564.4214 | d: 916.679.8751
carol.brown@hdrinc.com | hdrinc.com

From: Staples, Rose
Sent: Friday, September 09, 2011 7:56 PM
To: Alves, Jim - City of Modesto; Anderson, Craig - USFWS; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Barnes, Peter - SWRCB; Beuttler, John - CSPA; Blake, Martin; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brenneman, Beth - BLM; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Brochini, Tony - NPS; Buckley, John - CSERC; Buckley, Mark; Burt, Charles - CalPoly; Cadagan, Jerry; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cismowski, Gail - SWRCB; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Derwin, Maryann Moise; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Grader, Zeke; Gutierrez, Monica - NOAA-NMFS; Hackamack, Robert; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hayden, Ann; Hellam, Anita - HH; Heyne, Tim - CDFG; Holden, James ; Holm, Lisa; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Hume, Noah - Stillwater; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Kordella, Lesley - FERC; Lein, Joseph; Levin, Ellen - SFPUC; Lewis-Reggie-PRCI; Linkard, David - TRT /RH; Loy, Carin; Lwenya, Roselynn, BVR; Lyons, Bill - MR; Madden, Dan; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Martin, Ramon - USFWS; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - PRCI; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Paul, Duane - Cardno; Pinhey, Nick - City of Modesto; Pool, Richard; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Ridenour, Jim; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sander, Max - TNC; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shipley, Robert; Shumway, Vern - SNF; Shutes, Chris - CSPA; Sill, Todd; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stone, Vicki ; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; Terpstra, Thomas; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Vasquez, Sandy ; Verkuil, Colette - TRT/MF; Vierra, Chris; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Wilcox, Scott - Stillwater; Williamson, Harry (NPS); Willy, Alison - FWS; Wilson, Bryan - MF; Winchell,

	Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Cc:	Regina Cox
Subject:	Directions to Don Pedro Relicensing September 13 Afternoon Socioeconomic RWG Subgroup Meeting

Directions to the Tuesday afternoon, **September 13th Socioeconomic RWG Subgroup Meeting:**

Tuesday, September 13, 2011 – 1:30 to 5:00 p.m.
RWG Subgroup Meeting - Socioeconomic Study Plan
New Location for Tuesday Afternoon Meeting Only
If calling in: 866-994-6437 – Conference code 5424697994

Modesto Irrigation District's Woodland Service Center
929 Woodland Avenue
Modesto, CA 95351

Directions:

From Highway 99 South:

- Take the Briggsmore Exit and go RIGHT to Carpenter Road
- Follow Carpenter Road to Woodland Avenue and turn LEFT
- Go to 1st Stop Light which is Graphics and turn LEFT directly into MID Service Center
- Go through the gate and turn LEFT on the first street (sign will be in place)
- Grey Modular Building on the left.
- Parking is available in front and both sides of the building (signs will be in place)

From Downtown Modesto:

- Take 9th Street North to Woodland Avenue and turn LEFT
- Go to 1st Stop Light which is Graphics and turn RIGHT directly into MID Service Center
- Go through the gate and turn LEFT on the first street (sign will be in place)
- Grey Modular Building on the LEFT
- Parking is available in front and both sides of the building (signs will be in place)

If you have any questions, please contact Regina Cox, 209-526-7571 or email reginac@mid.org prior to the meeting date. If you have any questions regarding the directions on the day of the meeting, please contact Marsha Stallings, 209-526-7563.

ROSE STAPLES
CPS CAP

HDR Engineering, Inc.
Executive Assistant, Hydropower Services

970 Baxter Boulevard, Suite 301 | Portland, ME 04103
207.239.3857 | f: 207.775.1742
rose.staples@hdrinc.com | hdrinc.com

From: Staples, Rose
Sent: Friday, September 09, 2011 8:15 PM
To: Alves, Jim - City of Modesto; Anderson, Craig - USFWS; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Barnes, Peter - SWRCB; Beuttler, John - CSPA; Blake, Martin; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brenneman, Beth - BLM; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Brochini, Tony - NPS; Buckley, John - CSERC; Buckley, Mark; Burt, Charles - CalPoly; Cadagan, Jerry; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cismowski, Gail - SWRCB; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Derwin, Maryann Moise; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Grader, Zeke; Gutierrez, Monica - NOAA-NMFS; Hackamack, Robert; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hayden, Ann; Hellam, Anita - HH; Heyne, Tim - CDFG; Holden, James ; Holm, Lisa; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Hume, Noah - Stillwater; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Kordella, Lesley - FERC; Lein, Joseph; Levin, Ellen - SFPUC; Lewis-Reggie-PRCI; Linkard, David - TRT /RH; Loy, Carin; Lwenya, Roselynn, BVR; Lyons, Bill - MR; Madden, Dan; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Martin, Ramon - USFWS; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - PRCI; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Paul, Duane - Cardno; Pinhey, Nick - City of Modesto; Pool, Richard; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Ridenour, Jim; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sander, Max - TNC; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shipley, Robert; Shumway, Vern - SNF; Shutes, Chris - CSPA; Sill, Todd; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stone, Vicki ; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; Terpstra, Thomas; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Vasquez, Sandy ; Verkuil, Colette - TRT/MF; Vierra, Chris; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Wilcox, Scott - Stillwater; Williamson, Harry (NPS); Willy, Alison - FWS; Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Subject: Additional Info on PARKING for Don Pedro Sept 13 Socioeconomic Subgroup Meeting

See HIGHLIGHTED section below for information on additional parking opportunities, as parking is limited at 929 Woodland.

Tuesday, September 13, 2011 – 1:30 to 5:00 p.m.
RWG Subgroup Meeting - Socioeconomic Study Plan
New Location for Tuesday Afternoon Meeting Only

If calling in: 866-994-6437 – Conference code 5424697994

Modesto Irrigation District – Woodland Service Center
929 Woodland Avenue
Modesto, CA 95351

DIRECTIONS:

FROM HIGHWAY 99 SOUTH:

- Take the Briggsmore Exit and go RIGHT to Carpenter Road
- Follow Carpenter Road to Woodland Avenue and turn LEFT
- Go to 1st Stop Light which is Graphics and turn LEFT directly into MID Service Center
- Go through the gate and turn LEFT on the first street (sign will be in place)
- Meeting will be held in the Grey Modular Building on the left.
- Parking is available in front and both sides of the building (signs will be in place). If parking is not available, please see the **PARKING** directions below.

FROM DOWNTOWN MODESTO:

- Take 9th Street North to Woodland Avenue and turn LEFT
- Go to 1st Stop Light which is Graphics and turn RIGHT directly into MID Service Center
- Go through the gate and turn LEFT on the first street (sign will be in place)
- Meeting will be held in the Grey Modular Building on the LEFT
- Parking is available in front and both sides of the building (signs will be in place). If parking is not available, please see the **PARKING** directions below.

PARKING

Limited parking is available at the meeting site. Therefore, if you cannot find parking, it may be necessary for you to park across the street on Graphics in the gravel parking area to the right. You will have to take a short walk across the street at the **Red Light** and walk directly through the gate. To the left you will see a **Grey Modular Building. That building is where the meeting is being held. You will see bright yellow signs for directions.**

If you have any questions, please contact Regina Cox, 209-526-7571 or email reginac@mid.org prior to the meeting date. If you have any questions regarding the directions on the day of the meeting, please contact Marsha Stallings, 209-526-7563.

ROSE STAPLES
CPS CAP

HDR Engineering, Inc.
Executive Assistant, Hydropower Services

970 Baxter Boulevard, Suite 301 | Portland, ME 04103
207.239.3857 | f: 207.775.1742
rose.staples@hdrinc.com | hdrinc.com

From: Loy, Carin
Sent: Monday, September 19, 2011 3:17 PM
To: Alves, Jim - City of Modesto; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Beuttler, John - CSPA; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Loy, Carin; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Pinhey, Nick - City of Modesto; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Cc: Staples, Rose; Devine, John
Subject: Don Pedro W&AR Group: Please RSVP by COB Tuesday 9/20; Scheduling Follow Up Conference Call to September's Meeting

Thank you to everyone who attended the Don Pedro Relicensing September 15 Resource Work Group meeting. The Districts feel that the conversation was valuable and productive and appreciate everyone's contributions.

To continue discussions on the W&AR Study Plan development, the Districts would like to schedule a full day conference call to finish last week's agenda. We are proposing a conference call/Live Meeting from 8:30 am to 4:30 pm on one of the three days below. We expect that RPs may choose to check-in or out of the Call as they need to and will send out a preliminary agenda with approximate start times of each Study Plan, which will be updated at the lunch break or if the agenda timing has either slipped or advanced during the day.

Before finalizing the date, we would like to know your availability; the Districts and their consultants are available on all three dates.

Tuesday, September 27
Wednesday, September 28
Thursday, September 29

Please email carin.loy@hdrinc.com with your availability by COB Tuesday, September 20.

Thank you.

CARIN COUCH LOY

HDR Engineering, Inc.
Senior Scientist, Hydropower Services

2379 Gateway Oaks Drive, Suite 200 | Sacramento, CA 95833
916.564.4214 | d: 916.679.8737
carin.loy@hdrinc.com | hdrinc.com

From: Jim Alves [jalves@modestogov.com]
Sent: Monday, September 19, 2011 5:39 PM
To: Loy, Carin; Asay, Lynette - N-R; JOHN AUD; Barnes, James - BLM; Beuttler, John - CSPA; Jack Bond; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Buckley, John - CSERC; Burt, Charles - CalPoly; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cory, Philip - TNC; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, P - MF; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Gutierrez, Monica - NOAA-NMFS; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hellam, Anita - HH; Hersh-Burdick, Rachael - USACE; Heyne, Tim - CDFG; Holden, James ; Horn, Jeff - BLM; Horn, Tini; Hughes, Noah; Hughes, Robert - CDFG; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Kanz, Russ - SWRCB; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Lein, Joseph; Levin, Ellen - SFPUC; Lewis, Reggie - PRCI; Linkard, David - TRT /RH; Lyons, Bill - MR; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - CT; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Nick Pinhey; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sandkulla, Nicole - BAWSCA; Schutte, Allison - HB; Sears, William - SFPUC; Shumway, Vern - SNF; Shutes, Chris - CSPA; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Verkuil, Colette - TRT/MF; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Williamson, Harry (NPS); Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Cc: Staples, Rose; Devine, John
Subject: RE: Don Pedro W&AR Group: Please RSVP by COB Tuesday 9/20; Scheduling Follow Up Conference Call to September's Meeting

Carin,

It might also be helpful to indicate which Study Plans remain to be discussed at this next meeting for those that did not attend the last meeting or left the meeting prior to adjournment.

Thanks,

Jim Alves
City of Modesto
Associate Civil Engineer
Utility Planning & Projects Dept.
Ph: 209-571-5557
Fx: 209-522-1780

From: Staples, Rose
Sent: Friday, September 23, 2011 6:03 PM
To: Alves, Jim - City of Modesto; Anderson, Craig - USFWS; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Barnes, Peter - SWRCB; Beuttler, John - CSPA; Blake, Martin; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brenneman, Beth - BLM; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Brochini, Tony - NPS; Buckley, John - CSERC; Buckley, Mark; Burley, Silvia-CVMT; Burt, Charles - CalPoly; Cadagan, Jerry; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cismowski, Gail - SWRCB; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, Kevin - TBMI; Day, P - MF; Denean - BVR; Derwin, Maryann Moise; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Grader, Zeke; Gutierrez, Monica - NOAA-NMFS; Hackamack, Robert; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hayden, Ann; Hellam, Anita - HH; Heyne, Tim - CDFG; Holden, James ; Holm, Lisa; Horn, Jeff - BLM; Horn, Tini; Hudelson, Bill - StanislausFoodProducts; Hughes, Noah; Hughes, Robert - CDFG; Hume, Noah - Stillwater; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Kordella, Lesley - FERC; Lein, Joseph; Levin, Ellen - SFPUC; Lewis-Reggie-PRCI; Linkard, David - TRT /RH; Looker, Mark - LCC; Loy, Carin; Lwenya, Roselynn, BVR; Lyons, Bill - MR; Madden, Dan; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Martin, Ramon - USFWS; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - PRCI; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Paul, Duane - Cardno; Pavich, Steve-Cardno; Pinhey, Nick - City of Modesto; Pool, Richard; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Ridenour, Jim; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sander, Max - TNC; Sandkulla, Nicole - BAWSCA; Saunders, Jenan; Schutte, Allison - HB; Sears, William - SFPUC; Shipley, Robert; Shumway, Vern - SNF; Shutes, Chris - CSPA; Sill, Todd; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Steiner, Dan; Stone, Vicki -TBMI; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; Terpstra, Thomas; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Vasquez, Sandy ; Verkuil, Colette - TRT/MF; Vierra, Chris; Villalabos, Ruben; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler,

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Subject: Don Pedro Project Water-Aquatic RWG CONFERENCE CALL now scheduled for Wed, September 28, from 9:00 a.m. to 4:00 p.m.

Thank you all who responded to Carin Loy's query about your availability for a conference call next week to continue discussion on the proposed Don Pedro Project Water & Aquatic study plans, especially those which have not yet been discussed in the recent August and September RWG meetings.

Based on the responses, the conference call is now scheduled for Wednesday, September 28, from 9:00 a.m. to 4:00 p.m. Call-in details are provided below, and an agenda will be forwarded the first of the week.

September 28, 2011 – 9:00 a.m. start
Call-In Number 866-994-6437
Conference Code 5424697994

To attend the meeting online, using Microsoft Office Live Meeting, please follow the following link. If you are a first time user, please see the note below. Some trouble shooting information is located below as well.

https://www.livemeeting.com/cc/hdrinc/join?id=9JMGJ8&role=attend&pw=j%5B%25D%7Ck%216b

If you have any questions, please do not hesitate to contact Carin Loy (carin.loy@hdrinc.com 916-679-8737) or myself.

Thank you.

Additional LiveMeeting Information:

Meeting time: Sep 28, 2011 9:00 AM (PDT)

FIRST-TIME USERS
To save time before the meeting, check your system to make sure it is ready to use Microsoft Office Live Meeting.
http://go.microsoft.com/fwlink/?LinkId=90703

TROUBLESHOOTING
Unable to join the meeting? Follow these steps:

1. **Copy this address and paste it into your web browser:**
   https://www.livemeeting.com/cc/hdrinc/join
2. **Copy and paste the required information:**
   Meeting ID: 9JMGJ8
   Entry Code: j[%D|k!6b
   Location: https://www.livemeeting.com/cc/hdrinc

If you still cannot enter the meeting, contact support:
http://r.office.microsoft.com/r/rlidLiveMeeting?p1=12&p2=en_US&p3=LMInfo&p4=support

NOTICE
Microsoft Office Live Meeting can be used to record meetings.
By participating in this meeting, you agree that your communications may be monitored or recorded at any time during the meeting.

ROSE STAPLES
CPS CAP

HDR Engineering, Inc.
Executive Assistant, Hydropower Services

970 Baxter Boulevard, Suite 301 | Portland, ME 04103
207.239.3857 | f: 207.775.1742
rose.staples@hdrinc.com | hdrinc.com

From: Staples, Rose
Sent: Monday, September 26, 2011 7:52 PM
To: Alves, Jim - City of Modesto; Anderson, Craig - USFWS; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Barnes, Peter - SWRCB; Beuttler, John - CSPA; Blake, Martin; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brenneman, Beth - BLM; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Brochini, Tony - NPS; Buckley, John - CSERC; Buckley, Mark; Burley, Silvia-CVMT; Burt, Charles - CalPoly; Cadagan, Jerry; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cismowski, Gail - SWRCB; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, Kevin - TBMI; Day, P - MF; Denean - BVR; Derwin, Maryann Moise; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Grader, Zeke; Gutierrez, Monica - NOAA-NMFS; Hackamack, Robert; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hayden, Ann; Hellam, Anita - HH; Heyne, Tim - CDFG; Holden, James ; Holm, Lisa; Horn, Jeff - BLM; Horn, Tini; Hudelson, Bill - StanislausFoodProducts; Hughes, Noah; Hughes, Robert - CDFG; Hume, Noah - Stillwater; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Kordella, Lesley - FERC; Lein, Joseph; Levin, Ellen - SFPUC; Lewis-Reggie-PRCI; Linkard, David - TRT /RH; Looker, Mark - LCC; Loy, Carin; Lwenya, Roselynn, BVR; Lyons, Bill - MR; Madden, Dan; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Martin, Ramon - USFWS; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - PRCI; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Paul, Duane - Cardno; Pavich, Steve-Cardno; Pinhey, Nick - City of Modesto; Pool, Richard; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Ridenour, Jim; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sander, Max - TNC; Sandkulla, Nicole - BAWSCA; Saunders, Jenan; Schutte, Allison - HB; Sears, William - SFPUC; Shipley, Robert; Shumway, Vern - SNF; Shutes, Chris - CSPA; Sill, Todd; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Steiner, Dan; Stone, Vicki -TBMI; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; Terpstra, Thomas; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Vasquez, Sandy ; Verkuil, Colette - TRT/MF; Vierra, Chris; Villalabos, Ruben; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler,

Douglas - RHH; Wilcox, Scott - Stillwater; Williamson, Harry (NPS); Willy, Alison - FWS; Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB

Subject: Don Pedro Water-Aquatic RWG Conference Call September 28 9:00 a.m. AGENDA

Attachments: Don Pedro Sept 28 W-AR RWG Conf Call AGENDA 110926.pdf

Don Pedro Relicensing
Water-Aquatic Resource Work Group
CONFERENCE CALL
Wednesday, September 28, 2011
9:00 a.m. – 4:00 p.m.

Call-In Number 866-994-6437
Conference Code 5424697994

9:00 a.m. - 9:10 a.m.	Call-in, Introductions, Purpose of Meeting
9:10 a.m. - 9:30 a.m.	Summary of Study Plan Development Process and Progress to Date
9:30 a.m. - 10:15 a.m.	Review and Discussion W&AR 7 Predation Study
10:15 a.m. - 10:45 a.m.	W&AR 8 Salmonid Redd Mapping Study
10:45 a.m. - 11:30 a.m.	W&AR 9 Chinook Salmon Fry Study
11:30 a.m. - 12:00 p.m.	W&AR 10 *Oncorhynchus mykiss* Population Study
12:00 p.m. - 12:30 p.m.	Lunch Break
12:30 p.m. - 1:00 p.m.	W&AR 11 Chinook Salmon Otolith Study
1:00 p.m. - 1:45 p.m.	W&AR 12 *Oncorhynchus mykiss* Habitat Assessment
1:45 p.m. - 2:15 p.m.	W&AR 13 Fish Assemblage and Population Between Don Pedro Dam and LaGrange Dam Study
2:15 p.m. - 3:00 p.m.	W&AR 14 Temperature Criteria Assessment (Chinook and *Oncorhynchus mykiss)*
3:00 p.m. - 3:45 p.m.	W&AR 2 through W&AR 6: Comments on Latest Revisions
3:45 p.m. - 4:00 p.m.	Path Forward

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If you have any questions, please do not hesitate to contact Carin Loy (carin.loy@hdrinc.com 916-679-8737) or myself.

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ROSE STAPLES
CPS CAP

HDR Engineering, Inc.
Executive Assistant, Hydropower Services

970 Baxter Boulevard, Suite 301 | Portland, ME 04103
207.239.3857 | f: 207.775.1742
rose.staples@hdrinc.com| hdrinc.com

Don Pedro Relicensing
Water-Aquatic Resource Work Group
CONFERENCE CALL
Wednesday, September 28, 2011
9:00 a.m. – 4:00 p.m.

Call-In Number 866-994-6437
Conference Code 5424697994

9:00 a.m. - 9:10 a.m.	Call-in, Introductions, Purpose of Meeting	
9:10 a.m. - 9:30 a.m.	Summary of Study Plan Development Process and Progress to Date	
9:30 a.m. - 10:15 a.m.	Review and Discussion	
	W&AR 7	Predation Study
10:15 a.m. - 10:45 a.m.	W&AR 8	Salmonid Redd Mapping Study
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3:45 p.m. - 4:00 p.m.	Path Forward	

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If you have any questions, please do not hesitate to contact Carin Loy (carin.loy@hdrinc.com 916-679-8737) or myself.

Additional LiveMeeting Information: Meeting time: Sep 28, 2011 9:00 AM (PDT)

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From: Staples, Rose
Sent: Tuesday, September 27, 2011 10:33 PM
To: Alves, Jim - City of Modesto; Anderson, Craig - USFWS; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Barnes, Peter - SWRCB; Beuttler, John - CSPA; Blake, Martin; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brenneman, Beth - BLM; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Brochini, Tony - NPS; Buckley, John - CSERC; Buckley, Mark; Burley, Silvia-CVMT; Burt, Charles - CalPoly; Cadagan, Jerry; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cismowski, Gail - SWRCB; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, Kevin - TBMI; Day, P - MF; Denean - BVR; Derwin, Maryann Moise; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Grader, Zeke; Gutierrez, Monica - NOAA-NMFS; Hackamack, Robert; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hayden, Ann; Hellam, Anita - HH; Heyne, Tim - CDFG; Holden, James ; Holm, Lisa; Horn, Jeff - BLM; Horn, Tini; Hudelson, Bill - StanislausFoodProducts; Hughes, Noah; Hughes, Robert - CDFG; Hume, Noah - Stillwater; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Kordella, Lesley - FERC; Lein, Joseph; Levin, Ellen - SFPUC; Lewis-Reggie-PRCI; Linkard, David - TRT /RH; Looker, Mark - LCC; Loy, Carin; Lwenya, Roselynn, BVR; Lyons, Bill - MR; Madden, Dan; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Martin, Ramon - USFWS; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - PRCI; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Paul, Duane - Cardno; Pavich, Steve-Cardno; Pinhey, Nick - City of Modesto; Pool, Richard; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Ridenour, Jim; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sander, Max - TNC; Sandkulla, Nicole - BAWSCA; Saunders, Jenan; Schutte, Allison - HB; Sears, William - SFPUC; Shipley, Robert; Shumway, Vern - SNF; Shutes, Chris - CSPA; Sill, Todd; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Steiner, Dan; Stone, Vicki -TBMI; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; Terpstra, Thomas; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Vasquez, Sandy ; Verkuil, Colette - TRT/MF; Vierra, Chris; Villalabos, Ruben; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler,

Douglas - RHH; Wilcox, Scott - Stillwater; Williamson, Harry (NPS); Willy, Alison - FWS; Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB

Subject: New Redline Revisions Don Pedro W&AR 03, 05, and 06 have been Uploaded to Website

Please note that new redline versions of the Don Pedro Project Proposed Study Plans W&AR 03, 05, and 06 have been uploaded to the website under DOCUMENTS/STUDIES/ RWG STUDY PLAN DEVELOPMENT. These versions reflect the comments from the September 15th RWG Meeting. The other proposed study plans under discussion in the second part of the Water-Aquatic RWG conference call tomorrow (W&AR 02 and 04) did not have any changes.

ROSE STAPLES
CPS CAP

HDR Engineering, Inc.
Executive Assistant, Hydropower Services

970 Baxter Boulevard, Suite 301 | Portland, ME 04103
207.239.3857 | f: 207.775.1742
rose.staples@hdrinc.com| hdrinc.com

STUDY PLAN W&AR-3

TURLOCK IRRIGATION DISTRICT
AND
MODESTO IRRIGATION DISTRICT

DON PEDRO PROJECT
FERC NO. 2299

Reservoir Temperature Model Study Plan

RELICENSING PARTICIPANTS' COMMENTS

Comment No.	RWG Meeting Date	Comment	Response
General Comments:			
1	08/23/2011	Additional information was requested about the condition of the outlet gate in old Don Pedro Dam.	See Section 5.3.3.
2	08/23/2011	It was requested that any ongoing data collection be identified.	See Section 5.3.3.
3	09/15/2011	Confirm study plan extent of recalibrated HEC 5 model in the riverine temperature study plan.	The Districts are preparing a study plan for the recalibration of the lower Tuolumne River stream temperature model. It will be included in the Updated Study Plan.
4	09/15/2011	Continue discussions with DHI on use and/or any limitations on use.	The Districts will contact DHI and communicate back to the RPs.
5	09/15/2011	Section 10. Scenario Development and Execution. Districts will train users or run scenarios as requested by the RPs. Cross-reference to schedule – should all be ready to run in 2013.	Modify text. See new Section 10.

NOTE:
The Districts are preparing a study plan for the recalibration of the lower Tuolumne River stream temperature model. It will be included in the Updated Study Plan document.

STUDY PLAN W&AR-3

TURLOCK IRRIGATION DISTRICT
AND
MODESTO IRRIGATION DISTRICT

DON PEDRO PROJECT
FERC NO. 2299

Reservoir Temperature Model Study Plan

~~July~~ ~~2011~~

Related Study Requests: AR-03, 16; CDFG-03; FOT-03; NMFS-06; Reclamation-03

(See RP General Comment 1 & 2)

1.0 Project Nexus

Turlock Irrigation District's and Modesto Irrigation District's (Districts) continued operation and maintenance (O&M) of the Don Pedro Project (Project) will affect the temperature regime of waters in the Don Pedro Reservoir. Similarly, flow releases from Don Pedro Reservoir will affect the temperature of waters downstream of Don Pedro Dam and may contribute to the cumulative effects to resources in the lower Tuolumne River.

2.0 Resource Agency Management Goals

The Districts believe that two agencies have resource management goals related to water temperature in Don Pedro Reservoir and in the lower Tuolumne River: (1) the California Department of Fish and Game (CDFG), and (2) the State Water Resources Control Board, Division of Water Rights (SWRCB). Each of these agencies and their management goals, as understood by the Districts at this time, is described below.

CDFG's goal is to preserve and protect the habitats necessary to support native fish, wildlife and plant species.

SWRCB is the state agency that administers the federal Clean Water Act (CWA) (33 U.S.C. §11251-1357) as applies to California waters with the responsibility to maintain the chemical, physical, and biological integrity of the state's waters and to protect the beneficial uses of stream reaches consistent with Section 401 of the federal CWA, the Regional Water Quality Control Board Basin Plans, State Water Board regulations, California Environmental Quality Act, and other applicable state law.

3.0 Study Goals

The reservoir temperature model will accurately simulate and characterize the seasonal water temperature dynamics experienced in Don Pedro Reservoir under current and potential future conditions. The model would:

- simulate reservoir temperatures resulting from current Project operations,
- accurately reproduce observed reservoir temperatures, within acceptable calibration standards, over a range of hydrologic conditions,
- provide output that can inform other studies, analyses, and models, and
- predict potential changes in reservoir thermal conditions under alternative future operating conditions.

4.0 Existing Information and Need for Additional Information

The existing SJR5Q model, which is an application of the HEC-5Q modeling platform, is based on a 1-D representation of the Don Pedro Reservoir and the lower Tuolumne River to its confluence with the San Joaquin River. Temperature regimes in the Don Pedro Reservoir are likely to be an important resource issue in relicensing. The existing 1-D model is not well-suited to accurately represent the thermal dynamics and structure of the Don Pedro reservoir. The Districts will be developing a 3-D model of the Don Pedro Reservoir that will be capable of more accurately representing the thermal structure and dynamics experienced in the reservoir under a wide range of reservoir water levels and meteorological conditions. Section 5.3.1 below provides a detailed explanation of the benefits of a 3-D reservoir temperature model. One of the benefits is the capability of modeling the old Don Pedro dam, including its spillway and outlet gates (further details are provided in Section 5.3.3, Data Sources). The 3-D temperature model of the Don Pedro Reservoir will be "linked" in a feed-forward mode to the lower Tuolumne River temperature model. Existing data and ongoing data collection to support the development of the 3-D temperature model of the Don Pedro Reservoir are described below in Section 5.3.3, Data Sources.

5.0 Study Methods

This study will develop a 3-D model characterizing the thermal structure and dynamics of the Don Pedro Reservoir in Tuolumne County, California. This section of the study plan describes the basis for employing a 3-D model in this case, the model selection, and the model development and use.

5.1 Study Area

The study area encompasses the area from the inflows to Don Pedro Reservoir to the outflow from Don Pedro Reservoir. The reservoir temperature model will interface with the Project Operations Model and the existing HEC-5Q model of the lower Tuolumne River extending from ~~below~~ the impoundment of La Grange Dam to the confluence with the San Joaquin River.[1]
[Confirm study plan extent of recalibrated HEC 5 model in the riverine temperature study plan.]

[1] The Districts have agreed to recalibrate the existing HEC-5Q model of the lower Tuolumne River as recommended in the March 2011 report submitted to FERC.

5.2 General Concepts and Procedures

The following general concepts apply to any field work associated with this study:

- Personnel safety is an important consideration of each fieldwork team. The Districts and their consultants will perform the study in a safe manner.
- The Districts will make a good faith effort to obtain permission in advance of performance of any field work to access private property where needed.
- Field crews may make minor modifications in the field to adjust to and to accommodate actual field conditions and unforeseeable events. Any modifications made will be documented and reported in the draft study reports.

5.3 Study Methods

The development plan for the 3-D temperature model of the Don Pedro Reservoir is presented in the following sections:

- 5.3.1 Model Selection
- 5.3.2 MIKE3-FM Model Theoretical Principles
- 5.3.3 Data Sources
- 5.3.4 Model Setup
- 5.3.5 Model Calibration and Verification
- 5.3.6 Baseline Conditions

5.3.1 Model Selection

One-dimensional (1-D) and multi-dimensional (2-D/3-D) modeling platforms were identified for potential application to the Don Pedro Reservoir. The four candidate models evaluated were:

- HEC-5Q, 1-D, longitudinally- and laterally-averaged
- CE-QUAL-W2 - 2-D, laterally averaged
- RMA-10 - 3-D
- MIKE3-FM - 3-D

The San Joaquin River Basin Water Temperature Model (SJR5Q) is an application of the HEC-5Q modeling platform that represents the Don Pedro Reservoir as a one-dimensional vertically-segmented reservoir (AD Consultants 2009). The Don Pedro Reservoir portion of the SJR5Q model was subject to limited calibration using temperature profiles taken by CDFG between September 2005 and September 2006. All the data used in comparisons with model results to date were collected at water levels greater than approximately 790 ft. Therefore, no calibration has been able to occur under conditions of substantial drawdown. During relicensing, it is anticipated that reservoir temperatures will be evaluated under a broad set of reservoir conditions, including under substantial drawdown conditions. The lack of model comparisons with temperature profiles at water levels below 790 ft is a significant deficiency in the SJR5Q model. The 1-D reservoir temperature model is empirical in design and reservoir behavior is estimated by equations and algorithms developed from a set of other reservoirs. Don Pedro Reservoir is 24 miles long and has a shape that does not conform to a typical 1-D configuration, that is, either long and narrow (highly longitudinal) or short and wide (highly transverse). In fact

the Don Pedro Reservoir is both narrow and wide at different reaches within the reservoir. It is also asymmetrical and dendritic with several arms (e.g., Moccasin, Woods Creek, Hatch Creek, Big Creek and Rogers Creek) extending into local tributaries. A 2-D or 3-D model, which establishes the reservoir thermal regime based on the analysis of the detailed hydrodynamics (i.e., physics) of the reservoir, boundary conditions (inflows and atmospheric/meteorological conditions), and heat exchange factors, does not have the same inherent deficiency as the empically-based SJR5Q model. In addition, the existence of the old Don Pedro Dam poses a longitudinal variation that is difficult to represent accurately in a 1-D vertically-segmented model. Temperature profiles above and below the old Don Pedro Dam showed a 1 ^{o}C difference in temperature below the crest of the old dam (Elevation 607 ft.) in May 2011, when the reservoir level was at approximately 800 ft. Moreover, lower reservoir levels have a greater potential to affect differences in temperature at the old dam and consequently affect release temperatures.

In analyzing the complex Don Pedro system, a 1-D model would generally possess value only if (1) sufficient observed data were available to calibrate the model over the entire range of potential future circumstances it was called on to evaluate, and (2) the 1-D model were actually shown to reliably simulate the observed data throughout the full range of operations. If both of these circumstances exist, then the 1-D model would not have to be extrapolated beyond its zone of calibration. These circumstances do not exist with the 1-D model of the Don Pedro Reservoir.

A 2-D model (CE-QUAL-W2) would require multiple branches to accurately represent the dendritic shape of the Don Pedro Reservoir and result in the loss of detail where branches overlap. Once it is recognized that a multi-dimensional model is needed, then the geometry and complexity of the reservoir becomes a primary determinant in selecting the preferred model. In this case, the Don Pedro Reservoir has a complex structure, not only because of the presence of the old Don Pedro Dam. Lastly, the temperature of water releases from Don Pedro under a full range of reservoir levels is anticipated to be an important factor in the consideration of potential future operating scenarios. A 3-D model was preferred for these reasons. Based on review of the two 3-D modeling platforms, MIKE3-FM was selected for the temperature modeling of the Don Pedro Reservoir because its documentation, graphical user interface, and technical support are superior to RMA-10.

MIKE3 was developed by the Danish Hydraulic Institute as a professional engineering software package for 3-D free-surface flows (DHI 2009a, 2009b, 2009c). It is applicable to simulations of flows, cohesive sediments, water quality, and ecology in rivers, lakes/reservoirs, estuaries, bays, coastal areas and seas. MIKE3 is the result of 20 years of continuous development and is tuned through the experience gained from hundreds of applications worldwide. The 1-D, 2-D, and 3-D versions of MIKE are probably the most used hydrodynamic models in the world. MIKE3 is fully integrated with GIS enabling the user to efficiently set up model geometry given geo-referenced bathymetric data. The Graphical User Interface enables the modeler to efficiently prepare input and graphically present output.

The flexible mesh version of the model (MIKE3-FM) allows variable-spacing of computational grid points to obtain high spatial resolution in areas of prime interest while saving on model run time through a coarse mesh in other areas. The hydrodynamic model in MIKE3-FM is a general numerical modeling system for simulation of flows in estuaries, bays, lakes/reservoirs, and coastal areas as well as in oceans. It simulates unsteady three-dimensional flows taking into

account density variations, bathymetry, and external forcing such as meteorology, tidal elevations, currents and other hydrographic conditions.

A free version of the model allows users to view results, look at the model inputs, understand model logic; in fact, do everything except run the model. When the model is already owned/leased by a consulting firm, there is no cost to others involved in its application. HDR owns/leases the MIKE3-FM model and has used it extensively to model hydrodynamics and temperature. The Districts will provide training for Relicensing Participants interested in using the model.

5.3.2 MIKE3-FM Theoretical Principles

The mathematical foundation in MIKE3-FM is the mass conservation equation, the Reynolds-averaged Navier-Stokes equations in three dimensions, including the effects of turbulence and variable density, together with the conservation equations for salinity and temperature (DHI 2009a). MIKE3-FM employs the Boussinesq and hydrostatic approximations. The salinity, temperature, and pressure are related to the density through the UNESCO definitions. Wind-driven transport is simulated as a function of the shear stress at the water surface. Turbulence is modeled using an eddy viscosity concept and allows the user to select one of several vertical turbulence algorithms. The numerical solution employs a cell-centered finite-volume method.

The MIKE3 Advection/Dispersion (AD) module provides the advection/dispersion basis for the computations to simulate the spreading and fate of dissolved or suspended substances when provided with the flow field from the hydrodynamic module. Conservative and non-conservative constituents can be modeled. The AD module is not necessary for modeling temperature because temperature is in the base MIKE3-FM model.

The underpinnings for modeling temperature are based on heat balance principles. The heat exchange with the atmosphere is calculated on the basis of four physical processes: (1) long wave solar radiation, (2) sensible heat flux (convection), (3) short wave solar radiation (which includes a depth-variable absorption relationship), and (4) latent heat flux (evaporation).

5.3.3 Data Sources

The two broad categories of data required by the model are (1) input data and (2) data for model calibration/verification. Input data pertain to the detailed physical characteristics of the reservoir being modeled. The boundary conditions also require input data and include inflows and withdrawals, temperature of inflows and meteorological data (air temperature, wind speed and direction, solar radiation, relative humidity). Mechanistic response parameters such as heat exchange coefficients are also input along with reservoir operation rule data. Data for model calibration/verification are primarily measurements of the metrics that are calculated by the model, which in this case, are temperature measurements in the reservoir (e.g., vertical profiles) and at the hydroelectric station. The Project database has compiled most of the historical flow and temperature data. The specific data required for the MIKE3-FM model are listed in Table 5.3.3-1 under four headings: (1) Physical and Geomorphological, (2) Flow and Operations, (3) Temperature, and (4) Meteorology.

Table 5.3.3-1. Summary of data needed for Don Pedro Reservoir 3-D temperature model.

Required Data	Source	In Project Database
Physical and Geomorphological		
Bathymetry	Field survey	yes
Outlet (invert elevation)	Design drawings	yes
Outlet (lat/long)	Design drawings	yes
Dam spillway (elevation)	Design drawings	yes
Dam spillway (length, type)	Design drawings	yes
Old Don Pedro Dam spillway (elevation)	Design drawings or bathymetric survey	yes
Old Don Pedro Dam spillway (length, type)	Design drawings or bathymetric survey	yes
Old Don Pedro Dam crest (elevation)	Design drawings or bathymetric survey	yes
Old Don Pedro Dam crest (length, type)	Design drawings or bathymetric survey	yes
Old Don Pedro outlet (elevation)	SJR5Q Report	yes
Old Don Pedro outlet (lat/long)	USGS Topographical Map	no
Flow and Operations		
Tuolumne River upstream of reservoir (regulated)	CCSF, TID	yes
Tuolumne River upstream of reservoir (total)	TID	yes
Storage (daily)	USGS	yes
Withdrawals through powerhouse (daily)	TID	yes
Temperature		
Tuolumne River upstream of reservoir	HDR (starting October 2010); CCSF (regulated)	no
Profiles at several locations (see Table x)	CDFG	yes
Meteorology		
Air temperature, wind speed/direction, solar radiation, relative humidity	TID (starting November 2010); unlisted owners of stations	no

CCSF City and County of San Francisco
CDFG California Department of Fish and Game
TID Turlock Irrigation District
USGS U S Geological Survey

Physical and Geomorphological

A digital terrain model (DTM) was purchased from the vendor, INTERMAP®, in August 2008. The DTM was derived from remotely sensed data collected with interferometric synthetic aperture radar (IFSAR) and was processed by the vendor to remove vegetation and cultural features. The shoreline of the reservoir will be generated using a GIS contouring tool with the DTM. It will additionally be visually inspected and modified as needed using a horizontally more accurate hi-resolution aerial image acquired from the vendor DigitalGlobe®.

Bathymetry data were collected in accordance with the study plan provided in Attachment A. Any overlap in the topographical elevations of the IFSAR data and elevations covered by the bathymetric survey will be checked to provide a unified set of reservoir bottom points as Cartesian (x, y, z) coordinates.

The dam spillway and outlet elevations and dimensions will be taken from design drawings of the new Don Pedro Reservoir. The old Don Pedro dam and spillway elevations and dimensions will be based on available design drawings, if any, or detailed bathymetry survey data. The old Don Pedro Dam had 12 gated outlets arranged in two rows of six gates. Each outlet was 52-inches in diameter; the lower row of six have a centerline at elev 392 ft and the upper row of six has a centerline of elev 482 ft. All of these gates were left in the open position when old Don Pedro Dam was inundated by the new Don Pedro Dam.

Flow and Operations

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The hydrology of the Don Pedro Reservoir's watershed includes flows regulated by the City and County of San Francisco (CCSF) and unregulated flows. The combined total inflow to the reservoir is back-calculated by the California Department of Water Resources; however, the daily inflows are highly variable (noisy) and would require smoothing for use in the model. TID's inflow dataset for the historical period will be used in the model calibration and verification. The flow withdrawals for the hydroelectric station will be defined on a daily or hourly basis using TID's data. Daily flows generated by the Water Balance – Operations Study (W&AR 02) will be used to set the input to the reservoir temperature model.

Temperature

The temperature of the inflows will be estimated using a temperature balance (calculation) in conjunction with the regulated and unregulated flows. As the temperatures of the regulated flows are measured by CCSF, these data will be used in a temperature balance model pre-processor. The temperature station just upstream of the North Fork Tuolumne River confluence (installed in fall 2010) accounts for all of the regulated watershed area and most of the unregulated watershed area. These data will be used to guide the development of the pre-processor as a water temperature balance or an air-water equilibrium temperature balance. The pre-processor will be used to estimate the temperature of all inflows for the calibration period, which precedes the installation of the HDR temperature station. The verification will use the data being collected at the HDR temperature station.

Temperature profiles were measured by CDFG, and continue to be measured, at six stations in Don Pedro Reservoir. These measurements started in August 2004 and were done almost every month since then. In addition, temperature profiles at a station above the old Don Pedro dam and below the same dam were conducted by HDR~~/DTA~~ in June 2011 and will be continued monthly until the fall 2011 using a Hydrolab MS5 multi-parameter water quality sonde (temperature sensor +/- 0.2°C). Surface water temperature recorded concurrently with the bathymetric data in May and June 2011 will also be used in the model calibration. The computerized dataset comprises the primary data for comparisons with the model in the calibration and verification. Temperature measurements at the powerhouse (1978 - 1988, 2010 - 2011) will also be used for the model calibration/verification.

Meteorology

Air temperature, wind speed and direction, solar radiation, and relative humidity are required for the model. A weather station was installed near the dam on November 30, 2010 by the Districts

to collect site-specific data, which will be used for the model verification. Data from existing weather stations near Don Pedro Reservoir will be used for the model calibration.

5.3.4 Model Set-up

A flexible mesh of control volumes that define the computational points in the model will be constructed using bathymetry and shoreline data described in Section 5.3.3. The mesh will be unstructured in the horizontal domain and a structured mesh will be used in the vertical domain. A finer mesh will be used in parts of the reservoir where a high degree of spatial resolution is warranted, such as near the intake structure and the old dam. The overall mesh will be developed to balance the competing needs for high spatial resolution and low model run time. Examples of recent MIKE3-FM meshes are shown in Figures 5.3.4-1 and 5.3.4-2.

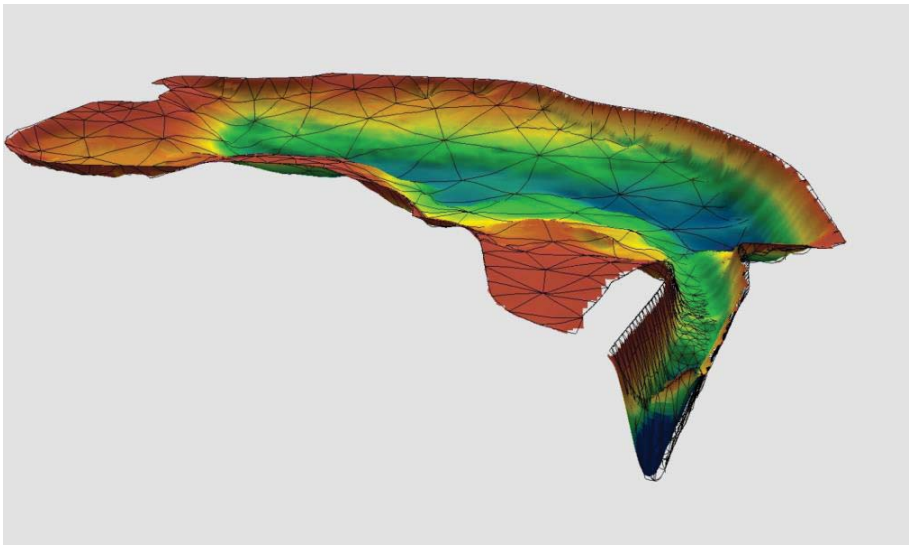

Figure 5.3.4-1 MIKE3-FM 3D model of Northfield Reservoir, MA.

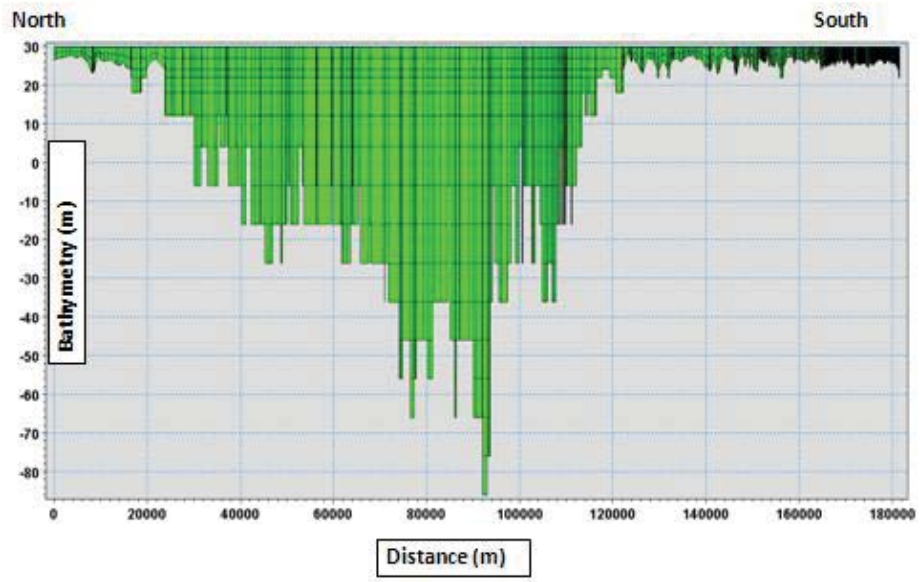

Figure 5.3.4-2 MIKE3-FM 3D model's vertical mesh scheme for Lake Champlain, VT.

Inflow boundaries will be defined to represent the mainstem Tuolumne River and key tributaries that account for the greatest portion of the local reservoir watershed flow. The tributary boundaries will be coincident with two or three arms of the reservoir (e.g., Woods Creek, Rogers Creek, and Hatch Creek). The flow from the unregulated portion of the watershed will be apportioned on the basis of drainage area and the associated temperature will be estimated as described in Section 5.3.3.

5.3.5 Model Calibration and Verification

The general procedure is to calibrate a model (i.e., adjust model parameters within acceptable ranges) using sampling data collected during a certain period, and then verify the model (i.e., compare model and observations without any further adjustment of model parameters) using data collected during different hydrological conditions. Generally, the same types of data are available for both the calibration and verification periods. However, inflow temperature and meteorological data collections for the Don Pedro Reservoir were recently added in the fall of 2010 to provide a more complete set of data for the modeling than the dataset previously available. Several months of these new data will be available for model verification. The model calibration will therefore be done primarily with the data collected prior to the fall of 2010 and the approaches for defining the boundary conditions that were described in Sections 5.3.2 through 5.3.4. Note that the bathymetry survey data are essential for calibrating the model. We assume that reservoir depths have not changed in the last few years so that the same bathymetry data will be used for the model calibration and verification.

The seasonal progression of temperature stratification in the spring and early summer, followed by destratification in late summer and fall, is an important phenomenon for the 3-D temperature model to simulate. The existing temperature profiles indicate that most of the stratification occurs during April through September, and most of the de-stratification takes place October through November. Hence, the model calibration should span at least from April through November. (The temperature is relatively constant over depth during the winter.) In addition, the water surface of the reservoir generally varies due to hydrological conditions and the Districts' operations for flood control and water supply. Existing water surface data show a minimum elevation of approximately 732 feet in October, November, and December 2008. As one of the key issues is the effect of reservoir drawdown on temperature, January through December 2008 is proposed as one of the model calibration periods. Monthly temperature profiles are available for this period.

An additional period may be used to calibrate the model depending on the results of the 2008 comparisons and model run time. There is apparently a gap in the temperature profile sampling data between May 22, 2009 and March 3, 2010, so 2009 would not be appropriate. However, 2007 appears to have monthly profiles and may be used for model calibration, if necessary.

The model verification period would cover the period with the added inflow temperature and meteorological data collections, presumably December 2010 through the early fall of 2011. Model-computed temperature profiles and measured temperatures at the six reservoir profile stations will be shown graphically. Temperature just below the water surface measured during the bathymetry survey along with temperature profiles done at the six CDFG stations and two stations near the old dam during the survey will also be compared to the model as part of the verification. Available powerhouse temperature data will also be compared with model output as time series graphs. Model and measured temperatures at each station will be statistically analyzed to determine how well the model compares with the data. These statistics will be presented in graphical and/or tabular form.

The Districts will conduct a QA/QC review of the modeling following the calibration and verification to confirm its validity for evaluating future conditions. Following this review, the Districts will meet with the Relicensing Participants, per Section 6.0.

5.3.6 Baseline Conditions

The 3-D model will initially be configured to represent how the Districts currently operate the Project, including all physical, regulatory, and contractual constraints. This case represents the "No Action Alternative." A full description of these baseline conditions will be prepared and distributed. All subsequent model runs will be compared to the baseline conditions.

5.4. Documentation and Reporting

A report will be developed that documents all methods and results. Maps showing coverage of the depth sounding points will also be included. In addition to the maps, a table showing area and storage volume for each foot of elevation will be developed and included in the report. Storage volume will be plotted against elevation and compared graphically to the existing reservoir capacity curve presented in the PAD. Vertical temperature profiles and surface temperature plots that show model output and observed data will also be provided.

A description of the model, sources of data, model parameters, assumptions, and calibration and verification will also be provided. In addition, model input files for the calibration, verification, and projections will be provided with annotated documentation of the sources of the data so the files can be traced to the backup upon which they were based.

6.0 Study-Specific Consultation

The Districts will meet with interested Relicensing Participants to review the model's key features and demonstrate the model's primary results following the QA/QC review of the model calibration/verification. Relicensing Participants will be given a description of the model's theoretical principles, model mesh of the reservoir, summary of input data and modeling assumptions, and a draft of the model's validation documentation.

The model will be reviewed by RPs after the calibration/verification to provide the agencies with an opportunity to ask questions and comment on technical aspects of the modeling. The 3-D Modeling Team will conduct a workshop meeting with the reviewers to discuss any issues raised during the review. Model adjustments, if any, will be made in finalizing the calibrated and verified model. The review comments and responses will be documented in a technical memo that will be included as an appendix to the modeling report. The QA/QC review at this juncture of the study will render the 3-D temperature model as suitable for the simulation of existing and baseline conditions during this study as well as future reservoir operating scenarios. The Districts will provide training on the use of the model to interested RPs.

7.0 Schedule

The Districts' schedule to complete the study proposal assumes FERC's Study Plan Determination is deemed final on December 31, 2011. Data compilation and model set-up will occur January and February 2012. Model calibration and verification will then take place during March through July 2012. Consultation with Relicensing Participants will occur during April, June and August 2012 and a final report will be produced by November 30, 2012. The model will be available by March 2013 to evaluate alternate future reservoir operation scenarios.

8.0 Consistency of Methodology with Generally Accepted Scientific Practices

Three-dimensional hydrodynamic modeling and temperature modeling have been extensively used for complex systems and are generally accepted scientific practices. The 3-D temperature modeling of the Don Pedro Reservoir is consistent with these generally accepted scientific practices.

9.0 Deliverables

In addition to the model itself, the Districts will prepare a report, which will document the methodology and model calibration/verification and model projections.

10.0 Scenario Development and Model Projections

Future scenarios that reflect potential changes to reservoir operation (i.e., the flows released through the powerhouse and hollow jet value) will be developed during the Integrated Licensing Process. The Districts will provide training for model users to execute the Don Pedro Reservoir temperature model and perform model projections for scenarios of interest.

~~10~~11.0 Budget

The cost of development of the model for the Don Pedro Reservoir will be provided in the Revised Study Plan.

~~11~~12.0 References

AD Consultants, Resources Manaagement Assocoiates, Inc., Watercourse Engineering, Inc. San Joaquin River Basin Water Temperature Modeling and Analysis, Prepared for CALFED ERP-06D-S20, October 2009

Danish Hydraulic Institute 2009a. MIKE21 & MIKE3 Flow Model FM, Hydrodynamic and Flow Transport Model, Scientific Documentation, January 2009

Danish Hydraulic Institute 2009b. MIKE21 & MIKE3 Flow Model FM, Hydrodynamic and Flow Transport Model, Step by step training guide, January 2009

Danish Hydraulic Institute 2009c. MIKE3 Flow Model FM, Hydrodynamic Model, User's Guide, January 2009

ATTACHMENT A

BATHYMETRIC AND SURFACE TEMPERATURE DATA COLLECTION

TURLOCK IRRIGATION DISTRICT
AND
MODESTO IRRIGATION DISTRICT

DON PEDRO PROJECT
FERC NO. 2299

Bathymetric and Surface Temperature Data Collection

July 2011

1.0 Project Nexus

Turlock Irrigation District and Modesto Irrigation District's (TID and MID or Districts) continued operation and maintenance (O&M) of the Don Pedro Hydroelectric Project (Project) has a potential to affect water temperature. In particular, stratification of the reservoir affects the amount of cold water stored in Don Pedro Reservoir.

The Districts plan to develop a 3-D water temperature model that requires bathymetry information as input. Bathymetric data will also provide a better understanding of the elevation-reservoir storage relationship of the reservoir.

2.0 Resource Management Goals of Agencies with Responsibility for the Resource to be Studied

The Districts believe that two agencies have jurisdiction over water temperature in the reservoir: (1) the California Department of Fish and Game (CDFG), and (2) the State Water Resources Control Board, Division of Water Rights (SWRCB). Each of these agencies and their jurisdiction and management direction, as understood by the Districts at this time, is described below.

CDFG's goal is to preserve; to protect; and, as needed, to restore habitat necessary to support native fish, wildlife and plant species.

SWRCB has authority under the federal Clean Water Act (CWA) (33 U.S.C. §11251-1357) to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Throughout the relicensing process, the SWRCB maintains independent regulatory authority to condition the operation of the Project to protect water quality and the beneficial uses of stream reaches consistent with Section 401 of the federal CWA, the Regional Water Quality Control Board Basin Plans, State Water Board regulations, California Environmental Quality Act, and any other applicable state law.

3.0 Study Goals and Objectives

This study is needed as input for the proposed 3-D water temperature model and to update the historical reservoir elevation-storage curve. Though monthly profiles collected by CDFG since 2004 will be the predominant dataset used for the 3-D model's calibration and verification, water temperature data collected concurrently with the bathymetric data will also support the effort.

4.0 Existing Information and Need for Additional Information

Previous detailed bathymetric data are not available for the Don Pedro Reservoir. It appears that the only data available to define the original reservoir bathymetry is U.S. Geological Survey (USGS) 15-minute quadrangle maps developed prior to the construction of the new Don Pedro Project. These are not of sufficient detail to define the current bathymetric characteristics of the reservoir.

CDFG has collected monthly water temperature profiles from six locations in Don Pedro Reservoir for several years and profiles collected by CDFG, from 2004 through and including the present, effectively characterize Don Pedro Reservoir's vertical thermal trends. A seventh profile location, upstream of the old Don Pedro Dam, would provide insight into temperature dynamics at this location. Profiles collected during the bathymetry fieldwork will provide a temperature-related link between the bathymetry data and CDFG's long term data-set.

5.0 Study Methods and Analysis

Bathymetry data collected with the reservoir water surface at approximately elevation 790 feet (ft) will be combined with interferometric synthetic aperture radar (IFSAR) topographic mapping, obtained by the Districts when the water surface elevation was at approximately 760 ft, to develop a full description of the reservoir geometry and depth-area-storage relationships.

5.1 Study Area

This study will take place at Don Pedro Reservoir in Tuolumne County, California. The study area consists of Don Pedro Reservoir below the Project Boundary at an elevation of approximately 860 ft, as depicted in Figure 5.1-1.

5.2 General Concepts

The following general concepts apply to the study:

- Personal safety is an important consideration of each fieldwork team. The Districts and their consultants will perform the study in a safe manner.
- The Districts will make a good faith effort to obtain permission in advance of performance of the study to access private property where needed. Field crews may make minor modifications in the field to adjust to and to accommodate actual field conditions and unforeseeable events. Any modifications made will be documented and reported in the draft study reports.

5.3 Study Methods

The plan for developing the bathymetric model of Don Pedro Reservoir is presented below in five subsections: (1) preparation, (2) field data collection, (3) data processing, (4) quality assurance/quality control, and (5) documentation and reporting.

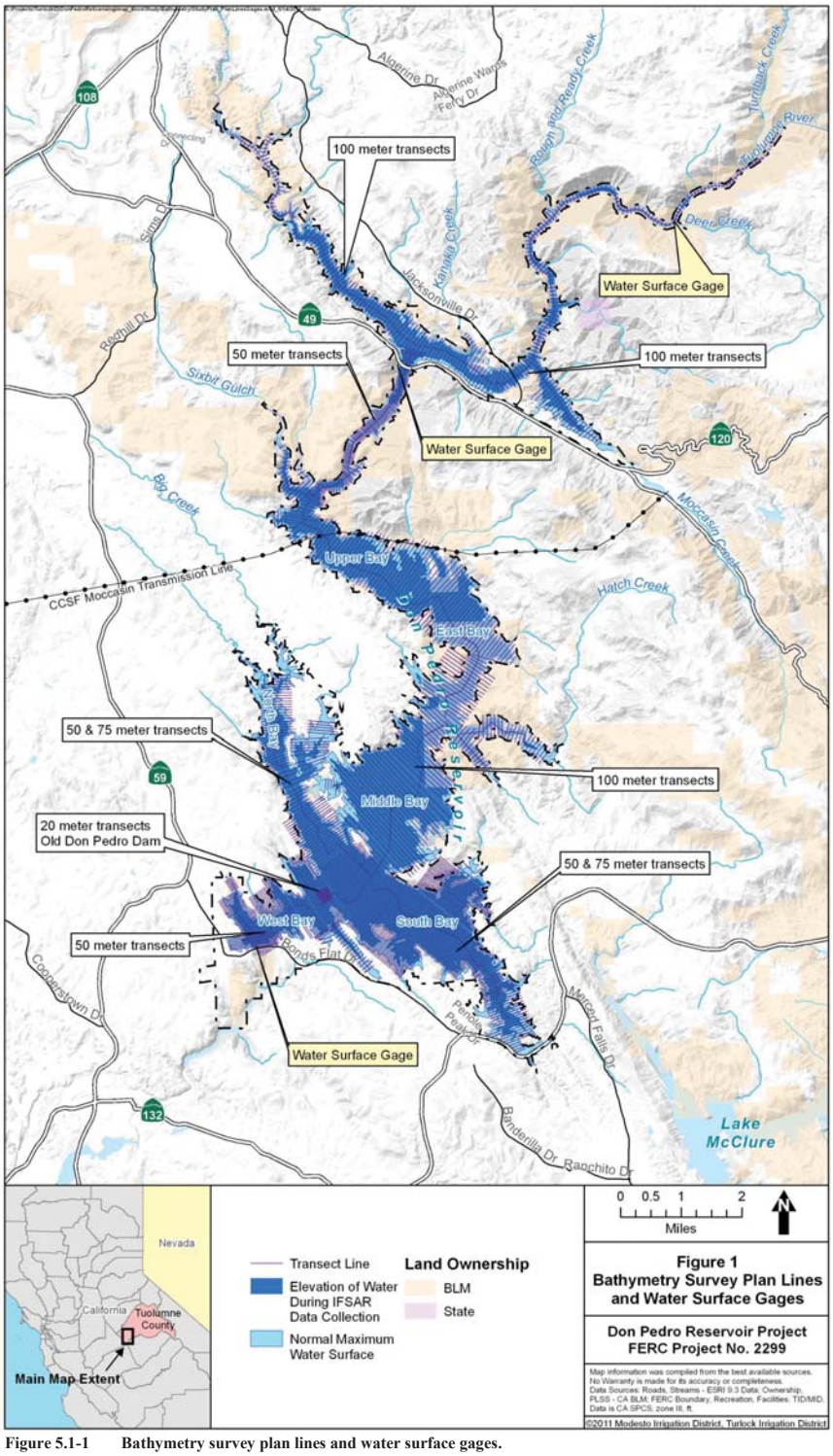

Figure 5.1-1 Bathymetry survey plan lines and water surface gages.

5.3.1 Preparation

Before data collection begins, transects spaced at 50, 75, and 100 meter intervals oriented approximately perpendicular to the longitudinal axis of the reservoir will be established using the bathymetric data collection software, Hypack. In addition to the standard transects, at least one perpendicular "tie line", oriented approximately parallel to the longitudinal axis of the reservoir will be established to ensure inter-transect data consistency. Transects will cover the entire reservoir at the water elevations observed during the time of the field data collection.

The location of the Old Don Pedro Dam, inundated by the construction of the new dam, has been estimated using historical USGS topographic maps. A 20-meter transect spacing will be developed in the area of the Old Don Pedro Dam to establish the geometry and location of the old dam.

5.3.2 Field Data Collection

5.3.2.1 Bathymetric Data

The technique that will be used for data collection employs precision depth sounder and navigation systems aboard an outboard powered 19-ft Johnboat, in conjunction with vertical control to determine the elevation of the water surface at the time of the survey. Vertical control and water surface elevation data will be taken from the gages at the Don Pedro Dam, the Highway 120/49 Bridge, and the Wards Ferry Bridge. The gages at the two bridges will be used to establish vertical control in the upstream portion of the Don Pedro Reservoir. Temporal and spatial variations in water surface elevation throughout the bathymetric survey will be taken into account in the data processing as explained below.

Water depth will be measured using an Airmar B258 1-kilowatt dual frequency transducer and a Foruno FCV-585 digital depth sounder (or equivalent), with a vertical resolution of 0.1 ft. The depth sounder will be deployed aboard the Johnboat that will navigate along predetermined transects. Transect locations may be adjusted in the field to accommodate shallow water, in-water structures, marinas, and/or recreational activities.

Soundings will be taken at approximately 1 second intervals and the boat speed will be set to ensure that bottom features will be appropriately sampled (typically, at least 1 sounding is taken for every 2 linear meters along the vessel track). The boat will be navigated using a differential Global Positioning System (DGPS), and the position of each sounding will be determined using the DGPS system. The DGPS will provide better than 1 meter circular positioning accuracy. All depth and horizontal positioning data will be recorded digitally in the field as a series of points with x-y-z coordinates, using a rugged field notebook PC running Hypack Hydrographic Survey software (or equivalent).

5.3.2.2 Reservoir Temperature Data

CDFG continues to collect monthly temperature profiles in Don Pedro Reservoir and these data will be used as the primary dataset for the 3-D model's calibration and verification. As part of

this study, reservoir temperature data will be collected concurrently with the bathymetric data to provide additional data for the 3-D model's verification.

Surface water temperature will be measured concurrently with the bathymetric data and recorded digitally using the Hypack software. Temperature data will be collected using a Falmouth Scientific Ocean Temperature Module (FSI OTM). The accuracy FSI OTM is -± 0.005 degree Celsius temperature. Surface water data provide information about the variation in the reservoir's temperature through the horizontal plane. Vertical temperature profiles will be collected at least one-time each at the six CDFG profile stations and two additional locations, one just upstream of old Don Pedro Dam and one just downstream of the old Don Pedro Dam, to capture any influence of the old dam on reservoir temperature. During each week of surveying, water temperature profiles (along with dissolved oxygen) will be taken at the nearest CDFG profile location or nearby locations.

5.3.2.3 Water Surface Elevation Data

Reservoir water level elevations will be measured throughout the study. Water surface elevations near the dam of the reservoir are routinely measured and recorded by TID. Water surface elevation gages will be installed at two other locations, where benchmarks provide vertical control for combining all elevation data to a common datum: (1) Highway 120/49 Bridge, and (2) Wards Ferry Bridge. All vertical control will be converted to match the vertical datum of the gage at Don Pedro Dam, which is NGVD 29. The three water surface gages will provide continuous data during the bathymetry survey for data processing.

5.3.3 Data Processing

5.3.3.1 Bathymetric Surface Development

The data will be processed using the Hypack software and exported to a table that can be imported into Geographic Information System (GIS). Elevation values for each point will be calculated in a spreadsheet by first correcting the depth of the reading to include the known submergence value of the transducer and then subtracting the depth of the sounding from the water surface elevation of the reservoir according to the nearest gage reading from the same day and time.

Remotely sensed data will be used to supplement the bathymetric data collected in the field. Previously obtained Digital Terrain Model (DTM) data will be integrated with the bathymetric model. These data were collected in August 2004 by the vendor Intermap using IFSAR. The water surface of the reservoir at the time the DTM data were collected was 760 ft and the DTM data extend upwards to well above the Project Boundary elevation. The DTM will assist with defining the reservoir geometry at water levels above that obtained by the bathymetric survey. In the instances of overlap in the topographical elevations of the DTM and elevations covered by the bathymetric survey, the DTM will provide information that may assist in the interpolation of the surface in between the transect points collected in the field.

A contour line at maximum water level will be generated using a GIS contouring tool with the DTM. It will be visually checked and modified as needed using a horizontally more accurate high-resolution aerial image. The field collected points, the DTM surface data below the high water contour, and the maximum water contour will then be used to interpolate a reservoir geometry model in GIS.

The bathymetric survey elevation data will be developed by using the Environmental Science Research Institute (ESRI) geoprocessing tool "Topo to Raster". Contours will be developed from the surface using ESRI contouring tools and displayed at an appropriate resolution for the maps that will be included in the final report.

5.3.3.2 Temperature Data Processing

Surface water temperature data and temperature profiles will be used to assist in the 3-D temperature model verification. In addition, surface water temperature data will be plotted and contoured using Surfer (by Golden Software). Temperature data collected during time intervals of two to four hours will be mapped separately to constrain the diurnal temperature variation and provide a "snapshot" of surface temperature. The resulting temperature contours will be shown on a series of maps of the reservoir.

Vertical temperature profiles will also be plotted and a map showing the location of the vertical profiles will also be produced.

5.3.4 Quality Assurance/Quality Control

Data quality will be assured through following manufacture's instructions and periodically verifying data values through an alternative measurement. Throughout the survey, the depth measured by the sounder will be periodically compared to the actual depth. The actual depth will be measured by either lowering a "bar" beneath the sounder or by direct measurement of the bottom with a lead line or pole. Measurement of the "draft" or the depth from the water surface to the face of the transducer will also be recorded. All measurements will be recorded in the field notebook.

Quality Assurance will be performed by an independent reviewer. A three-step approach will be used for quality assurance of the bathymetric survey data. The first step is a review of the field methods and materials. The second step is checking the edited raw data. Finally, the methods used in the production of the final deliverable will be checked.

Review of field methods will include a check of any "bar checks" performed in the field. A bar check compares the depth measured by the sounder to the actual depth, measured physically. The specifications of the sounder and GPS used in the survey will be reviewed to confirm the accuracy of the data as reported. The water surface elevation data at the three gages will be checked for consistency.

The next step is to check the processing of the raw data. Any data with GPS errors or sounding errors that were flagged accordingly and deleted prior to contour plotting will be checked to

confirm that the deletion was appropriate. Soundings will be spot checked for consistency. The crossing of transects and tie-lines will be reviewed to ensure that the sounder recorded similar depths at the intersection of survey lines. If any sharp differences in depth at adjacent points are present, they will be identified as either an error or a real feature.

The last step is a check of the final deliverable. Once the field methods and raw data have been reviewed, the production of contours or a bathymetric surface relative to a know datum will be checked. Calculation of the bottom elevation from sounding depths will be reviewed to ensure corrections for the draft and water surface elevation were properly accounted for. The method of interpolation and setting used to in the interpolation will be reviewed to ensure that reasonable contours are generated. Contours created using interpolation will be checked against actual soundings to verify that the interpolated surface is reasonable. Finally, contours will be checked against any previous studies for consistency.

5.3.5 Documentation and Reporting

A report will be developed that documents all methods and results. Contours derived from the use of the bathymetric and IFSAR data will be displayed in maps of appropriate scale. Maps showing coverage of the depth sounding points will also be included. In addition to the maps, a table showing area and storage volume for each two feet of reservoir elevation will be developed and included in the report. Storage volume will be plotted against elevation and compared graphically to the reservoir area-capacity curve presented in the Pre-Application Document. Vertical temperature profiles and sample surface temperature plots will also be provided.

6.0 Schedule

Surveys are planned to be completed during the months of May and June 2011. IFSAR data has been obtained. Data compilation and mapping will occur from June through September, 2011. Final checking and review will occur in October and November, 2011 and final maps produced by the end of 2011.

7.0 Consistency of Methodology with Generally Accepted Scientific Practices

The methods presented in this study plan are consistent with those used in recent relicensings in California including most recently for the Merced Irrigation District's Lake McClure and McSwain Reservoir. Additional surveys with similar methodology include the Yuba-Bear/Drum-Spaulding Project's Lake Spaulding, Rollins Reservoir, Bowman Lake, Jackson Meadows Reservoir, Fordyce Lake, and Lake Valley Reservoir.

8.0 Deliverables

The Districts will make the draft report available to relicensing participants following internal quality assurance review. The final report will be provided along with the elevation and temperature data in GIS files. These GIS files will be used in developing the 3-D Temperature Model.

9.0 References

Environmental Science Research Institute ArcGIS 10. Available online at: <http://help.arcgis.com/en/ arcgisdesktop/10.0/help/index html>.

Golden Software. Surfer. Available online at: <http://www.goldensoftware.com/products/surfer/surfer.shtml>

Intermap. Available online at: <http://www.intermap.com/>.

STUDY PLAN W&AR-5

TURLOCK IRRIGATION DISTRICT
AND
MODESTO IRRIGATION DISTRICT

DON PEDRO PROJECT
FERC NO. 2299

Salmonid Population Information Integration and Synthesis Study Plan

RELICENSING PARTICIPANTS' COMMENTS

Comment No.	RWG Meeting Date	Comment	Response
General Comments:			
1	08/23/2011	A suggestion was made to combine W&AR-5 and W&AR-6 because they seemed to be interrelated.	After considering this idea, the Districts think it best to keep the studies separate because they deal with very different geographic scales. This study is focused on empirical data from the lower Tuolumne; W&AR-6 deals with the entire life cycle of the species.
Section-Specific Comments:			
2	08/23/2011	**Section 3.0 Study Goals:** SWRCB and others suggested that the study plan include additional details on study implementation, including RP consultation process.	Section 6.0 of study plan now includes details regarding consultation process, including two workshops as well as documentation of rationale for information inclusion or exclusion from analysis,
3	08/23/2011	**Section 5.3 Study Methods** CSPA and others commented that the study plan should identify the sources of information to be included in the study.	Information will center primarily upon Tuolumne River-specific information, as well as information from other studies and reports of the San Joaquin River basin tributaries.
4	09/15/2011	**Section 5.3:** Provide a list and copies of data sources that are included in the analysis, organized by life stage, and cross-reference the schedule and add specific step in the schedule.	List of available PAD sources will be compiled and transmitted in advance of RSP. Refined list will be developed in Step 1 with opportunity for additional RP input.

STUDY PLAN W&AR-5

TURLOCK IRRIGATION DISTRICT
AND
MODESTO IRRIGATION DISTRICT

DON PEDRO PROJECT
FERC NO. 2299

Salmonid Population Information Integration and Synthesis Study Plan

~~**July 2011**~~

Related Study Requests: Acterra-01, Beam-03, CCSF-02, FOT-02, Gardner-02, Rosapepe-01, USFWS-12

(See RP General Comment 1)

1.0 Project Nexus

The continued operation and maintenance (O&M) of the Don Pedro Project (Project) may contribute to cumulative effects on habitat availability and production of in-river life stages of Central Valley Fall run Chinook salmon (*Oncorhynchus tshawytscha*) and *O. mykiss* in the lower Tuolumne River.

2.0 Resource Agency Management Goals

The Districts believe that four agencies have resource management goals related to Chinook salmon and/or their habitat: (1) U.S. Department of Interior, Fish and Wildlife Service (USFWS); (2) United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS); (3) California Department of Fish and Game (CDFG); and 4) State Water Resources Control Board, Division of Water Rights (SWRCB).

A goal of the USFWS (2001) Anadromous Fish Restoration Program (AFRP), as stated in Section 3406(b)(1) of the Central Valley Project Improvement Act, is to double the long-term production of anadromous fish in California's Central Valley rivers and streams. Objectives in meeting this long-term goal include: (1) improve habitat for all life stages of anadromous fish through provision of flows of suitable quality, quantity, and timing, and improved physical habitat; (2) improve survival rates by reducing or eliminating entrainment of juveniles at diversions; (3) improve the opportunity for adult fish to reach spawning habitats in a timely manner; (4) collect fish population, health, and habitat data to facilitate evaluation of restoration actions; (5) integrate habitat restoration efforts with harvest and hatchery management; and (6) involve partners in the implementation and evaluation of restoration actions.

NMFS has developed Resource Management Goals and Objectives for species listed under the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §1801 et seq.) and the Endangered Species Act (ESA) (16 U.S.C. §1531 et seq.), as well as anadromous species that are

not currently listed but may require listing in the future. NMFS' (2009) Public Draft Recovery Plan for Sacramento River Winter-run Chinook salmon, Central Valley Spring-run Chinook salmon, and Central Valley steelhead (Draft Recovery Plan) outlines the framework for the recovery of ESA-listed species and populations in California's Central Valley. For Central Valley steelhead, the relevant recovery actions identified for the Tuolumne River are to: (1) Conduct habitat evaluations, and (2) manage cold water pools behind La Grange and Don Pedro dams to provide suitable water temperatures for all downstream life stages. For Chinook salmon, the relevant goals are to enhance the Essential Fish Habitat downstream of the Project and achieve a viable population of Central Valley fall/late fall-run Chinook salmon in the Tuolumne River.

CDFG's mission is to manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public. CDFG's resource management goals, as summarized in restoration planning documents such as "Restoring Central Valley Streams: A Plan for Action" (Reynolds et al. 1993), are to restore and protect California's aquatic ecosystems that support fish and wildlife, and to protect threatened and endangered species under California Fish and Game Code (Sections 6920–6924).

SWRCB has responsibility under the federal Clean Water Act (33 U.S.C. §11251–1357) to preserve and maintain the chemical, physical and biological integrity of the State's waters and to protect water quality and the beneficial uses of stream reaches consistent with Section 401 of the federal Clean Water Act, the Regional Water Quality Control Board Basin Plans, State Water Board regulations, the California Environmental Quality Act, and any other applicable state law.

3.0 Study Goals *(See RP Comment 2)*

The goal of this study is to summarize relevant available information regarding in-river and out-of-basin factors affecting Chinook salmon and *O. mykiss* production in the Tuolumne River. This synthesis will update conceptual model(s) of Chinook salmon and *O. mykiss* life history in the lower Tuolumne River to reflect the results of post-1995 FERC Settlement Agreement ("FSA") monitoring and other Tuolumne River studies, changes in Tuolumne River conditions since 1995 (e.g., from the 1997 flood), as well as recent advances in the understanding of Central Valley salmonid populations (e.g., genetic structure, hatchery influences, ocean conditions, etc.). Objectives in meeting this goal include:

- collect and summarize available existing data on Chinook salmon and *O. mykiss* to characterize the watershed, Project operations and issues affecting salmonid populations,
- develop hypotheses to understand potential impacts of contributing factors affecting salmonid populations, and
- inform and contribute to development/revision and parameterization of numerical in-river salmon population models.

Specific data compiled from this study will be used in the development of conceptual and quantitative population models as part of interrelated relicensing studies, including the *Tuolumne River Chinook Salmon Population Model* (Study Plan W&AR-6) and the *O. mykiss Population Study* (Study Plan W&AR-10). Results from these interrelated studies would also inform this study.

4.0 Existing Information and Need for Additional Information

Chinook salmon life history has been extensively studied under Article 37 of the original (1964) FERC license of the Don Pedro Project (P-2299), subsequent amendments to Article 37, as well as a 10-year monitoring program developed under Article 58 of the current (1996) license for the Project. Review of Chinook salmon run estimates since 1960 and the decades following completion of the New Don Pedro Project in 1971 indicates that similar cyclical patterns of high and low spawning returns have occurred in the lower Tuolumne River and the other San Joaquin Basin tributaries both before and after 1971. This pattern has been shown to be correlated with large variations in San Joaquin Basin outflow corresponding to drier and wetter water year types (TID/MID 2005; Mesick et al. 2008). However, estimates of Chinook salmon spawning escapement in the Tuolumne River since implementation of the 1996 Article 37 flow schedule have been variable with both high and low escapements following high flow years, so other factors are known to have significant effects on the salmon population. As an example, the Pacific salmon fishery collapse during the past decade has been attributed to deterioration in ocean conditions (NMFS 2008) and highlights the importance of understanding out-of-basin habitat conditions and contributing factors unrelated to Project operations.

As summarized in the Pre-Application Document (PAD), observations of *O. mykiss* have been recorded in the Tuolumne River since 1981 in various river monitoring programs. In-river conditions potentially affecting juvenile rearing and outmigrant life stages include flow-related effects on available habitat area (e.g., TID/MID 1992, Appendices 4 and 5; USFWS 1995) and water temperature (TID/MID 1992, Appendix 19; RMA 2008). The Districts are currently conducting updated Instream Flow Incremental Methodology studies to evaluate suitable steelhead/*O. mykiss* habitat area as a function of flow.

The Districts, as well as state and federal resource agencies, have identified several factors that may affect juvenile Chinook salmon and *O. mykiss* production and survival in the Tuolumne River. However, compilation of the findings of prior assessments into a comprehensive synthesis and integration of existing information, as proposed in this study plan, has not been performed.

5.0 Study Methods

Because of the large amount of information available from previously conducted studies and ongoing data collection and monitoring activities, additional field-based data collection is not needed as part of this study.

5.1 Study Area

The study area includes the Tuolumne River from the La Grange Dam (River Mile 52) downstream to the confluence with the San Joaquin River (River Mile 0).

5.2 General Concepts

The following general concepts apply to the study:

- The goal of this review is to help readers make sense of a wide and complex set of studies through a focused examination of the available literature.
- The review synthesizes *findings* specific to the study area or topic.
- Primary sources are preferred and secondary sources are rarely cited. If a secondary or tertiary source is cited, it is clearly identified as such.

5.3 Study Methods *(See RP Comment 3)*

Step 1 – Compile Data from Previously Conducted Studies. Although a large body of existing information has been previously summarized in the PAD, specific information needed to inform quantitative assessments as well as to inform future Project license requirements will be synthesized as part of this study. Information from previously conducted monitoring of Chinook salmon populations in the lower Tuolumne River will be supplemented with compilations of other relevant biologic, hydrologic, physical habitat, and water quality data information. A preliminary list of existing information included in the PAD will be provided to RPs for review and updated as part of this Step. This information will be updated in advance of a workshop (Section 6.0), with an opportunity for Relicensing Participants to provide additional relevant information following the workshop. The highest priority will be given to data and reports specific to the lower Tuolumne River, then to data and reports related to the San Joaquin and its major tributaries. Information from broader sources may be used to address specific data or information gaps identified as part of this process.

Step 2 – Perform Analysis. The proposed study will use existing information that is suitable to develop life-history-based conceptual models of linkages between land and water use, watershed processes, aquatic and riparian habitat in the Tuolumne River and Delta, hatchery influences, ocean conditions, and population responses of Chinook salmon and *O. mykiss*. For example, a large body of information from previous FERC studies has been summarized in the PAD, including the geomorphic process-based Tuolumne River Restoration Plan (McBain & Trush 2000). The *AFRP/CALFED Adaptive Management Forum: Tuolumne River Restoration Summary Report* (Stillwater Sciences 2001) summarizes much of this information collected through the year 2000 and proposes a number of conceptual models of factors affecting Chinook salmon life history. An example of an overall life-history model of Chinook salmon adapted from this report is presented in Figure 5.3-1 ~~below~~ showing a range of potential factors affecting each life stage.

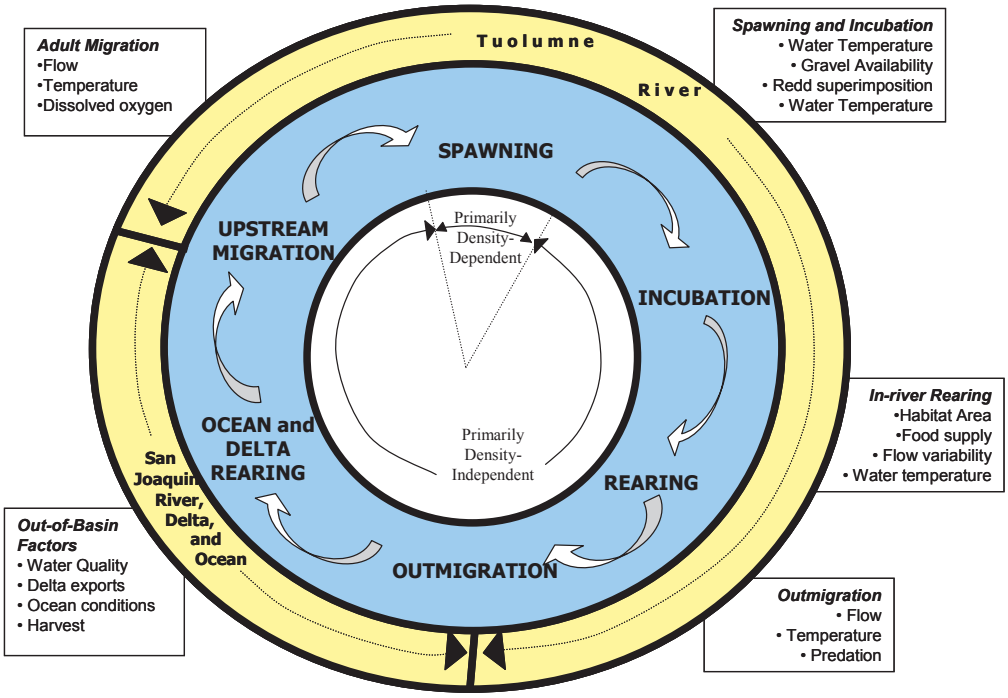

Figure 5.3-1. Example of model of factors affecting Chinook salmon population abundance in the Tuolumne River (adapted from Stillwater Sciences 2001).

Hypotheses about those in-river factors thought to be of greatest importance to salmonid population levels in the basin will be evaluated with existing data and literature and to provide the foundation for quantitative models. Review and synthesis of available data will provide the context for rejecting, accepting, or refining hypotheses and will improve understanding of key uncertainties affecting any conclusions drawn from this study. A workshop will be held with Relicensing Participants (See Section 6.0) to discuss and review preliminary conceptual models regarding factors affecting various life stages of Chinook salmon and *O. mykiss.*

At the conclusion of this step, the refined conceptual models will be used to ~~This study will determine and~~ document the most appropriate data for the ~~to be used to~~ parameterization of ~~e~~ any habitat based, individual based, or multi-stage population dynamics models that may be employed as part of interrelated studies of salmon population dynamics, including the *Tuolumne River Chinook Salmon Population Model* (Study Plan W&AR-6) and the *O. mykiss Population Study* (Study Plan W&AR-10).

Step 3 – Prepare Report. The Districts will prepare a report that includes the following sections: (1) Study Goals and Objectives; (2) Methods and Analysis; (3) Results; (4) Discussion; and (5) Conclusions. The report for this study will be a synthesis of previous and ongoing data collection. The study products will include a list of key hypotheses, a summary of the data supporting or refuting each hypothesis, the relative importance of various factors potentially limiting salmonid populations, and an indication of the level of uncertainty associated with these conclusions.

6.0 Consultation During Study Implementation

The Districts will meet with interested Relicensing Participants in two separate workshops (See Section 7.0 for schedule). The first workshop will be held to provide an opportunity for Relicensing Participants' independent information review and to suggest data and literature sources that may be relevant as part of the initial data compilation (Step 1). Following the development of preliminary conceptual models regarding factors affecting various life stages of Chinook salmon and *O. mykiss*, (Step 2) a second workshop will be held to review, refine, and potentially propose alternative conceptual models that may not have been considered in the development of the preliminary models. Information proposed and submitted by Relicensing Participants as part of the scheduled workshops will be reviewed with documentation provided as an Appendix to the Final Report as to the rationale for inclusion or exclusion of the supplied information.

7.0 Schedule

The Districts anticipate the schedule to complete the study proposal as follows assuming FERC issues its Study Plan Determination by December 31, 2011 and the study is not disputed by a mandatory conditioning agency:

- Existing Data Compilation (Step 1)..... January – April~~March~~ 2012
- Workshop No. 1 – Literature/Data Review ..... March 2012
- Analysis and Synthesis (Step 2) ..... April~~March~~ – August 2012
- Workshop No. 2 – Conceptual Model Review ..... August 2012
- Report Preparation (Step 3) .....August – December 2012
- Report Issuance .....January 2013

~~7~~8.0 Consistency of Methodology with Generally Accepted Scientific Practices

The methods presented in this study plan are consistent with other generally accepted scientific study methods concerning anadromous salmonid population assessments, including those conducted by the state and federal resource agencies.

~~8~~9.0 Deliverables

The Districts will prepare a final study report, which will document the methodology and results of the study~~.~~, and include the results of the Workshops discussed in Section 6.0 above.

~~9~~10.0 Level of Effort and Cost

Study Plan implementation cost will be provided in the Revised Study Plan.

~~10~~11.0 References

McBain & Trush. 2000. Habitat Restoration Plan for the lower Tuolumne River Corridor. Final report. Prepared for Tuolumne River Technical Advisory Committee (Don Pedro Project, FERC License No. 2299) by McBain and Trush, Arcata, California.

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_____. 2001. Final restoration plan for the Anadromous Fish Restoration Program. A Plan to increase Natural Production of Anadromous Fish in the Central Valley of California. Report of the Anadromous Fish Restoration Program Core Group, Central Valley Project Improvement Act to the Secretary of the Interior. Stockton, CA.

STUDY PLAN W&AR-6

TURLOCK IRRIGATION DISTRICT AND MODESTO IRRIGATION DISTRICT

DON PEDRO PROJECT FERC NO. 2299

Tuolumne River Chinook Salmon Population Model Study Plan

RELICENSING PARTICIPANTS' COMMENTS

Comment No.	RWG Meeting Date	Comment	Response
General Comments:			
1	08/23/2011	A suggestion was made to combine W&AR-5 and W&AR-6 because they seemed to be interrelated.	After considering this idea, the Districts think it best to keep the studies separate because they deal with very different geographic scales. This study is focused on empirical data from the lower Tuolumne; W&AR-6 deals with the entire life cycle of the species.
Section-Specific Comments:			
2	08/23/2011	**Section 3.0 Study Goals:** It was suggested that this study plan would benefit from a more detailed description of the consultation process during study plan implementation.	See new Section 6.0.
3	08/23/2011	**Section 4.0 Existing Information and Need for Additional Information:** It was recommended that the study plan indicate that the study would consider models being developed by others in parallel regulatory processes being conducted in California; and, at a minimum, the study should acknowledge these other efforts.	See Section 5.3.
4	09/15/2011	**Section 5.3:** Add comment to Step 2 clarifying not calibrating model to escapement but validating juvenile production estimates using rotary screw trap data.	See Section 5.3.
5	09/15/2011	**Section 5.3:** expand on this narrative to reflect scenario development.	See Section 5.3.
6	09/15/2011	**Section 7.0:** Expand schedule to W&AR 5 and other 2012 studies.	See Section 7.0.

STUDY PLAN W&AR-6

TURLOCK IRRIGATION DISTRICT
AND
MODESTO IRRIGATION DISTRICT

DON PEDRO PROJECT
FERC NO. 2299

Tuolumne River Chinook Salmon Population Model Study Plan

~~**July 2011**~~

Related Study Requests: NMFS-08

(See RP General Comment 1)

1.0 Project Nexus

The continued operation and maintenance of the Don Pedro Project (Project) may contribute to cumulative effects on habitat availability and production of in-river life stages of Chinook salmon (*Oncorhynchus tshawytscha*) in the lower Tuolumne River.

2.0 Resource Agency Management Goals

The Districts believe that four agencies have resource management goals related to Chinook salmon and/or their habitat: (1) U.S. Department of Interior (USDOI), Fish and Wildlife Service (USFWS); (2) U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS); (3) California Department of Fish and Game (CDFG); and (4) State Water Resources Control Board, Division of Water Rights (SWRCB).

A goal of the USFWS (2001) Anadromous Fish Restoration Program, as stated in Section 3406(b)(1) of the Central Valley Project Improvement Act, is to double the long-term production of anadromous fish in California's Central Valley rivers and streams. Objectives in meeting this long-term goal include: (1) improve habitat for all life stages of anadromous fish through provision of flows of suitable quality, quantity, and timing, and improved physical habitat; (2) improve survival rates by reducing or eliminating entrainment of juveniles at diversions; (3) improve the opportunity for adult fish to reach spawning habitats in a timely manner; (4) collect fish population, health, and habitat data to facilitate evaluation of restoration actions; (5) integrate habitat restoration efforts with harvest and hatchery management; and (6) involve partners in the implementation and evaluation of restoration actions.

NMFS has developed Resource Management Goals and Objectives for species listed under the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §1801 et seq.) and the Endangered Species Act (ESA) (16 U.S.C. §1531 et seq.), as well as anadromous species that are not currently listed but may require listing in the future. NMFS' (2009) Public Draft Recovery

Plan for Sacramento River Winter-run Chinook salmon, Central Valley Spring-run Chinook salmon, and Central Valley steelhead (Draft Recovery Plan) outlines the framework for the recovery of ESA-listed species and populations in California's Central Valley. For the Tuolumne River, the relevant goals are to enhance the Essential Fish Habitat downstream of the Project and achieve a viable population of Central Valley fall/late fall-run Chinook salmon.

CDFG's mission is to manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public. CDFG's resource management goals, as summarized in restoration planning documents such as "Restoring Central Valley Streams: A Plan for Action" (Reynolds et al. 1993), are to restore and protect California's aquatic ecosystems that support fish and wildlife, and to protect threatened and endangered species under California Fish and Game Code (Sections 6920–6924).

SWRCB has responsibility under the federal Clean Water Act (33 U.S.C. §11251–1357) to preserve and maintain the chemical, physical and biological integrity of the State's waters and to protect water quality and the beneficial uses of stream reaches consistent with Section 401 of the federal Clean Water Act, the Regional Water Quality Control Board Basin Plans, State Water Board regulations, the California Environmental Quality Act, and any other applicable state law.

3.0 Study Goals *(See RP Comment 2)*

The Chinook salmon population model developed through this study will be used to examine the relative influences of various factors on the life-stage specific production of Chinook salmon in the Tuolumne River, identify critical life-stages that may represent a life-history "bottleneck", and compare relative changes in population size between alternative management scenarios. Specific information obtained by this study will be used to assess the extent to which the abundance of the Chinook salmon populations in the Tuolumne River is affected by in-river factors.

4.0 Existing Information and Need For Additional Information *(See RP Comment 3)*

A number of attempts have been made in the past two decades to assess the relative importance of factors influencing the Chinook salmon population abundance in the Tuolumne River and larger San Joaquin River basin. Four separate population models have been developed to provide a framework for investigating the relative influences of various factors on various Chinook salmon life stages, to identify critical life-stages that may be limiting overall population sizes, and to compare relative changes in population size between alternative resource management scenarios.

- The EACH population model (TID/MID 1992b, Appendix 1) is a compartment-based deterministic simulation model, with a time-step of one week, that represents the dynamics of populations from each of the three salmon-bearing tributaries to the San Joaquin River using a set of finite difference equations that describe changes in the numbers of Chinook salmon at various geographical locations and developmental stages as functions of these numbers and environmental parameters (represented by flows in the Tuolumne River and Delta exports). The model was recently updated to reflect hydrology from 1973–2007, but

the model parameters have not been refitted using recent data. As with the Stock-Recruit Model, use of the EACH model would require refitting of several model parameters and appropriate scaling of input variables to represent changes in Tuolumne River flow or habitat availability.

The Oak Ridge Chinook Salmon model (ORCM) (Jager et al. 1997, Jager 2000, Jager and Rose 2003, Jager and Sale 2006) is also a compartment-based model originally developed in the 1990s by staff at the Oak Ridge National Laboratory (ORNL) and most aspects of the model have remained unchanged since the model was first documented by Jaeger et al. (1997). The ORCM model is spatially and temporally explicit (at a scale of one-mile river reaches and one-day time steps) and simulates the in-river life history of Chinook salmon by tracking growth, development, migration, and survival of individual fish. Jager and Sale (2006) validated the model outputs by comparisons of the magnitude and timing of juvenile outmigration, as estimated from recent rotary screw trap (RST) data, with those predicted by the ORCM model. Overall, the model predicts outmigration timing very well, but large differences between modeled and observed smolt productivity were apparent in some years. Re-examination of the underlying habitat (i.e., weighted usable area) relationships for individual life stages may improve the model performance, and the mechanistic basis of the ORCM allows the model to be used to exploring management alternatives not closely related to flow, such as changes in habitat area from gravel augmentation, floodplain re-contouring, etc.

- The Stock-Recruit model (TID/MID 1992a, Appendix 2; TID/MID 1997, Report 96-5) uses statistical analysis of the time-series of historical Chinook salmon escapements to the San Joaquin basin in relation to Vernalis flow and Delta exports. The model attempts to capture how density-independent mortality, as influenced by basin-wide spring outflow, combines with density-dependent mortality to affect the rate and magnitude of changes in the San Joaquin system's Chinook salmon population. The model parameters were recently recalibrated for escapement and hydrology data through 2006, and validation testing showed divergence in the modeled and observed escapements during 2005–2006, possibly attributable to changes in ocean conditions during this period (NMFS 2008). These discrepancies suggest some model assumptions regarding stable conditions for adult salmon vary from year to year as a result of ocean conditions. Use of this model would require the refitting of several model parameters and appropriate scaling of input variables to represent changes in Tuolumne River flow or habitat availability.

- CDFG's San Joaquin River Salmon Population Model (CDFG 2005) is a deterministic model comprising linear-regression based relationships between escapement (spawner abundance) and springtime Vernalis flow to predict future smolt and adult production. Although CDFG's model (2005, revised 2009) has been cited in Agency comments on the Don Pedro Project and other proceedings regarding San Joaquin River basin salmon populations, Pyper et al. (2006) and CALFED peer reviewers identified substantial flaws in the initial model and provided several modification recommendations. In response, CDFG issued a revised version (CDFG 2009) that only contains partial revisions and has not yet been peer reviewed. Based on an assessment by Lorden and Bartroff (2010), the current model revisions remain inadequate to address many of the original problems that were identified. Therefore, this model is not functional and is not considered further in this document.

It is apparent based upon the performance of the functional models above that: (1) variations in escapements are not well captured by existing models in all years, (2) a number of out-of-basin factors affect salmon populations in the Tuolumne River, and (3) the effects of Project operations are not easily separable from other factors affecting Chinook salmon in the Tuolumne River. As a result, there is a need for an up-to-date population model that evaluates factors affecting life-stage production and overall population levels. The models described above represent a variety of population modeling paradigms, from compartment based models such as ORCM and EACH that require a great deal of information regarding specific mechanisms to almost purely statistical models such as the Stock-Recruit model) that describes how individuals are distributed across times and locations at a particular life-stage. Spatial scales vary from one-mile reaches of the Tuolumne River (ORCM), to major habitat divisions such as the ocean, bay, delta, and primary river systems (EACH), to a single amorphous unit (the Stock Recruit model). The EACH and ORCM models are constructed with explicit time steps (7 days and a day, respectively), whereas the other two are primarily of stock-production form, stepping directly from life-stage to life-stage. In this study plan, we propose to develop a new population model using a stock-production approach, as described below.

5.0 Study Methods

The Tuolumne River Chinook salmon population modeling study will rely upon existing literature and information, including previously conducted Tuolumne River studies, as well as interrelated relicensing studies in the development of both conceptual and quantitative population models to examine the relative importance of in-river factors affecting Chinook salmon production.

5.1 Study Area

The study area includes the Tuolumne River from the La Grange Dam (River Mile [RM] 52) downstream to the location of the rotary screw trap at Grayson River Ranch (RM 5) near the San Joaquin River confluence.

5.2 General Concepts

The following general concepts apply to the study:

- Cumulative effects are difficult to assess individually unless cause-effect relationships can be parsed out.
- The model focuses on variables that can be influenced by both Project and non-Project influences on the resource(s).
- Project-specific and resource-specific data will be used to calibrate and validate the model whenever possible.
- Model outputs consist of representation of the modeled response variable under an existing baseline or initial condition, as well as predictions under one or more scenarios.
- Although model uncertainties will be identified as part of this study, modeling predictions may show statistically significant differences from baseline conditions that do not display

an ecologically or biologically significant difference. Should this occur, the criteria and rationale for biological significance will be documented along with the results.

5.3 Study Methods

Step 1 – Develop Conceptual Model from Previously Conducted Studies. Information from previously conducted studies, as well as the concurrent *Salmonid Populations Integration and Synthesis study* (Study Plan W&AR-5), will be summarized. Using this information, conceptual models of the potential density-dependent and density-independent factors affecting each life-stage of Chinook salmon in the Tuolumne River will be developed and refined. Although review of out-of-basin factors may be included, detailed modeling of historical escapements resulting from variations in these factors (e.g., variations in Delta barrier and export facility operations, ocean productivity, ocean and inland harvest, etc.) is not anticipated. A workshop (See Section 6.0) will be held to review and discuss conceptual models and relevant factors to be included in the development of a numerical population model in Step 2.

Step 2 – Develop Quantitative Population Model. Using conceptual models developed in Step 1, a quantitative population model will be developed to provide a framework to examine the relative influences of in-river factors upon life-stage production or population levels of Chinook salmon. Current population modeling efforts being undertaken in the Delta and San Joaquin River basin tributaries will be identified and reviewed for consistency with the Districts' population model to the extent reasonable and practicable in the Districts' opinion. However, the ~~The~~ proposed approach is a multi-stage stock production model (Baker 2009) in which starting numbers of a particular life-stage (stock) are mathematically modeled to predict how the numbers change as the cohort goes through subsequent life stages. Individual life stage to life stage steps will be modeled using independent submodels, which can be implemented with methodologies ranging from common stock production forms (e.g., Beverton-Holt). This approach allows model structure to be initially developed without detailed consideration of the underlying mechanisms, but also allows the introduction of one or more mechanisms affecting life-stage to life-stage survival. A redd superimposition model may be used for the step from female spawners to deposited eggs if spawning gravel availability or actual redd superimposition observations suggest this is occurring. A linear model may be used to reflect density-independent mortality (e.g., the step from eggs to emergent fry, in which mortality is not affected by density). Lastly, the Beverton-Holt (1957) and "hockey stick" models (Barrowman and Myers 2000) are typically used for density-dependent[1] interactions (e.g., the life-step from fry to juvenile in circumstances when available habitat limits the population). More elaborate compartment or individual-based models may be introduced as sub-models to reflect variations in habitat conditions due to seasonal shifts in river flow, water temperature, predation, or other factors.

The modeled life-stage structure, the factors selected and default values for parameters and stock production forms will be determined from Tuolumne River data and previously conducted studies, literature values, and agency consultation. For example, a carrying capacity (K) is generally specified for all density-dependent stock production relationships. Information from

[1] Density-dependence in stock-production relationships occurs whenever food or space limitations cause the life-stage specific survival or growth to be related to the numbers of individuals present.

prior Tuolumne River Chinook salmon seine and snorkeling studies will be used to provide current estimates of rearing densities by habitat type (e.g., riffle, pool head, run, etc.) and literature review will be used to establish maximum densities. To determine carrying capacity, maximum densities within particular habitat types will be combined with up-to-date estimates of habitat availability developed from the ongoing *Tuolumne River Instream Flow Study*[2] as well as the following interrelated studies being conducted as part of relicensing:

- Spawning Gravel Study (Study Plan W&AR-4)
- Salmonid Redd Mapping Study (Study Plan W&AR-8)
- Chinook Salmon Fry Study (Study Plan W&AR-9)
- Predation Study (Study Plan W&AR-7)
- Temperature Criteria Assessment (Study Plan W&AR-14).

In order to parameterize the model, estimates of life-stage specific survival (r) will also be made from studies and long-term monitoring summarized as part of the *Salmonid Populations Information Integration and Synthesis Study* (Study Plan W&AR-5 as well as literature values. For example, prior studies of egg survival-to-emergence, predation, and outmigrant survival summarized in the Pre-Application Document provide life history parameter estimates specific to the Tuolumne River. Model parameterization will also be compared to literature values. It should be noted that although the model will not be calibrated to the existing escapement record, limited calibration and validation will be carried out by comparisons of modeling results of fry and/or smolt production with annual production estimates available from season-long RST sampling conducted since 1998 near Waterford (RM 30) and the Grayson River Ranch (RM 5) (e.g., TID/MID 2011).

Step 3 – Evaluation of Factors Affecting Chinook Salmon Production. To determine the life-stages and model parameters that most affect Chinook salmon production, a sensitivity analysis will be conducted of the parameters and values in the model. The sensitivity analysis will evaluate the equilibrium juvenile and smolt production using initial parameter values established in Step 2, followed by varying the initial parameter values by:

- Decreasing initial value by 50%
- Decreasing initial value by 25%
- Increasing initial value by 33%
- Increasing initial value by 100%

For each change in value, the model will be used to calculate the equilibrium population size, holding all other values constant. For sensitive parameters, additional scrutiny will be focused upon the source of data, and the potential for the Project to influence those parameters. It should be noted, however, that sensitivity analyses of this type cannot explore the potential interactions of multiple input values that are simultaneously increased or decreased.

[2] The Tuolumne River Instream Flow Study is currently being conducted in accordance with the May 12, 2010 FERC Order Modifying and Approving Instream Flow and Water Temperature Model Study Plans for the Don Pedro Project (Project No. 2299-072), as modified by Ordering Paragraph (A) of the July 21, 2010 FERC Order.

Step 4 – Evaluation of Relative Salmon Production under Current and Potential Future Project Operations. Scenarios representing current habitat conditions for ~~An evaluation of~~ Chinook salmon ~~production~~ under ~~the~~ current Project operations as well as up to three additional conditions will be developed in consultation with Relicensing Participants as part of Workshop No. 2 (See Section 6.0). For example, scenarios ~~FERC flow schedule will be developed to~~ representing the habitat conditions ~~magnitude and timing of Tuolumne River flows~~ under the current FERC flow schedule could be developed, as well as those under alternative flow and non-flow potential habitat enhancements~~s across representative water year types~~.

Step 5 – Prepare Report. The Districts will prepare a report that includes the following sections: (1) Study Goals, (2) Methods and Analysis, (3) Results, (4) Discussion, and (5) Conclusions. A Year 1 report will be prepared to document study progress and any outstanding issues in the model development and parameterization.

6.0. Consultation During Study Implementation

The study includes study-specific consultation in Steps 1 and 2 above. The Districts will invite interested Relicensing Participants to a collaborative workshop to review and discuss conceptual models and to determine –relevant factors to be included in the development of a numerical population model (Step 1). As part of the population model development (Step 2), an additional workshop will be held to review and discuss the selected modeling approach, to review model parameter selection, and to develop up to four scenarios for evaluation.

~~6~~7.0 Schedule

The Districts anticipate the schedule to complete the study proposal as follows assuming FERC issues its Study Plan Determination by December 31, 2011 and the study is not disputed by a mandatory conditioning agency:

- Conceptual Model Development (Step 1) .....January 2012 – September ~~March~~ 2012
- Workshop No. 1 – Conceptual Models..... September 2012
- Population Model Development (Step 2) ..... August ~~March~~ 2012 – ~~September~~ March 2012
- ~~Modeling~~ Workshop No. 2 – ~~(~~Modeling Approach~~Step 2)~~ ..... November ~~May~~ 2012
- ~~Year 1 Modeling Sensitivity and Evaluation (Steps 2, 3, and 4). June 2012 – September 2012~~
- Report Study Repor~~Preparation~~t .....~~September 2012 – December~~January ~~-~~2012~~3~~
- Sensitivity Analyses and Scenario Evaluation (Step 3 and 4).....January 2013 – June 2013
- Report Issuance .....December ~~January~~ 2013~~3~~

~~7~~8.0 Consistency of Methodology with Generally Accepted Scientific Practices

Population modeling is supported by a large body of literature spanning several decades (e.g., Paulik 1973, Moussalli and Hilborn 1986, Sharma et al. 2005). Population models are commonly employed in hydroelectric relicensing projects to predict relative changes in salmonids population levels in response to changing variables.

~~8~~9.0 Deliverables

In addition to the completed model, the Districts will prepare a report, which will document the methodology and results of the study.

~~9~~10.0 Level of Effort and Cost

Study Plan implementation cost will be provided in the Revised Study Plan.

1~~1~~0.0 References

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From: Staples, Rose
Sent: Wednesday, September 28, 2011 5:04 PM
To: Alves, Jim - City of Modesto; Anderson, Craig - USFWS; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Barnes, Peter - SWRCB; Beuttler, John - CSPA; Blake, Martin; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brenneman, Beth - BLM; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Brochini, Tony - NPS; Buckley, John - CSERC; Buckley, Mark; Burley, Silvia-CVMT; Burt, Charles - CalPoly; Cadagan, Jerry; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cismowski, Gail - SWRCB; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, Kevin - TBMI; Day, P - MF; Denean - BVR; Derwin, Maryann Moise; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Grader, Zeke; Gutierrez, Monica - NOAA-NMFS; Hackamack, Robert; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hayden, Ann; Hellam, Anita - HH; Heyne, Tim - CDFG; Holden, James ; Holm, Lisa; Horn, Jeff - BLM; Horn, Tini; Hudelson, Bill - StanislausFoodProducts; Hughes, Noah; Hughes, Robert - CDFG; Hume, Noah - Stillwater; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Kordella, Lesley - FERC; Lein, Joseph; Levin, Ellen - SFPUC; Lewis-Reggie-PRCI; Linkard, David - TRT /RH; Looker, Mark - LCC; Loy, Carin; Lwenya, Roselynn, BVR; Lyons, Bill - MR; Madden, Dan; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Martin, Ramon - USFWS; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - PRCI; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Paul, Duane - Cardno; Pavich, Steve-Cardno; Pinhey, Nick - City of Modesto; Pool, Richard; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Ridenour, Jim; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sander, Max - TNC; Sandkulla, Nicole - BAWSCA; Saunders, Jenan; Schutte, Allison - HB; Sears, William - SFPUC; Shipley, Robert; Shumway, Vern - SNF; Shutes, Chris - CSPA; Sill, Todd; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Steiner, Dan; Stone, Vicki -TBMI; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; Terpstra, Thomas; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Vasquez, Sandy ; Verkuil, Colette - TRT/MF; Vierra, Chris; Villalabos, Ruben; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler,

Douglas - RHH; Wilcox, Scott - Stillwater; Williamson, Harry (NPS); Willy, Alison - FWS; Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB

Subject: Don Pedro October RWG Meetings AGENDA - October 4, 5 and 12

Attachments: Don Pedro Oct 2011 RWG MTGS AGENDA 110928.pdf

Please find attached the AGENDA for the Don Pedro RWG meetings and/or conference calls on October 4, October 5, and October 12:

October 4

9 am – 4 pm Water-Aquatic RWG Meeting, MID Offices, Modesto

9 am Terrestrial FIELD Meeting, gathering at DPRA Visitor Center

October 5

9 am – 12:30 pm Recreation RWG CONFERENCE CALL

October 12

1:30 – 3:30 pm Cultural RWG CONFERENCE CALL

ROSE STAPLES
CPS CAP

HDR Engineering, Inc.
Executive Assistant, Hydropower Services

970 Baxter Boulevard, Suite 301 | Portland, ME 04103
207.239.3857 | f: 207.775.1742
rose.staples@hdrinc.com | hdrinc.com

Don Pedro Relicensing Resource Work Group Meetings AGENDA October 4, 5 and 12, 2011 Modesto CA

Tuesday, October 4 – Water & Aquatic Resource Work Group Meeting: 9:00 a.m. to 4:00 p.m. – MID Offices in Modesto. In Person or Via Phone (Call-In Number 866-994-6437, Conf Code 5424697994) with LIVE MEETING connection available (link will be sent just prior to meeting).

9:00 a.m. - 12:00 p.m.	Review and Discussion of Revisions to Districts' Proposed Study Plans (W&AR-1 through W&AR-15--all of these study plans have been reviewed at least once)
12:00 p.m. - 1:15 p.m.	Lunch (on your own)
1:15 p.m. - 3:00 p.m.	Continued Review and Discussion
3:00 p.m. - 3:15 p.m.	Break
3:15 p.m. - 4:30 p.m.	Continued Review and Discussion
4:30 p.m. - 5:00 p.m.	Next Steps

Tuesday, October 4 – Terrestrial Resource Work Group FIELD Meeting to evaluate the BLM's proposed wetland assessment methodologies and to discuss proposed study areas for the botanical studies. The Districts will be providing a boat. Please RSVP to carin.loy@hdrinc.com or rose.staples@hdrinc by September 30 to confirm attendance. Everyone participating will be meeting at 9:00 a.m. at the DPRA Visitor Center, 10200 Bonds Flat Road, La Grange. Please bring lunch, water, and sun protection.

Wednesday, October 5 - Recreation Resource Work Group CONFERENCE CALL 9:00 a.m. to 12:30 p.m. Call-In Number 866-994-6437, Conference Code 5424697994. Live Meeting will NOT be available.

9:00 a.m. - 10:30 a.m.	Review and Discussion of Revisions to Districts' Proposed Recreation Study Plans
10:30 a.m. - 10:45 a.m.	Break
10:45 a.m. - 11:30 a.m.	Continued Review and Discussion
11:30 a.m. - 12:30 p.m.	Next Steps

Wednesday, October 12 – Cultural Resource Work Group CONFERENCE CALL. 1:30 to 3:30 p.m. Call-in Number 866-994-6437, Conference Code 6164399). Live Meeting will NOT be available.

1:30 p.m. - 3:15 p.m.	Review and Discussion of Revisions to Districts' Proposed Cultural Resource Study Plans
3:15 p.m. - 3:30 p.m.	Next Steps

From: Staples, Rose
Sent: Sunday, October 02, 2011 8:05 PM
To: Alves, Jim - City of Modesto; Anderson, Craig - USFWS; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Barnes, Peter - SWRCB; Beuttler, John - CSPA; Blake, Martin; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brenneman, Beth - BLM; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Brochini, Tony - NPS; Buckley, John - CSERC; Buckley, Mark; Burley, Silvia-CVMT; Burt, Charles - CalPoly; Cadagan, Jerry; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cismowski, Gail - SWRCB; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, Kevin - TBMI; Day, P - MF; Denean - BVR; Derwin, Maryann Moise; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Grader, Zeke; Gutierrez, Monica - NOAA-NMFS; Hackamack, Robert; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hayden, Ann; Hellam, Anita - HH; Heyne, Tim - CDFG; Holden, James ; Holm, Lisa; Horn, Jeff - BLM; Horn, Tini; Hudelson, Bill - StanislausFoodProducts; Hughes, Noah; Hughes, Robert - CDFG; Hume, Noah - Stillwater; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Kordella, Lesley - FERC; Lein, Joseph; Levin, Ellen - SFPUC; Lewis-Reggie-PRCI; Linkard, David - TRT /RH; Looker, Mark - LCC; Loy, Carin; Lwenya, Roselynn, BVR; Lyons, Bill - MR; Madden, Dan; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Martin, Ramon - USFWS; Mathiesen, Lloyd - CRRMW; McDaniel, Dan - CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - PRCI; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Paul, Duane - Cardno; Pavich, Steve-Cardno; Pinhey, Nick - City of Modesto; Pool, Richard; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Ridenour, Jim; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sander, Max - TNC; Sandkulla, Nicole - BAWSCA; Saunders, Jenan; Schutte, Allison - HB; Sears, William - SFPUC; Shipley, Robert; Shumway, Vern - SNF; Shutes, Chris - CSPA; Sill, Todd; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Steiner, Dan; Stone, Vicki -TBMI; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; Terpstra, Thomas; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Vasquez, Sandy ; Verkuil, Colette - TRT/MF; Vierra, Chris; Villalabos, Ruben; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Wilcox, Scott - Stillwater; Williamson, Harry (NPS); Willy, Alison - FWS; Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Subject: Study Plan Revisions - Newsletter Issue 2 - Live Meeting

NEWEST STUDY PLAN REVISIONS

We are working on creating a new subdirectory--RWG STUDY PLAN DEVELOPMENT-OCT—and hope to be able to move the newest study plan revisions into this separate folder for your use at the October RWG Meeting/Conference calls. In the meantime, you will find the newest study plan revisions in with the older versions under DOCUMENTS/STUDIES/RWG STUDY PLAN DEVELOPMENT. To assist you in locating the correct version, I have created the table below, noting the "D-{date}" in the file name containing the newest version. If you are unsure about any of the plans, please do email or call me.

RELICENSING NEWSLETTER – ISSUE #2 – Published September 2011

Issue No. 2 of the Don Pedro Relicensing Newsletter has been published and a copy of the document is located in the INTRODUCTION/ANNOUNCEMENTS section of the website.

LIVE MEETING LINK FOR THE OCT 4 WATER-AQUATIC RWG MEETING will be sent Monday, October 3. If you haven't used LIVE MEETING before, be sure to install it before you try to connect in to the meeting.

Your LIVE MEETING connection for the October 4 W&AR RWG Meeting will be emailed to you on Monday. If you plan to use the LIVE MEETING connection (to see the documents being projected onto the meeting screen) and you haven't used it before, please note that at the bottom of your LIVE MEETING email coming tomorrow there are instructions and a link to setting up LIVE MEETING, which you should do at least an hour before you try to connect into the actual meeting.

Don Pedro Study Plans		For Oct RWG Mtg, Use as Reference the Website Version Ending in:
CR-1	Historic Properties	D-110929
CR-2	Native American Traditional Cultural Properties	D-110930
RR-1	Recreation Facility Condition, Public Accessibility, and Recreation Use Assessment	D-110930
RR-2	Whitewater Boating Take Out Improvement Feasibility	D-110930
RR-3	Lower Tuolumne Boatable Flow	D-110930
RR-4	Visual Quality	D-110930
TR-1	Special-Status Plants	D-110930
TR-2	ESA- & CESA-Listed Plants	D-110908
TR-3	Wetlands Habitats Associated with Don Pedro Reservoir	D-110930
TR-4	Noxious Weed Survey	D-110908
TR-5	ESA-Listed Wildlife - Valley Elderberry Longhorn Beetle	D-110908
TR-6	Special-Status Amphibians and Aquatic Reptiles	D-110908
TR-7	ESA-Listed Amphibians - California Red-Legged Frog	D-110908
TR-8	ESA-Listed Amphibians - California Tiger Salamander	D-110908
TR-9	Special-Status Wildlife - Bats	D-110908
W&AR-1	Water Quality Assessment	D-110725
W&AR-2	Project Operations/Water Balance Model	D-110930
W&AR-3	Reservoir Temperature Model	D-110927
W&AR-4	Spawning Gravel	D-110930
W&AR-5	Salmonid Populations Integration & Synthesis	D-110927

W&AR-6	Tuolumne River Chinook Salmon Population Model	D-110927
W&AR-7	Predation Study	D-110930
W&AR-8	Salmonid Redd Mapping	D-110930
W&AR-9	Chinook Salmon Fry	D-110930
W&AR-10	*Oncorhynchus mykiss* Population Study	D-110930
W&AR-11	Chinook Salmon Otolith	D-110930
W&AR-12	*Oncorhynchus mykiss* Habitat Survey	D-110725
W&AR-13	Fish Assemblage and Population Between Don Pedro Dam & La Grange Dam	D-110930
W&AR-14	Temperature Criteria Assessment (Chinook & *Oncorhynchus mykiss*)	D-110930
W&AR-15	Socioeconomics	D-111002

ROSE STAPLES
CPS CAP

HDR Engineering, Inc.
Executive Assistant, Hydropower Services

970 Baxter Boulevard, Suite 301 | Portland, ME 04103
207.239.3857 | f: 207.775.1742
rose.staples@hdrinc.com| hdrinc.com



Volume 1 | Issue 2

Don Pedro

MID Water and Power

TID WATER & POWER

A newsletter about the relicensing of the Don Pedro Project

Study Plan development taking place

Following a pair of scoping meetings and plenty of discussions with relicensing participants, the Modesto and Turlock irrigation districts filed a Proposed Study Plan (PSP) on July 25 as part of the effort to relicense the Don Pedro Project.

The PSP outlines 30 studies proposed by the districts resulting from 130 study requests, each of which were carefully considered.

The filing of the PSP is just one of many steps in the arduous but necessary process to renew the license of the Don Pedro Project. The current license expires in 2016.

INSIDE: Some data collection is taking place prior to the Final Study Plan. Take a look inside to learn more.

Also part of the relicensing process, the districts met with interested parties Aug. 23-24 in Modesto to discuss and review various aspects of the study plan.

In the coming months, the districts will work with relicensing participants to develop a Revised Study Plan to submit to FERC for approval in late fall of 2011. Once approved, likely in late December 2011, the stage will be set for studies to begin the next part of the relicensing process. Approved studies will be conducted during much of 2012 and 2013.

The districts look forward to continuing their work with federal and state resource agencies, Indian tribes, FERC staff, local governmental authorities, non-governmental organizations and members of the public in finalizing the study plan for the Project's relicensing.

The Relicensing Process

The relicensing of the Don Pedro Project formally began in 2011. Below are some of the major stages of the process.

1. Districts filed PAD and Notice of Intent in Feb. 2011.
2. FERC conducts scoping in Spring '11.
3. Interested parties discuss issues and develop study requests.
4. Districts file Proposed Study Plan (PSP) on 7/25/11 and undertake a series of meetings with relicensing participants to review and discuss the PSP.
5. FERC issues Study Plan Determination on 12/22/11.
6. Studies are conducted and Study Report issued for review and comment.
7. Applicant files draft and final license applications.
8. FERC issues new license with new terms and conditions in 2016.

For those interested in viewing the PSP, it is available online within the documents section located at www.donpedro-relicensing.com.

Throughout this process, the districts remain willing to meet with any group interested in the relicensing of the Don Pedro Project, and encourage active participation by anyone with an interest in the future allocation and distribution of the water of the Tuolumne River.

Important dates

Oct. 23
Participants file their comments on the districts' proposed studies

Nov. 22
Districts file Revised Study Plan with FERC and participants

Dec. 22
FERC issues Study Plan Determination



What's inside

- Scoping Meetings
- Scoping Document 2
- Proactive Studies
- Relicensing Website



Scoping meetings in Modesto (above) and Turlock attracted over a hundred people.

Scoping meetings conclude

Forums in Modesto, Turlock not lacking in public participation

More than 100 participants attended a pair of public scoping meetings hosted by the Federal Energy Regulatory Commission (FERC) on May 11 in Modesto and Turlock.

Both of the meetings were of the same format; a FERC presentation covering the relicensing process, followed by an informative presentation from TID and MID staff, culminating in a public comment period. In all, more than 80 members of the public voiced their views regarding the Don Pedro Project and its scope. Many others communicated their views to FERC in writing.

The purpose of the meetings, which were sponsored and facilitated by FERC, was to identify relevant issues of public interest involving the Don Pedro Project in relation to the National Environmental Policy Act.

The Modesto and Turlock irrigation districts are co-applicants to relicense the Don Pedro Project. The current license expires in 2016.

An integral part of the relicensing process, scoping meetings are designed for members of the public to have the opportunity to speak their concerns in a documented public forum. The scoping meetings were recorded by a stenographer and are part of the formal record of the FERC proceeding on the project.

Transcripts of the scoping meetings are available via the FERC eLibrary located online at **www.ferc.gov**.

Also at the meetings, FERC staff described the environmental review process, provided relevant information and answered procedural questions.

The information gathered at these scoping meetings proved helpful to the districts in the development of the Proposed Study Plan (PSP). Read this issue's cover story for more on the PSP.

Some river studies conducted proactively

While the process of developing final study plans is well underway, there's already plenty of data collection taking place around and within the Tuolumne River. Some of these efforts include:

- The collection of water temperature and dissolved oxygen data at the discharge from the Don Pedro Powerhouse.
- The districts have already established two meteorological stations in the vicinity of the project to obtain better data to support the development of a rigorous three-dimensional model of the temperatures in the Don Pedro Reservoir.
- Studies are being conducted in the lower Tuolumne River on the relationships between flow and habitat. A report is due to be completed early in 2012.



Studies involving water temperature and dissolved oxygen data at the discharge from the Don Pedro Powerhouse are being conducted. Here, the river is shown downstream of the powerhouse.

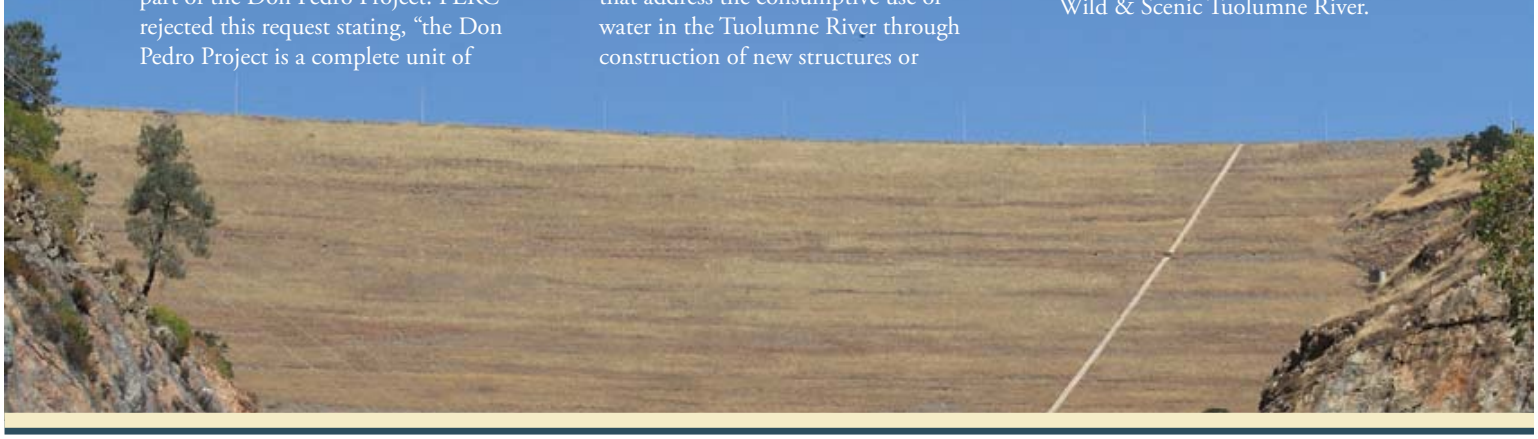
Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

Scoping Document 2 issued by FERC

Based on verbal comments received by the Federal Energy Regulatory Commission (FERC) at its May 11, 2011 scoping meetings held in Turlock and Modesto, in addition to written comments received during the scoping process, FERC issued Scoping Document 2 (SD2) on July 25, 2011.

SD2 highlighted decisions made by FERC about the scope of the Don Pedro Project Among them:

- Several parties had requested that FERC make the La Grange project part of the Don Pedro Project. FERC rejected this request stating, "the Don Pedro Project is a complete unit of development, separate and distinct from La Grange."
- Some groups had indicated to FERC that the City and County of San Francisco should be made co-licensee of Don Pedro along with MID and TID. FERC indicated that this decision was beyond the scope of the SD2 and was a legal matter to be addressed by the FERC at its Commission level.
- FERC also determined that alternatives to be considered under National Environmental Policy Act (NEPA) that address the consumptive use of water in the Tuolumne River through construction of new structures or methods designed to alter or reduce consumptive use of water are alternative mitigation strategies that could not replace the Don Pedro project", and as such "these recommended alternatives do not satisfy the NEPA purpose and need for the proposed action and are not reasonable alternatives for the NEPA analysis."
- FERC decided that the districts should evaluate the potential feasibility of alternative takeout facilities at the Wards Ferry Bridge to accommodate white water rafting on the upstream Wild & Scenic Tuolumne River.



Relicensing website packed with information

Whether interested parties simply desire a little background of the Don Pedro Project or want to download detailed transcripts and documents, the **www.donpedro-relicensing.com** website is loaded with useful information.

In addition to being regularly updated with meeting times, agendas, documents, filings and other information, the site also describes the relicensing process, provides useful links and offers contact information.

The website serves as one of the primary communication outlets informing stakeholders of events and meetings that are part of the relicensing process.



A screenshot of www.donpedro-relicensing.com

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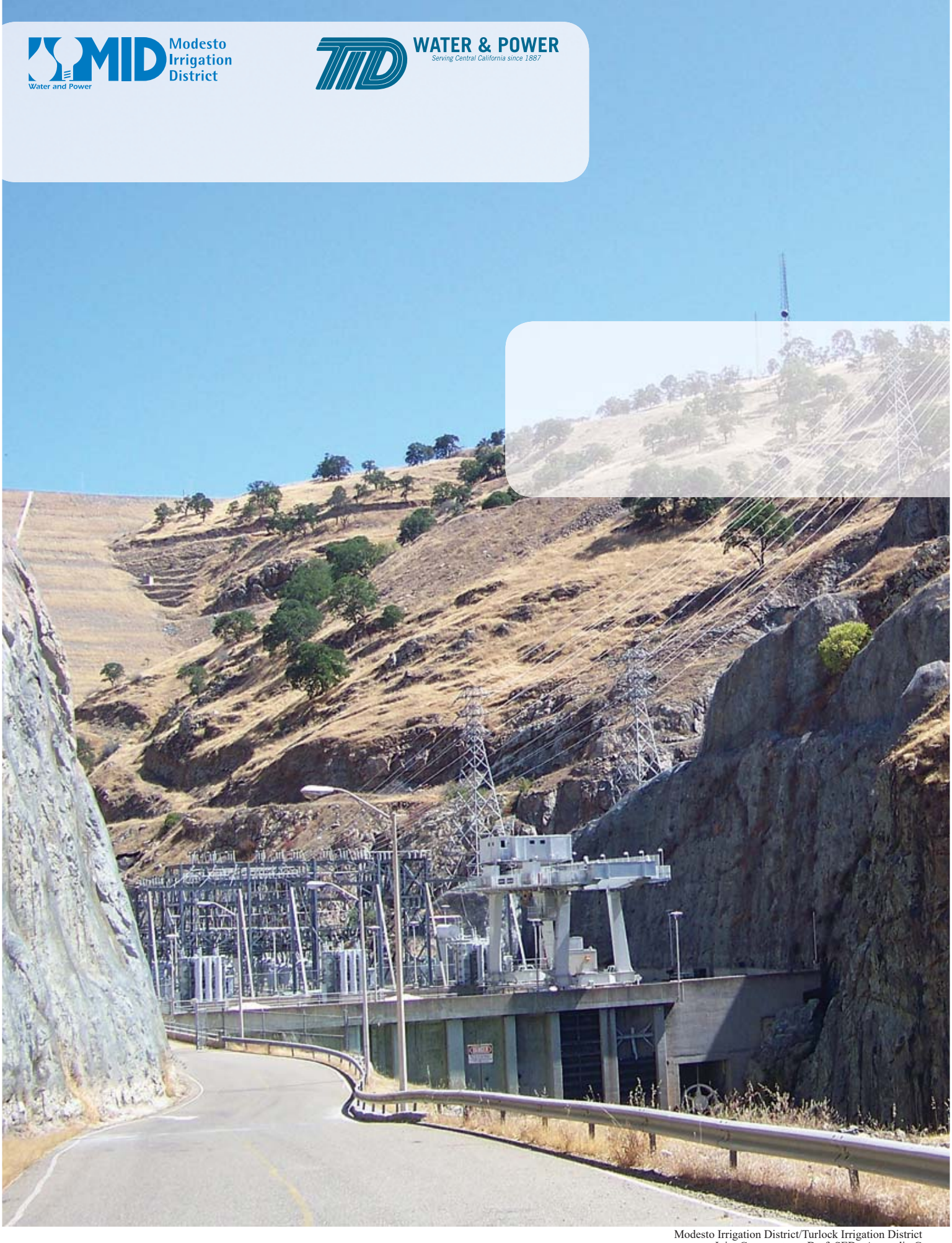

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

From: Staples, Rose
Sent: Monday, October 03, 2011 3:40 PM
To: Alves, Jim - City of Modesto; Anderson, Craig - USFWS; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Barnes, Peter - SWRCB; Beuttler, John - CSPA; Blake, Martin; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brenneman, Beth - BLM; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Brochini, Tony - NPS; Buckley, John - CSERC; Buckley, Mark; Burley, Silvia-CVMT; Burt, Charles - CalPoly; Cadagan, Jerry; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cismowski, Gail - SWRCB; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, Kevin - TBMI; Day, P - MF; Denean - BVR; Derwin, Maryann Moise; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Grader, Zeke; Gutierrez, Monica - NOAA-NMFS; Hackamack, Robert; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hayden, Ann; Hellam, Anita - HH; Heyne, Tim - CDFG; Holden, James ; Holm, Lisa; Horn, Jeff - BLM; Horn, Tini; Hudelson, Bill - StanislausFoodProducts; Hughes, Noah; Hughes, Robert - CDFG; Hume, Noah - Stillwater; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Kordella, Lesley - FERC; Lein, Joseph; Levin, Ellen - SFPUC; Lewis-Reggie-PRCI; Linkard, David - TRT /RH; Looker, Mark - LCC; Loy, Carin; Lwenya, Roselynn, BVR; Lyons, Bill - MR; Madden, Dan; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Martin, Ramon - USFWS; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - PRCI; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Paul, Duane - Cardno; Pavich, Steve-Cardno; Pinhey, Nick - City of Modesto; Pool, Richard; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Ridenour, Jim; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sander, Max - TNC; Sandkulla, Nicole - BAWSCA; Saunders, Jenan; Schutte, Allison - HB; Sears, William - SFPUC; Shipley, Robert; Shumway, Vern - SNF; Shutes, Chris - CSPA; Sill, Todd; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Steiner, Dan; Stone, Vicki - TBMI; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; Terpstra, Thomas; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Vasquez, Sandy ; Verkuil, Colette - TRT/MF; Vierra, Chris; Villalabos, Ruben; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler, Douglas - RHH; Wilcox, Scott - Stillwater; Williamson, Harry (NPS); Willy, Alison - FWS; Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Subject: W-AR RWG Meeting Oct 5 LIVE MEETING Link and a change to the Study Plan Revisions Table

WATER & AQUATIC RWG LIVE MEETING INFORMATION and LINKS:

Carin Loy has invited you to attend an online meeting using Microsoft Office Live Meeting.

https://www.livemeeting.com/cc/hdrinc/join?id=5689K9&role=attend&pw=j%5B%25D%7Ck%216b

Meeting time: Oct 4, 2011 9:00 a.m. (The line will be open from 8:30 AM (PDT) on, though the meeting itself will not start until 9:00 a.m.)

AUDIO INFORMATION
Use call-in number: 866-994-6437, Conference Code 5424697994

FIRST-TIME USERS
To save time before the meeting, check your system to make sure it is ready to use Microsoft Office Live Meeting. http://go.microsoft.com/fwlink/?LinkId=90703

TROUBLESHOOTING
Unable to join the meeting? Follow these steps:

1. Copy this address and paste it into your web browser:
   https://www.livemeeting.com/cc/hdrinc/join
2. Copy and paste the required information:
   Meeting ID: 5689K9
   Entry Code: j[%D|k!6b
   Location: https://www.livemeeting.com/cc/hdrinc

If you still cannot enter the meeting, contact support:
http://r.office.microsoft.com/r/rlidLiveMeeting?p1=12&p2=en_US&p3=LMInfo&p4=support

NOTICE
Microsoft Office Live Meeting can be used to record meetings. By participating in this meeting, you agree that your communications may be monitored or recorded at any time during the meeting.

MOST RECENT STUDY PLAN REVISIONS INFORMATION – A Correction

The following table reflects a correction to the date of the current version of W&AR-14. I rechecked the document history and this study plan has not undergone further revisions, so that the original version with the 07-25-2011 date, currently on the website, is the one to use at tomorrow's meeting.

Don Pedro Study Plans		For Oct RWG Mtg, Use as Reference the Website Version Ending in:
CR-1	Historic Properties	D-110929
CR-2	Native American Traditional Cultural Properties	D-110930
RR-1	Recreation Facility Condition, Public Accessibility, and Recreation Use Assessment	D-110930
RR-2	Whitewater Boating Take Out Improvement Feasibility	D-110930
RR-3	Lower Tuolumne Boatable Flow	D-110930
RR-4	Visual Quality	D-110930
TR-1	Special-Status Plants	D-110930
TR-2	ESA- & CESA-Listed Plants	D-110908

TR-3	Wetlands Habitats Associated with Don Pedro Reservoir	D-110930
TR-4	Noxious Weed Survey	D-110908
TR-5	ESA-Listed Wildlife - Valley Elderberry Longhorn Beetle	D-110908
TR-6	Special-Status Amphibians and Aquatic Reptiles	D-110908
TR-7	ESA-Listed Amphibians - California Red-Legged Frog	D-110908
TR-8	ESA-Listed Amphibians - California Tiger Salamander	D-110908
TR-9	Special-Status Wildlife – Bats	D-110908
W&AR-1	Water Quality Assessment	D-110725
W&AR-2	Project Operations/Water Balance Model	D-110930
W&AR-3	Reservoir Temperature Model	D-110927
W&AR-4	Spawning Gravel	D-110930
W&AR-5	Salmonid Populations Integration & Synthesis	D-110927
W&AR-6	Tuolumne River Chinook Salmon Population Model	D-110927
W&AR-7	Predation Study	D-110930
W&AR-8	Salmonid Redd Mapping	D-110930
W&AR-9	Chinook Salmon Fry	D-110930
W&AR-10	*Oncorhynchus mykiss* Population Study	D-110930
W&AR-11	Chinook Salmon Otolith	D-110930
W&AR-12	*Oncorhynchus mykiss* Habitat Survey	D-110725
W&AR-13	Fish Assemblage and Population Between Don Pedro Dam & La Grange Dam	D-110930
W&AR-14	Temperature Criteria Assessment (Chinook & *Oncorhynchus mykiss*)	D-110725
W&AR-15	Socioeconomics	D-111002

Thank you.

ROSE STAPLES
CPS CAP

HDR Engineering, Inc.
Executive Assistant, Hydropower Services

970 Baxter Boulevard, Suite 301 | Portland, ME 04103
207.239.3857 | f: 207.775.1742
rose.staples@hdrinc.com| hdrinc.com

From: Staples, Rose
Sent: Monday, October 03, 2011 4:52 PM
To: Alves, Jim - City of Modesto; Anderson, Craig - USFWS; Asay, Lynette - N-R; Aud, John - SCERD; Barnes, James - BLM; Barnes, Peter - SWRCB; Beuttler, John - CSPA; Blake, Martin; Bond, Jack - City of Modesto; Boucher, Allison - TRC; Boucher, Dave - Allison - TRC; Bowes, Stephen - NPS; Bowman, Art - CWRMP; Brenneman, Beth - BLM; Brewer, Doug - TetraTech; Brochini, Anthony - SSMN; Brochini, Tony - NPS; Buckley, John - CSERC; Buckley, Mark; Burley, Silvia-CVMT; Burt, Charles - CalPoly; Cadagan, Jerry; Carlin, Michael - SFPUC; Catlett, Kelly - FOR; Charles, Cindy - GWWF; Cismowski, Gail - SWRCB; Costa, Jan - Chicken Ranch; Cowan, Jeffrey; Cox, Stanley Rob - TBMWI; Cranston, Peggy - BLM; Cremeen, Rebecca - CSERC; Day, Kevin - TBMI; Day, P - MF; Denean - BVR; Derwin, Maryann Moise; Devine, John; Donaldson, Milford Wayne - OHP; Dowd, Maggie-SNF; Drekmeier, Peter - TRT; Edmondson, Steve - NOAA; Eicher, James - BLM; Fety, Lauren - BLM; Findley, Timothy - Hanson Bridgett; Freeman, Beau - CalPoly; Fuller, Reba - TMTC; Furman, Donn W - SFPUC; Ganteinbein, Julie - Water-Power Law Grp; Giglio, Deborah - USFWS; Goode, Ron - NFMT; Gorman, Elaine - YSC; Grader, Zeke; Gutierrez, Monica - NOAA-NMFS; Hackamack, Robert; Hastreiter, James L - FERC; Hatch, Jenny - CT; Hayat, Zahra - MF; Hayden, Ann; Hellam, Anita - HH; Heyne, Tim - CDFG; Holden, James ; Holm, Lisa; Horn, Jeff - BLM; Horn, Tini; Hudelson, Bill - StanislausFoodProducts; Hughes, Noah; Hughes, Robert - CDFG; Hume, Noah - Stillwater; Jackman, Jerry ; Jackson, Zac - USFWS; Jennings, William - CSPA; Jensen, Art - BAWSCA; Jensen, Laura - TNC; Johannis, Mary; Johnson, Brian - CalTrout; Justin; Keating, Janice; Kempton, Kathryn - NOAA-MNFS; Kinney, Teresa; Koepele, Patrick - TRT; Kordella, Lesley - FERC; Lein, Joseph; Levin, Ellen - SFPUC; Lewis-Reggie-PRCI; Linkard, David - TRT /RH; Looker, Mark - LCC; Loy, Carin; Lwenya, Roselynn, BVR; Lyons, Bill - MR; Madden, Dan; Manji, Annie; Marko, Paul ; Marshall, Mike - RHH; Martin, Michael - MFFC; Martin, Ramon - USFWS; Mathiesen, Lloyd - CRRMW; McDaniel, Dan -CDWA; McDevitt, Ray - BAWSCA; McDonnell, Marty - SMRT; McLain, Jeffrey - NOAA-NMFS; Means, Julie - CDFG; Mills, John - TUD; Morningstar Pope, Rhonda - BVR; Motola, Mary - PRCI; O'Brien, Jennifer - CDFG; Orvis, Tom - SCFB; Ott, Bob; Ott, Chris; Paul, Duane - Cardno; Pavich, Steve-Cardno; Pinhey, Nick - City of Modesto; Pool, Richard; Porter, Ruth - RHH; Powell, Melissa - CRRMW; Puccini, Stephen - CDFG; Raeder, Jessie - TRT; Ramirez, Tim - SFPUC; Rea, Maria - NOAA-NMFS; Reed, Rhonda - NOAA-NMFS; Richardson, Kevin - USACE; Ridenour, Jim; Robbins, Royal; Romano, David O - N-R; Roos-Collins, Richard - Water-Power Law Grp for NHI; Roseman, Jesse; Rothert, Steve - AR; Sander, Max - TNC; Sandkulla, Nicole - BAWSCA; Saunders, Jenan; Schutte, Allison - HB; Sears, William - SFPUC; Shipley, Robert; Shumway, Vern - SNF; Shutes, Chris - CSPA; Sill, Todd; Slay, Ronn - CNRF/AIC; Smith, Jim - MPM; Staples, Rose; Steindorf, Dave - AW; Steiner, Dan; Stone, Vicki -TBMI; Stork, Ron - FOR; Stratton, Susan - CA SHPO; Taylor, Mary Jane - CDFG; Terpstra, Thomas; TeVelde, George A ; Thompson, Larry - NOAA-MNFS; Vasquez, Sandy ; Verkuil, Colette - TRT/MF; Vierra, Chris; Villalabos, Ruben; Walters, Eric - MF; Wantuck, Rick - NOAA-NMFS; Welch, Steve - ARTA; Wesselman, Eric - TRT; Wheeler, Dan; Wheeler, Dave; Wheeler,

	Douglas - RHH; Wilcox, Scott - Stillwater; Williamson, Harry (NPS); Willy, Alison - FWS; Wilson, Bryan - MF; Winchell, Frank - FERC; Wood, Dave - FR; Wooster, John -NOAA; Workman, Michelle - USFWS; Yoshiyama, Ron; Zipser, Wayne - SCFB
Subject:	Don Pedro Water & Aquatic RWG Meeting tomorrow in Modesto
Attachments:	Don Pedro Oct 2011 RWG MTGS AGENDA 110928.pdf

I just wanted to confirm that the Water & Aquatic RWG meeting tomorrow is indeed an "in person" meeting at the MID Offices in Modesto. However, for those who are not able to attend, calling in to the meeting is an option (see call-in number/conference code information below) and there will also be a LIVE MEETING connection for those who want to follow along with the projection screen (Live Meeting link emailed earlier today). Thank you.

Tuesday, October 4 – Water & Aquatic Resource Work Group Meeting: 9:00 a.m. to 4:00 p.m. – MID Offices in Modesto. In Person or Via Phone (Call-In Number 866-994-6437, Conf Code 5424697994) with LIVE MEETING connection available (link will be sent just prior to meeting).

9:00 a.m. - 12:00 p.m.	Review and Discussion of Revisions to Districts' Proposed Study Plans (W&AR-1 through W&AR-15--all of these study plans have been reviewed at least once)
12:00 p.m. - 1:15 p.m.	Lunch (on your own)
1:15 p.m. - 3:00 p.m.	Continued Review and Discussion
3:00 p.m. - 3:15 p.m.	Break
3:15 p.m. - 4:30 p.m.	Continued Review and Discussion
4:30 p.m. - 5:00 p.m.	Next Steps

The Terrestrial RWG meeting will be an "In the Field Meeting", as noted in the AGENDA attached, and the Recreation RWG meeting on Wednesday morning will be a conference call. And, the Cultural RWG meeting on Wednesday, October 12 will also be a conference call. More details in the agenda attached.

ROSE STAPLES
CPS CAP

HDR Engineering, Inc.
Executive Assistant, Hydropower Services

970 Baxter Boulevard, Suite 301 | Portland, ME 04103
207.239.3857 | f: 207.775.1742
rose.staples@hdrinc.com| hdrinc.com

Don Pedro Relicensing Resource Work Group Meetings AGENDA October 4, 5 and 12, 2011 Modesto CA

Tuesday, October 4 – Water & Aquatic Resource Work Group Meeting: 9:00 a.m. to 4:00 p.m. – MID Offices in Modesto. In Person or Via Phone (Call-In Number 866-994-6437, Conf Code 5424697994) with LIVE MEETING connection available (link will be sent just prior to meeting).

9:00 a.m. - 12:00 p.m.	Review and Discussion of Revisions to Districts' Proposed Study Plans (W&AR-1 through W&AR-15--all of these study plans have been reviewed at least once)
12:00 p.m. - 1:15 p.m.	Lunch (on your own)
1:15 p.m. - 3:00 p.m.	Continued Review and Discussion
3:00 p.m. - 3:15 p.m.	Break
3:15 p.m. - 4:30 p.m.	Continued Review and Discussion
4:30 p.m. - 5:00 p.m.	Next Steps

Tuesday, October 4 – Terrestrial Resource Work Group FIELD Meeting to evaluate the BLM's proposed wetland assessment methodologies and to discuss proposed study areas for the botanical studies. The Districts will be providing a boat. Please RSVP to carin.loy@hdrinc.com or rose.staples@hdrinc by September 30 to confirm attendance. Everyone participating will be meeting at 9:00 a.m. at the DPRA Visitor Center, 10200 Bonds Flat Road, La Grange. Please bring lunch, water, and sun protection.

Wednesday, October 5 - Recreation Resource Work Group CONFERENCE CALL 9:00 a.m. to 12:30 p.m. Call-In Number 866-994-6437, Conference Code 5424697994. Live Meeting will NOT be available.

9:00 a.m. - 10:30 a.m.	Review and Discussion of Revisions to Districts' Proposed Recreation Study Plans
10:30 a.m. - 10:45 a.m.	Break
10:45 a.m. - 11:30 a.m.	Continued Review and Discussion
11:30 a.m. - 12:30 p.m.	Next Steps

Wednesday, October 12 – Cultural Resource Work Group CONFERENCE CALL. 1:30 to 3:30 p.m. Call-in Number 866-994-6437, Conference Code 6164399). Live Meeting will NOT be available.

1:30 p.m. - 3:15 p.m.	Review and Discussion of Revisions to Districts' Proposed Cultural Resource Study Plans
3:15 p.m. - 3:30 p.m.	Next Steps

From: Staples, Rose
Sent: Monday, October 10, 2011 1:32 PM
To: 'Alves, Jim - City of Modesto'; 'Anderson, Craig - USFWS'; 'Asay, Lynette - N-R'; 'Aud, John - SCERD'; 'Barnes, James - BLM'; 'Barnes, Peter - SWRCB'; 'Beuttler, John - CSPA'; 'Blake, Martin'; 'Bond, Jack - City of Modesto'; 'Boucher, Allison - TRC'; 'Boucher, Dave - Allison - TRC'; 'Bowes, Stephen - NPS'; 'Bowman, Art - CWRMP'; 'Brenneman, Beth - BLM'; 'Brewer, Doug - TetraTech'; 'Brochini, Anthony - SSMN'; 'Brochini, Tony - NPS'; 'Buckley, John - CSERC'; 'Buckley, Mark'; 'Burley, Silvia-CVMT'; 'Burt, Charles - CalPoly'; 'Cadagan, Jerry'; 'Carlin, Michael - SFPUC'; 'Catlett, Kelly - FOR'; 'Charles, Cindy - GWWF'; 'Cismowski, Gail - SWRCB'; 'Costa, Jan - Chicken Ranch'; 'Cowan, Jeffrey'; 'Cox, Stanley Rob - TBMWI'; 'Cranston, Peggy - BLM'; 'Cremeen, Rebecca - CSERC'; 'Day, Kevin - TBMI'; 'Day, P - MF'; 'Denean - BVR'; 'Derwin, Maryann Moise'; Devine, John; 'Donaldson, Milford Wayne - OHP'; 'Dowd, Maggie-SNF'; 'Drekmeier, Peter - TRT'; 'Edmondson, Steve - NOAA'; 'Eicher, James - BLM'; 'Fety, Lauren - BLM'; 'Findley, Timothy - Hanson Bridgett'; 'Freeman, Beau - CalPoly'; 'Fuller, Reba - TMTC'; 'Furman, Donn W - SFPUC'; 'Ganteinbein, Julie - Water-Power Law Grp'; 'Giglio, Deborah - USFWS'; 'Goode, Ron - NFMT'; 'Gorman, Elaine - YSC'; 'Grader, Zeke'; 'Gutierrez, Monica - NOAA-NMFS'; 'Hackamack, Robert'; 'Hastreiter, James L - FERC'; 'Hatch, Jenny - CT'; 'Hayat, Zahra - MF'; 'Hayden, Ann'; 'Hellam, Anita - HH'; 'Heyne, Tim - CDFG'; 'Holden, James '; 'Holm, Lisa'; 'Horn, Jeff - BLM'; 'Horn, Tini'; 'Hudelson, Bill - StanislausFoodProducts'; 'Hughes, Noah'; 'Hughes, Robert - CDFG'; 'Hume, Noah - Stillwater'; 'Jackman, Jerry '; 'Jackson, Zac - USFWS'; 'Jennings, William - CSPA'; 'Jensen, Art - BAWSCA'; 'Jensen, Laura - TNC'; 'Johannis, Mary'; 'Johnson, Brian - CalTrout'; 'Justin'; 'Keating, Janice'; 'Kempton, Kathryn - NOAA-MNFS'; 'Kinney, Teresa'; 'Koepele, Patrick - TRT'; 'Kordella, Lesley - FERC'; 'Lein, Joseph'; 'Levin, Ellen - SFPUC'; 'Lewis-Reggie-PRCI'; 'Linkard, David - TRT /RH'; 'Looker, Mark - LCC'; Loy, Carin; 'Lwenya, Roselynn, BVR'; 'Lyons, Bill - MR'; 'Madden, Dan'; 'Manji, Annie'; 'Marko, Paul '; 'Marshall, Mike - RHH'; 'Martin, Michael - MFFC'; 'Martin, Ramon - USFWS'; 'Mathiesen, Lloyd - CRRMW'; 'McDaniel, Dan - CDWA'; 'McDevitt, Ray - BAWSCA'; 'McDonnell, Marty - SMRT'; 'McLain, Jeffrey - NOAA-NMFS'; 'Means, Julie - CDFG'; 'Mills, John - TUD'; 'Morningstar Pope, Rhonda - BVR'; 'Motola, Mary - PRCI'; 'O'Brien, Jennifer - CDFG'; 'Orvis, Tom - SCFB'; 'Ott, Bob'; 'Ott, Chris'; 'Paul, Duane - Cardno'; 'Pavich, Steve-Cardno'; 'Pinhey, Nick - City of Modesto'; 'Pool, Richard'; 'Porter, Ruth - RHH'; 'Powell, Melissa - CRRMW'; 'Puccini, Stephen - CDFG'; 'Raeder, Jessie - TRT'; 'Ramirez, Tim - SFPUC'; 'Rea, Maria - NOAA-NMFS'; 'Reed, Rhonda - NOAA-NMFS'; 'Richardson, Kevin - USACE'; 'Ridenour, Jim'; 'Robbins, Royal'; 'Romano, David O - N-R'; 'Roos-Collins, Richard - Water-Power Law Grp for NHI'; 'Roseman, Jesse'; 'Rothert, Steve - AR'; 'Sander, Max - TNC'; 'Sandkulla, Nicole - BAWSCA'; 'Saunders, Jenan'; 'Schutte, Allison - HB'; 'Sears, William - SFPUC'; 'Shipley, Robert'; 'Shumway, Vern - SNF'; 'Shutes, Chris - CSPA'; 'Sill, Todd'; 'Slay, Ronn - CNRF/AIC'; 'Smith, Jim - MPM'; Staples, Rose; 'Steindorf, Dave - AW'; 'Steiner, Dan'; 'Stone, Vicki -TBMI'; 'Stork, Ron - FOR'; 'Stratton, Susan - CA SHPO'; 'Taylor, Mary Jane - CDFG'; 'Terpstra, Thomas'; 'TeVelde, George A '; 'Thompson, Larry - NOAA-MNFS'; 'Vasquez, Sandy '; 'Verkuil, Colette - TRT/MF'; 'Vierra, Chris'; 'Villalabos, Ruben'; 'Walters, Eric - MF';

'Wantuck, Rick - NOAA-NMFS'; 'Welch, Steve - ARTA'; 'Wesselman, Eric - TRT'; 'Wheeler, Dan'; 'Wheeler, Dave'; 'Wheeler, Douglas - RHH'; 'Wilcox, Scott - Stillwater'; 'Williamson, Harry (NPS)'; 'Willy, Alison - FWS'; 'Wilson, Bryan - MF'; 'Winchell, Frank - FERC'; 'Wood, Dave - FR'; 'Wooster, John -NOAA'; 'Workman, Michelle - USFWS'; 'Yoshiyama, Ron'; 'Zipser, Wayne - SCFB'

Subject: Mill Creek Model Reference

Please find below the reference to the Mill Creek model we have been referencing in the W&AR work group meetings related to study plan W&AR-6: Chinook Salmon Population Model

http://www.savetheredwoods.org/media/pdf_howard.pdf

ROSE STAPLES
CPS CAP

HDR Engineering, Inc.
Executive Assistant, Hydropower Services

970 Baxter Boulevard, Suite 301 | Portland, ME 04103
207.239.3857 | f: 207.775.1742
rose.staples@hdrinc.com| hdrinc.com

Mill Creek Fisheries Monitoring Program: Ten Year Report. Final Report to Save-the-Redwoods League

Christ Howard and Stillwater Sciences

Recommen ded Citation:

Stillwater Sciences. 2006. Mill Creek fisheries monitoring program: ten year report. Final report. Prepared by Stillwater Sciences, Arcata, California for Department of Fish and Game and Save the Redwoods League, San Francisco, California.

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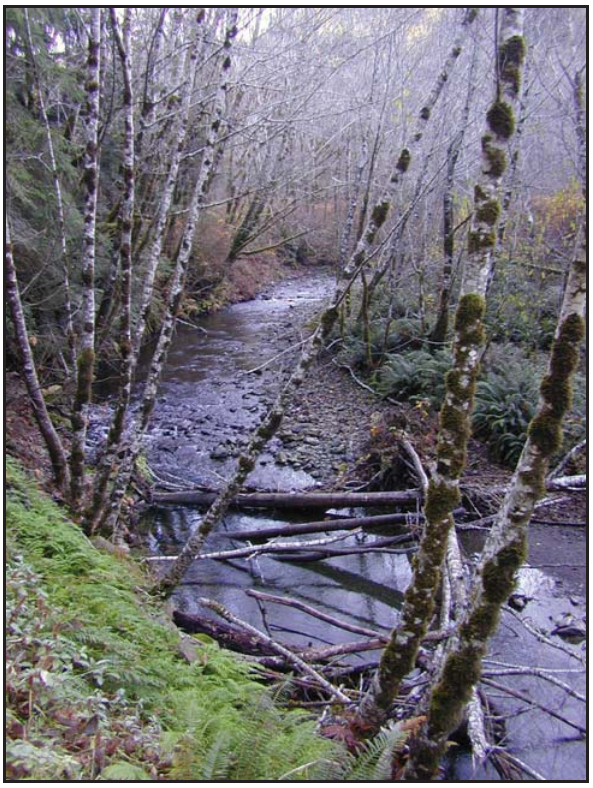

Mill Creek Fisheries Monitoring Program: Ten Year Report

Final Report

Prepared for
Department of Fish and Game
and
Save-the-Redwoods League

Prepared by
Stillwater Sciences
Arcata, California

March 2006

Stillwater Sciences

Acknowledgments

This report was funded by the Department of Fish and Game, Salmon and Steelhead Trout Restoration Account as part of the Monitoring Protocol Training project (grant agreement number P0310531), and by Save-the-Redwoods League.

Suggested citation:

Stillwater Sciences. 2006. Mill Creek fisheries monitoring program: ten year report. Final report. Prepared by Stillwater Sciences, Arcata, California for Department of Fish and Game and Save the Redwoods League, San Francisco, California.

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

Executive Summary

Introduction

Coho salmon (*Oncorhynchus kisutch*) in the Southern Oregon/Northern California Coasts (SONCC) Evolutionarily Significant Unit (ESU) were listed as federally threatened in 1997 (NMFS 1997), which was reaffirmed on June 28, 2005 (NMFS 2005). In 2002, the California Fish and Game Commission issued a finding that coho salmon warranted listing as a threatened species in the SONCC ESU and as an endangered species in the Central California Coast ESU, directing the California Department of Fish and Game to develop a recovery strategy (CDFG 2004). Chinook salmon in the Southern Oregon and northern coastal California ESU were not warranted for federal listing (NMFS 1999).

Mill Creek is a tributary to the Smith River, the only major undammed river in California, and supports anadromous populations of coho salmon, Chinook salmon, steelhead, and coastal cutthroat trout. Population modeling was used to evaluate limiting factors for coho and Chinook salmon and prioritize restoration actions in the East Fork and West Branch of Mill Creek, the two main tributaries that join to form the mainstem Mill Creek, using data from a long-term fisheries monitoring program.

The primary objectives of this report were to build and parameterize population models for coho and Chinook salmon, evaluate existing data in the context of this modeling effort, identify potential limiting factors, and prioritize restoration alternatives and future monitoring efforts. A secondary objective was to predict coho salmon adult returns through the construction and use of a state-space model.

Methods

The conceptual models provide a foundation for the quantitative models by describing how we think the population functions and what we think are the relative importance of different sources of mortality for the population dynamics of the species. Two quantitative population models were developed for the Study Area: one for coho salmon and one for fall Chinook salmon. The models were developed in spreadsheet form using Microsoft Excel 2003®. The models follow the stock-production approach to population modeling, which is supported by a large body of literature spanning several decades (e.g., Paulik 1973, Moussalli and Hilborn 1986). The utility of these models, like all models, is constrained by the quality of the data that is used to populate them, and in some cases models may be best used to identify additional information needs. Nonetheless, the models represent a compilation of all available data, in a rigorous and transparent framework.

All available data on coho salmon and Chinook salmon in the East Fork and West Branch of Mill Creek was compiled to construct quantitative models. The models were used to determine the factors affecting both populations. The intention of the models was not to predict the precise population size of any particular life-stage, but rather identify critical life stages, and prioritize restoration actions and future monitoring efforts.

The Study Area includes: (1) the mainstem Mill Creek downstream of West Branch and East Fork Mill Creek; and (2) West Branch Mill Creek and East Fork Mill Creek upstream to natural fish passage barriers. West Branch and East Fork Mill Creek sub-watersheds were intensively managed for commercial timber harvest until recent acquisition and incorporation into the California State Park system (Stillwater Sciences 2002).

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

Results

The coho salmon population model is sensitive (>10% change in spawner abundance) to overwinter carrying capacity, summer rearing habitat carrying capacity, late summer survival, and overwinter survival. Our conceptual model hypothesized that rearing habitat, particularly overwintering habitat, would limit the current population, which is supported by model results. Doubling overwintering habitat in both tributaries increased the adult population size by more than 15%. Increasing summer rearing habitat has less of an impact on the population given the current parameter values than increasing overwintering habitat (for the West Branch, a 24% increase in the adult population size when doubling the habitat, as compared to a 45% increase when doubling overwintering habitat).

Within the model, decreasing overwinter and late summer survival in the West Branch given current conditions has an impact on the coho salmon population (12% decrease in equilibrium population size), although the change is not dramatic if marine survival is high enough to produce enough returning adults to fully seed the overwintering habitat. Model runs with marine survivals more typical of pre-water year (WY)[1] 2000 conditions (assumed to be 0.006, based on OPI marine survival indices from Chilcote et al. 2006) indicated that a 50% decrease in any one of the density-independent survival rates would lead to extinction.

For Chinook salmon, the model is sensitive to spring rearing carrying capacity, and not other freshwater parameters. The Chinook salmon conceptual model hypothesized that spring rearing habitat would limit the current population, which is also supported by model results. Doubling spring rearing habitat in both tributaries increased the adult population size by more than 40%. These values provide the relative magnitude in population change with respect to potential habitat changes. Increasing spring rearing habitat in the West Branch has slightly more value (55% increase) to the total population than increasing spring rearing habitat in the East Fork (45% increase).

Models for both species were sensitive to smolt to adult survival rates. The survival from smolt to adult parameter was only included to allow the population model to estimate escapement and predict equilibrium conditions. However, the influence of this parameter indicates the importance of smolt-to-returning-adult survival in the coho salmon and Chinook salmon life-cycles. This could have important implications for the Mill Creek salmon population in years with poor ocean conditions and low marine survival rates.

Recommendations

We recommend a continuation of the existing sampling methodologies of outmigrant trapping and juvenile abundance snorkel surveys, to evaluate any changes in carrying capacity that result from future management actions. Juvenile abundance snorkel surveys in the East Fork are also recommended to better define coho salmon summer carrying capacity, a sensitive model parameter, and improve our understanding of population dynamics in the East Fork. In addition, we recommend winter juvenile abundance snorkel surveys before and after winter freshets to help better quantify overwintering carrying capacity, the most sensitive freshwater model parameter for coho salmon.

[1] Water year describes the 12 month period from 1 October to 30 September; the numeric designation is consistent with the calendar year in which it ends (i.e., WY 2005 is from 1 October 2004 to 30 September 2005).

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

Redd counts were useful in obtaining spawning escapement estimates, and future counts are recommended. Minimum escapement estimates involved a fair amount of subjectivity and are not adequate for population monitoring.

More accurate estimates of spawning escapement are needed for the state-space model to better predict adult returns. Weir counts could potentially be used to establish a relationship between the total numbers of spawners and redd counts to improve both past and future estimates for spawning escapement.

Population modeling identified overwintering habitat as the limiting factor for coho salmon populations, and we recommend that increasing overwintering habitat be the highest priority for any restoration activities. Large woody debris enhancements could potentially help increase overwintering habitat as well as summer rearing habitat.

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

TABLE OF CONTENTS

TABLE OF CONTENTS ..... **V**

1 INTRODUCTION **1**

1.1 Modeling Approach 1

1.2 Study Area 3

2 METHODS **4**

2.1 Conceptual Model 4

2.2 Quantitative Population Models 4
2.2.1 Model development 4
2.2.2 Model execution 9
2.2.3 Evaluation of factors affecting populations 9

2.3 State-Space Population Models 10

3 RESULTS **13**

3.1 Conceptual Models 13
3.1.1 Coho salmon 13
3.1.2 Chinook salmon 18

3.2 Population Models 20
3.2.1 Coho salmon carrying capacity 20
3.2.2 Coho salmon survival 20
3.2.3 Chinook salmon carrying capacity 21
3.2.4 Chinook salmon survival 21

3.3 Factors Affecting Population Dynamics of Coho Salmon 22
3.3.1 Adult escapement estimates (number of spawners) 22
3.3.2 Sensitivity analyses 22

3.4 Factors Affecting Population Dynamics of Chinook Salmon 23
3.3.3 Sensitivity analyses 24

3.4 State-space Model 25

4 RECOMMENDATIONS **26**

4.1 Juvenile/Smolt Monitoring 26

4.2 Spawning Surveys 26

4.3 Restoration Needs 27

5 LITERATURE CITED **28**

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

Tables

Table 2-1. Life stages modeled for coho salmon and fall Chinook salmon. 5
Table 2-2. Life-steps modeled for coho salmon and fall Chinook salmon. 5
Table 3-1. Potential late summer mortality due to stranding, West Branch of Mill Creek, 1999 to 2006. 21
Table 3-2. Results of sensitivity analyses for the coho salmon population model. 23
Table 3-3. Results of sensitivity analyses for the Chinook salmon population model..... 24
Table 3-4. State-space model input values for coho salmon spawning adults (based on finite normal mixture estimates using redd counts) and 1+ smolts (based on population estimates from outmigrant trapping) in the West Branch Mill Creek. 25

Figures

Figure 1. Mill Creek Study Area, Smith River Waterhsed, California.
Figure 2. Mill Creek Coho Salmon Population Model interface.
Figure 3. Mill Creek Chinook Salmon Population Model interface.
Figure 4. Mean size (fork length in mm) of 1+ coho salmon smolts vs. 0+ densities (fish/m2) from the preceding water year, West Branch Mill Creek, 0+ densities from WY 1994, 1996 to 2004 and mean smolt sizes from WY 1995, 1997 to 2005.
Figure 5. Estimated annual number of coho salmon 0+ juveniles (based on juvenile abundance snorkel surveys) vs. estimated number of emergent fry (assuming a constant survival to emergence of 0.5 and fecundity of 2,300 eggs/female), Mill Creek, WY 1995 to 2005.
Figure 6. Mean size (fork length in mm) of 1+ coho salmon smolts vs. number of emergent fry from the preceding water year, West Branch Mill Creek, 0+ densities from WY 1995 to 2004 and mean smolt sizes from WY 1996 to 2005.
Figure 7. Estimated annual number of coho salmon 1+ smolts (based on outmigrant trapping) vs. estimated number of emergent fry (assuming a constant survival to emergence of 0.1 and fecundity of 2,300 eggs/female), East Fork Mill Creek, WY 1995 to 2005.
Figure 8. Estimated numbers of 1+ coho salmon smolts versus 0+ juveniles from the preceding water year, West Branch Mill Creek, smolt estimates from WY 1996 to 2005, and 0+ juvenile estimates from WY 1995 to 2004.
Figure 9. Estimated numbers of 1+ coho salmon smolts versus peak winter flow (cfs) from the preceding water year, West Branch Mill Creek and East Fork Mill Creek, WY 1996 to 2005.
Figure 10. Estimated numbers of 1+ coho salmon smolts versus water year, East Fork Mill Creek.
Figure 11. Estimated number of Chinook salmon redds versus number of juvenile outmigrants trapped, East Fork and West Branch Mill Creek, WY 1995 to 2005.
Figure 12. Spawn timing and flow versus date. Primary y-axis values are probability densities based on smoothing techniques, Bowman and Azzalini (1997).
Figure 13. Estimated number of Chinook salmon 0+ smolts (>55 mm FL) based on outmigrant trapping versus estimated number of emergent fry (assuming a constant survival to emergence of 0.5 and fecundity of 3,900 eggs/female), West Branch Mill Creek, WY 1995 to 2005.
Figure 14. Estimated number of Chinook salmon 0+ smolts (>55 mm FL) based on outmigrant trapping versus estimated number of emergent fry (assuming a constant survival to emergence of 0.1 and fecundity of 3,900 eggs/female), East Fork Mill Creek, WY 1995 to 2005.
Figure 15. Estimated numbers of Chinook salmon 0+ smolts versus peak winter flow (cfs) from the same water year, West Branch Mill Creek and East Fork Mill Creek, WY 1995 to 2005.

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

Figure 16. Estimated numbers of juvenile Chinook salmon versus peak winter flow (cfs) from the same water year, West Branch Mill Creek and East Fork Mill Creek, WY 1995 to 2005.
Figure 17. Coho salmon smolt to adult ratios based on smolt estimates from WY 1994 to 2003 and on adult estimates from WY 1996 to 2005 (twice the estimated number of redds), Mill Creek (West Branch and East Fork combined). (Adult estimates from WY 2005 based on raw redd counts rather than estimates.)
Figure 18. Chinook salmon smolt to adult ratios based on smolt estimates from WY 1995 to 2002 and on 3-year old adult estimates from WY 1998 to 2005 (twice the estimated number of redds produced by 3-year olds), West Branch Mill Creek. (Adult estimates from WY 2005 based on raw redd counts rather than estimates.)
Figure 19. Filtered and predicted estimates of coho salmon 1+ smolts and spawners based on state-space modeling. Solid or long-dashed lines represent point estimates, and short-dashed lines represent 95% confidence intervals.

Appendices

Appendix A. Glossary of terms used for the coho and Chinook salmon population models.
Appendix B. Coho salmon population dynamics model parameters and values under current conditions in the Mill Creek Study Area.
Appendix C. Chinook salmon population dynamics model parameters and values under current conditions in the Mill Creek Study Area.
Appendix D. Model sensitivity analyses, coho salmon population model, Mill Creek.
Appendix E. Model sensitivity analysis, Chinook salmon population model, Mill Creek (based on current conditions).

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

1 INTRODUCTION

Pacific salmon (*Oncorhynchus* sp.) have undergone a notable decline in population numbers, with habitat degradation and loss being major causes (Nehlson et al. 1991). Coho salmon (*Oncorhynchus kisutch*) in the Southern Oregon/Northern California Coasts (SONCC) Evolutionarily Significant Unit (ESU) were listed as federally threatened in 1997 (NMFS 1997), which was reaffirmed on June 28, 2005 (NMFS 2005). This ESU includes all naturally spawned populations of coho salmon in coastal streams between Cape Blanco, Oregon and Punta Gorda, California as well as three artificial propagation programs. In 2002, the California Fish and Game Commission issued a finding that coho salmon warranted listing as a threatened species in the SONCC ESU and as an endangered species in the Central California Coast ESU, directing the California Department of Fish and Game to develop a recovery strategy (CDFG 2004). Chinook salmon in the Southern Oregon and northern coastal California ESU were not warranted for federal listing (NMFS 1999).

There is primary interest in evaluating factors that may limit these populations, particularly for listed coho salmon, and for prioritizing restoration actions. Population modeling is a tool that can be used to conduct both of these tasks. This report summarizes our efforts to examine population dynamics of coho salmon and fall Chinook salmon (*O. tshawytscha*) in the Mill Creek watershed by developing a multi-stage stock-production model.

Mill Creek is a tributary to the Smith River, the only major undammed river in California, and supports anadromous populations of coho salmon, Chinook salmon, steelhead, and coastal cutthroat trout. The Mill Creek watershed (60 km^2 [23 mi^2]) includes the two main tributaries, the East Fork Mill Creek (East Fork, 20.5 km^2, 7.9 mi^2) and the West Branch Mill Creek (West Branch, 19.6 km^2, 7.6 mi^2) that join to form the mainstem Mill Creek (Stillwater Sciences 2002). The focus of this report is on coho salmon primarily, and Chinook salmon secondarily, in the East Fork and West Branch of Mill Creek.

Although ocean conditions can be the dominating factor in terms of coho abundance, as it was in the 1970's and 1980's (Coronado and Hilborn 1998), freshwater habitat conditions are also critical to the viability of coho salmon populations. Freshwater habitat conditions can play a major role in the interannual variability in numbers of outmigrating smolts (Bradford 1995). During years when ocean survival is especially low, if freshwater habitat conditions are poor, smolt production may not be high enough to ensure continuation of the run. By using population modeling, we can look at the various factors affecting the coho salmon population in freshwater and the ocean, and how each factor affects the population as a whole.

The primary objectives of this report were to build and parameterize population models for coho and Chinook salmon, evaluate existing data in the context of this modeling effort, identify potential limiting factors, and prioritize restoration alternatives and future monitoring efforts. A secondary objective was to predict coho salmon adult returns through the construction and use of a state-space model.

1.1 Modeling Approach

Our population models are essentially quantified conceptual models, organized around the principle of identifying and separating density-dependent and density-independent factors

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

affecting the population. The level of detail of these models should not overrun the real scientific understanding of coho and Chinook salmon ecology. Several life stages were used to represent the life-cycles of fall Chinook and coho salmon, typically using two parameters per life stage. The detail and complexity of biological and biological-physical interactions were reflected in the development of suitable values for model parameters, rather than calculated within the model itself. These parameters were assigned values based on the existing dataset from Mill Creek and existing scientific literature where appropriate.

Initially, conceptual models were developed to provide a narrative description of the potential density-dependent and density-independent factors affecting each life stage of coho and Chinook salmon. Linkages were explored between changing habitat conditions and the population response for specific life stages, first in conceptual models, and then followed by quantitative assessment using multi-stage stock-production population models.

The stock-production approach is based on a large body of literature going back several decades (e.g., Paulik 1973). The model itself is a relatively simple and transparent spreadsheet (i.e., not a black box). The models will be made available to CDFG and Save-the-Redwoods League.

The model development process was intended to help determine which of the many gaps in our present understanding most impair our efforts to protect or enhance the population. Not all potential mechanisms need to be understood to the same level of detail, and not all system parameters need to be known to the same degree of accuracy. For all parameters, the model will be run for a range of values to determine the sensitivity of the model to these inputs. Based on the quality of available information, modeling some components of the population (e.g., coho pre-smolts and smolts in the West Branch) may be based on a full time series of data, whereas other areas (e.g., coho pre-smolts in the East Fork Mill Creek) may be based on more limited data.

Classically, a stock-production relationship is used to describe a complete life-cycle (e.g., to express the adult population of one generation as a function of the adult population of the previous generation). However, the idea can also be applied to specific life stages. We can identify a sequence of landmarks in the life-history, and step from each to the next with a stock-production relationship (Paulik 1973). Construction and examination of a multi-stage stock-production model for a population is essentially a limiting factors analysis, in which the interactions between potentially limiting factors are taken into account and examined.

The value of decomposing the overall stock-production relationship into a sequence of stage-to-stage relationships is that we may be able to relate the parameters of these individual relationships fairly directly to the biology of the animal modeled. In particular, we can attempt to break up the life-cycle in such a way that the r and K parameters of the individual stock-production relationships correspond to a partition of the factors affecting the population into density-independent and density-dependent terms, respectively, having fairly clear biological interpretations. For example, factors such as fecundity, or the dependence of egg survival on the quality of spawning gravels, are (at least to a first approximation) independent of population densities. Such factors will contribute to r terms. Factors such as abundance of overwintering habitat will contribute to K terms.

We attempted to use state-space modeling to further describe the coho salmon population in Mill Creek. State-space modeling is a tool which incorporates both population dynamics processes (the state process) and data collected from samples of the population (the observation process) (Buckland et al. 2004). This approach allows for incorporation of stochastic variation, as well as

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

the incorporation of functions which relate population parameters to environmental variables. We used state-space models to predict adult escapement and to improve estimates of escapement using the complete time series of data collected in Mill Creek.

1.2 Study Area

The Study Area includes: (1) the mainstem Mill Creek downstream of West Branch and East Fork Mill Creek; and (2) West Branch Mill Creek and East Fork Mill Creek upstream to natural fish passage barriers (Figure 1). West Branch and East Fork Mill Creek sub-watersheds were intensively managed for commercial timber harvest until recent acquisition and incorporation into the California State Park system (Stillwater Sciences 2002).

In addition to coho salmon and fall Chinook salmon, chum salmon (*O. keta*), steelhead (*O. mykiss irideus*), coastal cutthroat trout (*O. clarki clarki)*, western brook lamprey (*Lampetra richardsoni*), Pacific lamprey (*Lampetra tridentata*), coastrange sculpin (*Cottus aleuticus*), prickly sculpin (*Cottus asper*), threespine stickleback (*Gasterosteus aculeatus*), and Klamath smallscale sucker (*Catostomus rimiculus*) (Albro and Gray 2002) are known to occur in the Study Area.

2 METHODS

2.1 Conceptual Model

The conceptual models provide a foundation for the quantitative models by describing how we think the population functions and what we think are the relative importance of different sources of mortality for the population dynamics of the species. The first step in developing the conceptual models was to summarize available information on coho and Chinook salmon life histories by life stage, focusing on information from the Study Area. In particular, information on life stage-specific habitat use, growth, and density-independent factors (e.g., fecundity, sex ratio, gravel quality) and density-dependent factors (e.g., age 0+ carrying capacity, age 1+ carrying capacity) that may limit the survival of each life stage, was also obtained and reviewed. We developed a conceptual model based on a review of the available information, and local knowledge of the geomorphic, hydrologic, and biological characteristics of the Study Area.

2.2 Quantitative Population Models

Quantitative population models were developed for coho salmon and fall Chinook salmon in the Study Area in spreadsheet form using Microsoft Excel 2003®. The models are meant to provide a framework for investigating the relative influence of survival at each life stage on the salmon's population dynamics. The utility of these models, like all models, is constrained by the quality of the data that is used within them, and in some cases models may be best used to identify additional information needs.

The models follow the stock-production approach to population modeling, supported by a large body of literature spanning several decades (e.g., Paulik 1973, Moussalli and Hilborn 1986, Sharma et al. 2005). Stock-production modeling is based on the idea of treating the number of individuals (P) in a cohort at a particular developmental stage, as a function of the number of individuals (S) in that cohort at an earlier developmental stage, in the function:

$$P = f(S)$$

Such a function f is called a stock-production relationship. This approach is useful because the important properties of f can often be deduced from general biological considerations. In particular, the function can often be expressed in terms of parameters *r* and *K*, where *r* represents the effect of births and/or deaths independent of density considerations, and *K* is an upper limit on the population size. Terms used to describe population models are defined in Appendix A.

2.2.1 Model development

The quantitative models were developed using the stock-production framework. Life stages were selected based on the conceptual model and the nature of available data. Once the life stage structure was determined, the basic model structure was assembled in an Excel spreadsheet. A Visual Basic interface was provided for data entry and parameter changes, and it allowed graphical representation of individual stock-production relationships. The basic life stage structure, the factors selected as parameters, and default values for parameters and stock-production forms were determined from local information and literature values.

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

2.2.1.1 Model input parameters

Model input parameters were selected by: (1) defining life stages most appropriate for modeling, (2) acquiring data, (3) selecting appropriate stock-production models, and (4) selecting values for *r* and *K*.

Life stages

Life stages for modeling were selected based on the biology of the modeled species (Table 2-1). The models were run based on intervals of time between a stock life stage, and the resulting production into the next life stage, defined here as a life-step (e.g., 0+ juvenile to 1+ smolt) (Table 2-2). The life stages of the model correspond to the beginning of these intervals of development. For coho salmon and Chinook salmon, the model was run to estimate production of adults.

Table 2-1. Life stages modeled for coho salmon and fall Chinook salmon.

Life stage	Size (fork length [FL])	
	mm	in
Coho salmon		
Eggs	NA	NA
Emergent fry	~30	~1.2
Early summer 0+	35–55	1–1.8
Late summer 0+	> 55 with no signs of smolting	> 2.2
Spring 1+ smolts	> 55 with signs of smolting	> 2.2
Adult	> 400	> 15.8
Female spawner	> 400	> 15.8
Fall Chinook salmon		
Eggs	NA	NA
Emergent fry	~35	~1.4
Fry	35–55	1.4–2.2
Juvenile	> 55 with no signs of smolting	> 2.2
Smolt	> 55 with signs of smolting	> 2.2
Adult	> 400	>15.8
Female spawner	> 400	>15.8

Table 2-2. Life-steps modeled for coho salmon and fall Chinook salmon.

Life step	Approximate dates	Approximate time interval
Coho salmon		
Emergent fry to early summer 0+	Mid-March through April	< 1 day
Early summer 0+ to late summer 0+	Mid-March to October	7 months
Late summer 0+ to 1+ smolt	October to May	7 months
1+ smolt to returning adults	All year	1.5 years
Adult to female spawner	December to January	1 month
Female spawner to deposited eggs	December through January	1 month
Deposited eggs to emergent fry	December through April	2 months

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

Life step	Approximate dates	Approximate time interval
Fall Chinook salmon[1]		
Emergent fry to 0+ smolts	March to June	4 months
0+ smolt to returning adults	All year	2.5 years
Adult to female spawner	November to January	1 month
Female spawner to deposited eggs	November through January	1 month
Deposited eggs to emergent fry	November through April	2 months

[1]Age of returning adults based on majority of fish returning as 3-year olds (Waldvogel 2005).

Input data

Three basic types of data were needed to estimate life stage-specific survival: (1) carrying capacity of habitat for each life stage, (2) density-independent mortality prior to attaining carrying capacity, and (3) density-independent mortality occurring after attaining carrying capacity. Analyses based on local data were used to determine many of the input values (see Section 3 for estimates and rationale). The local data used in the analyses presented in this report were provided by Chris Howard (Mill Creek Fisheries Monitoring Program). Any differences in data values from past released reports are due to improvements and corrections made to the existing dataset by Chris Howard. All selected values and their sources are documented in Appendices B and C.

In this modeling approach, habitat area and fish density inputs are used to explicitly represent carrying capacity (*K*). In addition, mortality is explicitly represented by input values dependent on the rate of increase of the population (*r*). Factors such as food supply, growth rates, and competition are implicitly included based on available data used to adjust the mortality values. For example, if food availability was low, lower survival may result, and be reflected in the *r* value (see "*r* and K values" subsection for more detail).

Stock-production models

Four stock-production models were selected to "step" between selected life stages in the population dynamics models. The Beverton-Holt (1957) and "hockey stick" models (Barrowman and Myers 2000) were typically used for density-dependent interactions (e.g., the life-step from emergent fry to 0+ juvenile when habitat limits the population). The linear model was used to reflect density-independent mortality (e.g., the step from eggs to emergent fry, in which mortality is not affected by density). The redd superimposition model was also used for the step from female spawners to deposited eggs. Each of these models is described below.

The Beverton-Holt model allows production to increase toward a limiting carrying capacity (*K*) for the production (*P*) of the stock (*S*). The Beverton-Holt model was used both in its original form, and in another form of the model (Beverton-Holt 2) when production approached carrying capacity at a faster rate than assumed under the original form of the model. The equations for the Beverton-Holt models are:

Beverton-Holt: $P = r \cdot K \cdot S / (K + r \cdot S)$

Beverton-Holt 2: $P = r \cdot K \cdot S / \left(K^2 + (r \cdot S)^2\right)$,

where for all equations:

P = production,

r = density-independent effects,
K = carrying capacity,
S = stock value

The "hockey stick" model was typically used as an alternative to Beverton-Holt 2; it allows production to approach carrying capacity more rapidly than the Beverton-Holt 2 model. The hockey stick model is a piecewise linear relationship with a slope defined by *r* prior to reaching carrying capacity, reflective of complete density-independence (Barrowman and Myers 2000). Once reaching *K*, however, the slope is zero, reflecting complete density-dependence. This model was used to more clearly identify limiting factors. The equation for the hockey stick model is:

$$P = \min(r \cdot S, K),$$

where "min" takes the minimum of the values in parentheses.

The linear model was used to represent relationships with no obviously relevant density-dependence (such as for deposited eggs to emergent fry), and to reflect density-independent mortality for fish during migration (since habitat is not limiting during migration). The equation for the linear model is:

$$P = r \cdot S.$$

The redd superimposition model was used in the population dynamics model to represent the relationship between spawners and deposited eggs. The step from female bull trout spawners to viable eggs in the model has *r* and *K* values based on the fecundity and total available gravel area divided by average redd size. The equation for the superimposition model is:

$$P = K \cdot \left(1 - e^{-rS/K}\right)$$

Although the user can select any of the four models for any of the life-steps, model selection should consider density-dependence or density-independence. Although density-dependent relationships are assumed to govern the transition from stock to production for many life-steps, the rate at which carrying capacity is reached was not modeled. The hockey stick model gives the simplest and most abrupt change from density-independence to density-dependence, and so has the least complex interpretation of all the models. Given the lack of evidence to the contrary, and due to its ease of interpretation, the hockey stick model was used for analysis. Use of the Beverton-Holt 2 model yields a similar result, but with a more gradual approach to carrying capacity.

r and *K* values

The "*r*" value is the effect of births and/or deaths independent of density considerations, resulting from factors such as fecundity, temperature-related mortality, or dependence of egg survival on spawning gravel quality. Depending on the life stage of interest and the stock-production model selected, the input parameter *r* represents the fraction of adults spawning, fecundity, or a density-independent survival rate.

The *r* values were typically based on estimates of survival from the literature and/or results from the past 10 years of data for Mill Creek. For some of the life-steps, the *r* values were based on the literature, since survival is difficult to estimate without individually tagged animals, and life

stages younger than juveniles are typically difficult to tag. If the abundance of a particular life stage (say, juveniles) is well below the carrying capacity in a given system, then an estimate of survival under these conditions could be used to represent density-independent survival. For coho salmon, late summer, overwinter, and marine density-independent survival rates were all estimated, based on dive survey, outmigrant trapping, and redd count data.

Coho overwinter survival rates (from late summer 0+ to spring 1+ smolts) for both the West Branch and East Fork were based on estimates of 0+ from late summer snorkel surveys and estimates of 1+ from spring outmigrant trapping during years when 1+ habitat could not be fully seeded due to low densities of 0+ (i.e., 1995, 1996, 1998, and 2001). It is reasonable under these circumstances to assume that survival rates based on these data are primarily related to density-independent mechanisms.

For the West Branch, late summer survival for coho salmon was estimated based on the number of 0+ juveniles estimated in reaches that were becoming dry at the time of the survey. The estimate of late summer survival was calculated as the proportion of the estimated number of juveniles in these potential "dry" reaches to the estimated total number.

Coho outmigration and marine survival was estimated as the proportion of 1+ smolts returning to Mill Creek as adults approximately 1.5 years later. Chinook outmigration and marine survival was estimated as the proportion of 0+ smolts returning to Mill Creek as 3-year old adults, for the purposes of simplifying interpretation of modeling results. Estimates of smolts based on trapping and estimated adults based on redd counts were used. For Chinook, data on annual proportions of 3-year old returns based on Waldvogel (2005) were used in combination with redd count data to estimate the number of 3-year old fish in each spawning year from 1996 to 2004.

The "*K*" value represents the carrying capacity or population size limit for the life stage of interest. The *K* values were typically based on maximum abundance levels using data from the summer juvenile abundance snorkel surveys or outmigrant trapping.

Coho salmon carrying capacity for 0+ early summer juveniles and 1+ smolts was estimated based on the estimates of 0+ from juvenile abundance snorkel surveys and the estimates of 1+ from outmigrant trapping. We based our estimate of early summer 0+ juvenile carrying capacity on estimated abundance from the snorkel surveys. Although snorkel surveys were conducted from July through October, we assumed that density-independent mortality from early summer 0+ to late summer 0+ occurred after this timeframe. Carrying capacity for 1+ smolts was based on higher estimates of 1+ smolt abundance based on outmigrant trapping.

Carrying capacity for Chinook salmon smolts (>55 mm FL) was estimated based on outmigrant trapping data. No efficiency data were collected for Chinook salmon during the study period, so numbers trapped were used, and a relatively high trap efficiency was assumed. Carrying capacity was determined through graphical inspection of the number of smolts versus the estimated number of emergent fry.

We used the fraction of 0+ fish >55 mm FL to help establish the carrying capacity for 0+ smolts in the population model. Data on individual fish size from water year (WY) 1994, 1997, and 2002 to 2005 were used to estimate time-specific (i.e., for March/April, May, and June/July time periods) fractions of the population that were >55 mm FL. These fractions were then applied to the trap totals from the corresponding time periods to obtain an estimate of the number of 0+ smolts in each time period. Assuming trap efficiencies are high for these smaller fish (as compared to 1+ coho smolts, where trapping efficiencies typically ranged from 25 to 50%), this

calculation can be used as a conservative estimate of 0+ outmigrants. It is likely that the estimates of the number of 0+ smolts are slight underestimates, as trapping efficiency is less than 100%.

In addition, we also applied the average location and time-specific proportions of fish >55 mm FL (over WY 1994, 1997, 2002 to 2005) to all other years of trapping data where possible. This process extended the time series of smolt estimates so as to improve the ability to estimate carrying capacity.

Stock values

The population dynamics models require a stock "starting point" for the life stage considered to be the first step; the population of that life stage must be known or estimated. For coho salmon, the stock of adults was the starting point population estimate. Based on a recent estimate of the number of redds (assuming the number of adults was equivalent to twice the number of redds), 1,522 adults were used as the initial coho salmon population size and 2,048 adults as the initial Chinook population size, as the starting point for model runs. The initial stock size that was entered into the model only reflects the starting point, and does not typically affect the results when the model is run to equilibrium. However, initial stock size may affect the running of the model through a single production cycle, especially if the starting number of adults cannot produce enough eggs to reach the carrying capacity for deposited eggs.

Spawning escapement was estimated using the time series for redd counts, to estimate the number of coho and Chinook salmon spawners. The objective of this analysis was to apportion the number of "unknown" redds, which was substantial in some years, between Chinook and coho salmon, and steelhead. The apportionment is based on the assumption that the distribution of redd construction dates for each year and each species is Gaussian, and that the detection probability for redds was high.

Finite normal mixture methods (McLachlan and Peel 2000) were used to separate the distribution of the redd creation dates for unknown species into Chinook and coho salmon based on all data that could lead to identity of the species most likely to create the redd. A finite normal mixture model with partial classification was fit to the spawner data. Routines were created in S-Plus which use an expectation maximization (EM) algorithm to obtain maximum likelihood estimates for the model parameters (McLachlan and Krishnan 1997).

2.2.2 Model execution

To run the coho salmon or Chinook salmon population dynamics model, required input values are entered at the end of each row of the spreadsheet (by clicking on the grey button). The user enters appropriate values for parameters such as habitat area and density-independent survival, or accepts the given default values. The initial number of adults is entered directly into the spreadsheet (yellow cells). After entering all of the required input values, the model "steps through" the calculations from "stock" to "production" for each life-step (Figures 2, 3). The models can be run for one generation or to equilibrium.

2.2.3 Evaluation of factors affecting populations

The models were used to evaluate the factors affecting populations of both species. Current habitat conditions were considered, as were habitat enhancements, or management options to increase production of coho salmon or Chinook salmon smolts. Key factors were assumed to be those that influenced the equilibrium adult population size or annual production of smolts.

To determine the life stages and parameters that most affect the equilibrium population, a sensitivity analysis was conducted of the parameters and values in the model. The sensitivity analysis was performed by building a spreadsheet macro that calculated the equilibrium population size of adults with the initial parameter values (Appendices B and C), and then by varying the parameter values as follows:

- Decreasing initial value by 50%,
- Decreasing initial value by 25%,
- Increasing initial value by 33%, and
- Increasing initial value by 100%.

For each change in value, the model calculated the equilibrium population size, holding all other values constant. If altering the value for a parameter resulted in a change to the population size, it was considered a sensitive parameter. However, sensitivity analysis does not explore the potential interactions of multiple input values that are simultaneously increased or decreased. Only changes in values greater than 10% were considered sensitive. For sensitive parameters, additional scrutiny was focused on the source of data, and the potential for management to influence those parameters.

2.3 State-Space Population Models

State-space modeling was used to predict adult escapement for WY 2006, and to improve estimates of adult spawners in other water years. State-space models present a framework which can use multiple sources of data (e.g., spawning escapement, smolt outmigration estimates, and 0+ juvenile estimates) to account for error in adult estimates and to reflect interannual relationships in the true abundance levels over time (Newman and Hankin 2004).

State-space models can take advantage of time series data by alternating between a filtering and predicting step for each time interval (e.g., one year), in which all elements of the state process (true numbers of each modeled life stage) can be estimated based on the observation process (this year's data and observations from all previous years of data) and the underlying state model.

Statistical models for the evolution of the state of the system and the process of observation can be expressed in terms of density functions:

$p(y_t \mid x_t)$ (observation)

$p(x_{t+1} \mid x_t, y^{(t)})$ (evolution of state),

where $y^{(t)} = (y_1, ..., y_t)$.

Four life stages were used in our state-space model: spawners, smolts, pre-smolts, and age 2 adults. The underlying assumption of the state process is that the basic structure of the multi-stage stock-production model (hereafter referred to as the "state model") governs the state process. The model was implemented in S-Plus version 6.2 (Copyright © 1988, 2003 Insightful Corp.).

Stochasticity was incorporated into the multi-stage stock-production parameters, winter carrying capacity for the pre-smolt to smolt step. Winter carrying capacity was modeled as a function of peak winter flow based on a relationship that was observed from the data. A linear model was fit to log-transformed annual smolt abundance estimates and peak winter flows, with resulting model

coefficients being used to initialize values for the winter carrying capacity~flow submodel within the state model.

An S-Plus function was then constructed to model the observation process. Variation of the estimates of smolt numbers was used to incorporate stochasticity, with sampling of an assumed normal distribution with mean and variance taken directly from the smolt estimates derived from Mill Creek trapping data. The observation process model was used to assign observation probabilities for the smolt estimates in each year, given a state matrix.

The estimation process was based on a Monte-Carlo approach (Manly 1997) and essentially has two major steps: 1) a Bayesian filtering step, and 2) a prediction step. The Bayesian filtering step initially takes a prior distribution (the state matrix) and "filters" it by simulating the observation process (field sampling), given the initial state matrix (i.e., prior). Observations of smolts and spawners from the Mill Creek dataset were input into the model. Probabilities of observing *y* (the Mill Creek data from a given WY) given the state *x* (5,000 sets of simulated true population numbers based on the assumed initial state matrix and the state model) are generated assuming a normal distribution with means and variances from the Mill Creek data (for the smolt data), and a lognormal distribution with means and variances based on the Mill Creek data (for the spawner data).

An initial state matrix, the "prior", was provided in the model, based on the earliest possible estimates (from WY 1994). However, because the estimates are updated based on each year's data, the starting point is not critical to the model's final output and predictions.

Mathematically, input into the filter step is a representation of $x_{t+1} \mid y^{(t)}$ as $\{x_t{}^i\}_{i=1}^B$, and the output is a representation of $x_{t+1} \mid y^{(t+1)}$ as $\{x_t{}^{i*}\}_{i=1}^B$, where * denotes the filtered estimates, and B is the number of simulations (i.e., 5,000).

For the prediction step, the output from the filter step (which consists of B different vectors of the state, xt) becomes the input and is a representation of $x_t \mid y^{(t)}$ as $\{x_t{}^{i*}\}_{i=1}^B$. Prediction then occurs by running the state model on these input vectors, with the output a representation of $x_{t+1} \mid y^{(t)}$ as $\{x_{t+1}{}^i\}_{i=1}^B$.

Then another filter step occurs for the next time interval, followed by another prediction step. This process is repeated until there is a prediction for one time step (i.e., year) beyond the final year of observation (i.e., data collection).

Because each input/output is actually a distribution of 5,000 values, only the mean, variance, and quantiles (i.e., 2.5 and 97.5 percentiles to represent a 95% confidence interval) were reported for each filtering and prediction step.

The filtering and prediction calculations can be represented mathematically as:

$$p(x_t \mid y^{(t)}) \propto p(y_t \mid x_t)\, p(x_t \mid y^{(t-1)}) \quad \text{(filtering)}$$

$$p(x_{t+1} \mid y^{(t)}) = \int p(x_{t+1} \mid x_t, y^{(t)})\, p(x_t \mid y^{(t)})\, d\mu(x_t) \quad \text{(prediction)}$$

The filtered estimates represent our best estimates of the state process variables (i.e., true abundance of smolts and spawners), and the final predicted estimate represents the prediction for WY 2006. After a new year of data collection (i.e., for WY 2006), the filtered estimates will be improved further, and a prediction for the following year (i.e., WY 2007) can also be forecasted.

The log-likelihood of the model was maximized based on three fitted parameters: the slope and intercept from the ln(1+ smolts)~ln(winter peak flow) relationship used to define overwinter carrying capacity; and the smolt to adult survival parameter. The fitted model was then used to calculate the filtered and predicted estimates for 1+ smolts and adult spawners for the West Branch Mill Creek.

3 RESULTS

3.1 Conceptual Models

Conceptual models for coho salmon and Chinook salmon were developed based on a review of the available information, and local knowledge of the geomorphic, hydrologic, and biological characteristics of the Study Area.

3.1.1 Coho salmon

Because juvenile coho salmon generally smolt at age 1+ (or sometimes at age 2+, particularly in colder regions or less productive streams where growth rates are reduced) and must spend at least one summer and winter in freshwater prior to outmigrating to the sea, they tend to establish territories[2] in suitable rearing habitat soon after emergence (as opposed to fall Chinook, chum, pink, and sockeye salmon, which only spend a few weeks or months in the rearing stream). Territories are established to ensure access to sufficient food supply, typically within pool habitats. The role of territories in regulating individual growth is an important mechanism for partitioning a finite food resource among juvenile coho salmon. Larger coho salmon smolts (up to a certain size threshold) have a higher probability of returning as adults (Bilton et al. 1982). If territories were not established and defended by individuals, the result would be either mortality due to starvation or a large number of small smolts which would have very poor ocean survival. The size of individual territories may vary from location to location as a function of food availability and temperature, becoming smaller in more productive habitats or colder streams.

Typically, the maximum number of juvenile coho salmon that can be supported by very good summer habitat is small relative to the number of fry that a few successful redds can produce. Because of this, spawning gravel availability and egg mortality (e.g., as a result of poor gravel quality, redd dewatering, fungus infections, redd scour) rarely have an important effect on coho salmon population dynamics. In other words, any density-dependent mortality that might result from redd superimposition and density-independent mortality resulting from redd scour and poor gravel quality (among other factors) are usually irrelevant because, despite these sources of mortality, far more fry are typically produced than can be supported by the available rearing habitat. Typically, the density-dependent mortality or emigration that occurs when juvenile coho salmon establish territories sets the carrying capacity for juvenile rearing and overshadows other sources of mortality affecting eggs and juveniles. Therefore, the availability of suitable juvenile rearing habitat (either in the summer or winter) is the factor that usually governs the number of coho salmon smolts produced from a stream.

During winter, juvenile coho salmon are typically associated with low-velocity habitats. When temperatures drop and base flows rise, juvenile coho make seasonal shifts to off-channel habitats or undergo temporary shifts (i.e., within a season) during winter freshets. This type of winter habitat provides foraging opportunities at base flows and refuge from displacement by high flows. Over-wintering coho salmon, therefore, are often found in slower velocity habitats such as floodplains, sloughs, off-channel water bodies, beaver ponds, and complex in-channel habitats

[2] We use the term territory and territory size not only in its traditional sense—as a particular defended area —but also in cases where defense of a particular area may not occur but agonistic behavior by dominant individuals (e.g., nips, fin extensions, charges) effectively determine the maximum density of rearing juvenile coho in a pool.

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

associated with large woody debris jams. We postulate that such habitat conditions were abundant in many streams in northern California and the Pacific Northwest under historical conditions.

Historically, rearing habitat limitations may have frequently been greater in summer months than in winter. Greater summer limitations may have occurred because in winter, territorial behavior largely disappears and food supply and growth are less important than in other seasons, particularly where winter temperatures are very cold. Additionally, winter habitats such as floodplains and off-channel waterbodies, were often more extensive than summer in-channel habitats. If winter habitat was moderately abundant under historical conditions, greater limitations would be expected during the summer when low flows and warmer temperatures would restrict habitat size and territorial behavior would limit the carrying capacity of a stream. However, because of the profound changes that have occurred in streams throughout coastal Northern California and the Pacific Northwest, such as large-scale removal of in-channel wood, channelization of previously complex drainage patterns, and the construction of levees disconnecting floodplains from the channel, the availability of suitable winter habitat has been greatly diminished. While summer habitat conditions have also deteriorated due to land management activities, it is likely that impacts in many watersheds have disproportionately affected winter habitat. Thus, in our conceptual model for coho salmon, we initially assume that winter habitat under current conditions is in shorter supply than summer habitat.

While it is difficult, if not impossible, to assess coho salmon production from a stream without considering winter habitat limitations, it is also difficult, given the current state of knowledge, to predict rearing densities and habitat utilization during winter freshets. The effects of high flow refuge limitations must often be determined indirectly by examining population abundance before and after the winter season or before and after high flow events.

We used existing available information to evaluate this conceptual model. Our primary objective during this evaluation was to assess the importance of summer and winter rearing habitat to coho salmon production. If summer habitat is not limiting and is fully saturated, we would expect summer densities to be similar between years, suggesting pre-summer mortality does not affect population dynamics. If winter habitat is not limiting, we would expect the number of smolts in the spring to be similar to the number of juveniles found in the summer. These hypotheses are evaluated below.

3.1.1.1 Summer habitat and abundance

Contrary to our conceptual model, data presented in Howard and McLeod (2005a) show considerable variation in year-to-year juvenile summer abundance of coho salmon. In both the East Fork and the West Branch, juvenile numbers are highly variable. This led us to explore the following hypotheses:

(1) All mortality during summer is density-independent; there is no density dependent mechanism. (We would expect to see a linear relationship between the numbers of emergent fry and 0+ fish).

(2) There is extremely high mortality of eggs or early emergent fry; therefore it takes massive numbers of emergent fry for the summer rearing habitat to be fully seeded.

(3) The quality of summer abundance data varied from year to year due to poor data collection (e.g., as a result of poorly-trained personnel, inconsistent field methods or statistics).

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

(4) In some years, but not all, high density-independent mortality of juvenile coho salmon occurs in summer *after* summer densities have been established through territorial/agonistic behavior. If this is true, it most likely would be the result of low flows greatly reducing available habitat area, making juveniles more susceptible to predation.

Density-dependence versus density-independence

Based on a graphical analysis, it appears that there is evidence for density-dependence for the emergent fry to early summer 0+ step in the West Branch, based on 1+ mean smolt size versus 0+ densities in the preceding summer (Figure 4), and the estimated annual number of 0+ juveniles (from juvenile abundance snorkel surveys) versus the estimated number of emergent fry (assuming a constant survival to emergence of 0.5 and fecundity of 2,300 eggs per female) (Figure 5), West Branch Mill Creek, WY 1995 to 2005). We would expect that 1+ mean sizes would generally decrease with increasing 0+ densities and that the number of 0+ would level off at a given number of emergent fry. For the West Branch, there was evidence for a significant negative relationship between mean 1+ size and 0+ densities (r^2=0.56, p=0.01332), based on a linear model applied to log-transformed data (often appropriate for ratio scale data, such as densities).

There was also evidence that the number of 0+ stabilizes at high emergent fry levels (Figures 4 and 5). Even if assumed values of survival to emergence and fecundity are inaccurate, the shape of the curve relating 0+ juvenile to emergent fry abundance will remain the same as long as fecundity and survival to emergence are roughly constant over the study period. The shape of the curve appears to be asymptotic, indicating a density-dependent relationship (Figure 5).

For the East Fork, this analysis was complicated by the lack of data for 0+ juveniles. Consequently, we graphed the mean 1+ smolt size versus the estimated number of emergent fry, our next best information regarding early life stages. This plot, although not as strong as the West Branch, seems to indicate a decreasing trend in size with increasing numbers of emergent fry (Figure 6), although not significantly so (p=0.2514, based on linear regression). The graph of estimated annual number of 1+ smolts versus the number of emergent fry may indicate the effect of two separate density-dependent mechanisms, one in summer and one in winter (Figure 7).

Egg and emergent fry mortality

After reviewing the available data, the second hypothesis that there is extremely high mortality of eggs or early emergent fry, seems unlikely for the West Branch, but possible for the East Fork. High egg or early fry mortality would be most likely due to 1) high peak flows that either scour redds or displace fry, and/or 2) fine sediment deposition in redds that entombs alevins or decreases permeability.

In this study, low summer juvenile abundance is not necessarily associated with high instantaneous peak flows occurring within the incubation period during the previous winter/spring. Relatively low numbers of juveniles (typically <5,000 fish) were estimated in 1995, 1998, 1999, 2000 (5,049 fish) and 2001, yet high peak flows (>30,000 cfs in the mainstem Smith River based on the USGS gage at Jedediah Smith) occurred during 4 of the 5 years during January through March. However, there were also larger numbers of juveniles (>5,000 fish) in other years with high instantaneous peak flows (1997, 2002). There have been few reports of other sources of density-independent mortality such as disease or redd dewatering that might also account for high egg or fry mortality for coho salmon.

High peak flows are common in the Smith River watershed following spawning, however we would not expect frequent scour (i.e., several times per year) to a depth that would affect a significant portion of coho salmon redds. Since the survival of eggs depends in part on redd depths exceeding the depth of scour during the incubation period, salmonid species have faced selective pressures to adjust their reproductive behavior to the typical timing and depth of bed scour. The redd depth for a given species would presumably be the result of an evolutionary trade-off between scour mortality and fecundity. Deeper redds result in reduced scour mortality but require energy that might otherwise be used to produce eggs (e.g., at some point the energy required for a female salmon to dig a deeper redd and have a lower probability of having the eggs scoured would be better spent, in terms of the likely number of her progeny that return to spawn again, on producing more eggs). For example, Chinook salmon typically dig the deepest redds and use largest spawning substrate of any of the Pacific salmon because they tend to spawn in mainstem habitats where bed scour is relatively deep. Similarly, over an evolutionary time-scale, we would expect coho salmon to have adjusted their egg burial depths to at least exceed the depth of scour for floods that have a high probability of occurring, such as bankfull discharge (which will occur on average two out of every three years).

Redd entombment (infiltration of fines into redds that impedes the movement of water and alevins within the redd) may also limit the survival-to-emergence of coho salmon. After hatching, alevins remain within the redds for an additional two to three weeks before emerging from the substrate and establishing territories in suitable habitat. The amount of fine sediment in a redd will limit the ability of alevins to emerge from the streambed. There is a greater presence of fine sediments in the East Fork of Mill Creek and the mainstem Mill Creek (based on field reconnaissance), although gravel quality is apparently high in the West Branch of Mill Creek (Anonymous 1977 and Millan 1980, as cited inWaldvogel 2005). In years where the channel was re-routed due to major storm events, there may be sediment movement downstream which could influence survival in the lower reach of the West Branch. However, redd entombment is not likely to be a major factor in the West Branch of Mill Creek, although it could influence survival in the East Fork of Mill Creek.

Alternatively or in addition to redd scour and/or entombment, entrainment of early emergent fry during winter or spring freshets can lead to high mortality prior to the summer rearing period. Although no direct information is available to assess mortality of early emergent fry, changes in land use within the watershed have likely decreased in-channel shelter, which has the potential to increase the incidence of fry entrainment.

Data quality
The third hypothesis, that data quality varied from year to year, also seems unlikely. Fish population monitoring has been conducted by the same personnel and, with a few exceptions to adjust for changing channel conditions, sampling has occurred at the same sites since 1994. A similar level of sampling effort has been performed in surveys from 1995 to present.

Late summer mortality
After reviewing the available literature, the fourth hypothesis, that in some years high mortality occurs in summer, seems highly likely, particularly for the West Branch. Stranding is one potential source of mortality that could vary from summer to summer and that would occur after summer densities had been established through territorial/agonistic behavior. Within the extent of habitat associated with dry channel or subsurface flow in the West Branch, 0+ juvenile densities were significantly higher than for the rest of the stream based on t-tests comparing densities from the wet reach versus dry reach (p<0.001 for each year from 1999 to 2005). Although this may be due to other factors, it seems biologically reasonable that the densities may

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

be higher due to fish becoming trapped in shallower habitat. In addition, there has been documented stranding in the West Branch of Mill Creek (Ozaki 2004, unpubl. data), where available habitat was documented as being dewatered, with several thousand salmonid juveniles observed stranded in drying pools.

3.1.1.2 Winter habitat and abundance

Although high egg and/or early fry mortality may result in less than saturated summer habitat, winter carrying capacity may still be exceeded, and may be the more important limiting factor. We assessed the importance of winter habitat and winter carrying capacity by comparing the available data on summer juvenile coho salmon abundance and spring smolt numbers. If density-dependence is the governing mechanism and an overwintering carrying capacity exists, we would expect in years with sufficient numbers of spawners and typical survival to emergence rates that the number of smolts produced would be nearly constant.

Data supporting density-dependence

If density-dependence exists from 0+ to 1+, and a carrying capacity exists, then we would expect the number of 1+ smolts to level off once reaching a certain number of 0+ juveniles. A plot of 1+ smolt estimates versus 0+ juvenile coho salmon for the West Branch revealed that there is likely some density-dependent mechanism regulating the production of 1+ smolts (Figure 8). The WY 2001 estimate of 10,821 1+ smolts followed a peak flow of 11,403 cfs, the lowest peak flow of all surveyed years (mean flow of 72,597 cfs, based on WY's 1996 to 2005), indicating that overwinter carrying capacity is likely strongly influenced by flow.

The abundance of 1+ smolts appears to be related to the peak winter flow level[3], with a rapidly decreasing relationship between peak flow and the number of 1+ smolts produced (Figure 9). Juveniles overwintering in Mill Creek would require sufficient quantity and quality of refuge habitat to survive high peak flows. It appears that at lower flows, the West Branch offers much more overwinter rearing habitat than the East Fork, but that the difference between the two tributaries decreases with higher flows.

For the East Fork, 0+ juvenile data was only available for 3 years where corresponding smolt estimates were available. However, density dependence can be evaluated by graphing a time series of 1+ smolt estimates. Smolt numbers are fairly consistent in the East Fork as well, rarely exceeding 2,000 fish. As was the case for the West Branch, in WY 2001 the abundance of 1+ smolts in the East Branch was exceptionally high (3,200 fish) (Figure 10).

Even though 0+ summer habitat does not appear to be fully seeded, it appears that the number of 0+ is usually sufficient to exceed carrying capacity of the overwintering habitat. The number of 0+ juveniles is typically sufficient to meet the carrying capacity of overwintering habitat.

[3] We used the mainstem Smith River gage records as a surrogate for discharge in Mill Creek. The USGS monitored streamflow and sediment discharge of Mill Creek from 1974-1981. The Mill Creek stream gauge was located approximately 1 km (0.6 mi) downstream of the East Fork and West Branch confluence (drainage area 74.1 km2). The Mill Creek hydrograph closely mimicked the Smith River, although the Smith River has a higher runoff-per-unit-area than Mill Creek (Madej et al. 1986). Refer to Madej et al. (1986) for flow frequency and flow duration curves for the Mill Creek basin.

3.1.2 Chinook salmon

Of the Pacific salmon species, Chinook salmon probably exhibits the greatest diversity in lie history patterns. Juveniles may enter an estuary immediately following emergence or after spending more than a year residing in freshwater (Healey 1991). Thereafter, juvenile Chinook salmon spend from 6 days to 6 months in estuaries prior to moving to the ocean for further growth (Simenstad et al. 1982). Ocean residence may range from 1 to 6 years, and ocean migration patterns are highly variable across populations. Age–at-maturity ranges from age 2 (almost exclusively males) to age 7 (males and females). Adult fish may enter freshwater throughout the year and time of spawning ranges from 1 to 7 months following freshwater entry (Nicholas and Hankin 1988).

Fall Chinook salmon in the Smith River basin appear to be primarily ocean-type fish (defined by Healey 1991), typically migrating to the ocean within 3 months of emergence. We believe that 0+ juveniles may have stayed in larger numbers and reared to larger sizes in tributaries such as Mill Creek than they do currently. Freshwater habitat in the Smith River system is considered relatively pristine, yet there is also a history of logging and effects from logging roads. Currently, forest stands in the Mill Creek watershed lack large conifers necessary for long-term recruitment and retention of instream LWD (Stillwater Sciences 2002), an important component of freshwater habitat. The extent of mainstem rearing may have always supported large numbers of juvenile Chinook in the summer.

The biggest change from historic to current conditions may be in the estuary, where habitat has been much simplified due to agriculture and diking. The majority of Chinook salmon outmigrants appear to arrive in the estuary in early summer and appear to spend only 1-2 weeks here (Zajanc 2003). Consequently, juvenile Chinook salmon outmigrants today may be smolting at smaller sizes than historically, potentially resulting in reduced ocean survival.

3.1.2.1 Spawning habitat

In many systems, spawning habitat is a limiting factor, as fry densities can be relatively high, and spawning gravel is often in short supply. However, for Mill Creek there appears to be abundant spawning gravel based on reconnaissance surveys (Stillwater Sciences, unpubl. data, 2005).

If there is a density-dependent mechanism acting during the step from spawners to deposited eggs, we would expect a limit to the number of emergent fry produced given an increasing number of spawners. Although there is not direct evidence regarding emergent fry, outmigrant trap catch typically consisted of large numbers of smaller fish (<55 mm FL), including emergent fry. As long as density-independent survival of these fish was relatively consistent from year to year, it is reasonable to use these numbers to evaluate the relationship between redds and emergent fry. These numbers are, however, conservative and should be treated as relative measures only, as they are based solely on trap catch and include fish with varying levels of residence time; trap efficiencies clearly less than 100%, with some density-independent mortality likely, which occurs for juveniles between emergence and arrival at the trap (particularly for larger juveniles outmigrating in June/July).

There was evidence of density-dependence once reaching 350 female spawners for the West Branch and about 140 female spawners for the East Fork. For the West Branch, there appeared to be an increasing linear trend until reaching about 350 redds, after which the number of juvenile outmigrants appeared to level off (Figure 11). These data support the idea that density-dependence only occurs at high levels of spawners not typically observed in West Branch Mill

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

Creek. There appears to be a positive relationship between spawners and juvenile outmigrants with less than 350 spawners, suggesting that there is little superimposition occurring at these levels of escapement.

However for the East Fork, spawning escapement for Chinook has typically exceeded 140 female spawners. It appears that for most years, the abundance of juvenile outmigrants does not exceed 15,000 fish, as compared to 50,000 fish for the West Branch. The years where trap catch exceeded these numbers were low flow years (WY 2001 and 2002), with the two lowest peak winter flows observed during the study period. The difference in the magnitude of juvenile outmigrants between the two branches could be due to density-independent effects, such as survival to emergence, which is likely given that gravel quality appears to be higher in the West Branch than the East Fork (Stillwater Sciences 2005, unpubl. data).

In the East Fork, relatively few female spawners (~140) can produce the typical yearly maximum for juvenile outmigrants (about 15,000 fish). This is supported by the lack of any apparent relationship between spawners and juvenile outmigrants (Figure 11). The relationship in the East Fork contrasts sharply with the positive relationship between the number of spawners and juvenile outmigrants in the West Branch. In the West Branch, the number of juvenile outmigrants appears to increase until about 350 female spawners, with a typical annual maximum of 50,000 juvenile outmigrants. The difference in the relationship between the number of redds and juvenile outmigrant catch seems to suggest that there are different density-dependent mechanisms acting between the two locations.

The density-dependent factors which could be considered at the spawner to emergent fry life-step include redd scour and redd superimposition. Redd scour seems unlikely for either branch, due to the reasons noted for coho salmon (see subsection 3.1.1.1, Egg and emergent fry mortality).

Differences between the East Fork and the West Branch could be due to competition for existing spawning habitat. Early season spawners tend to spawn in the lower East Fork, in contrast to the West Branch, where spawning typically occurs after a high flow event (Figure 12). High flows open access to larger areas of spawning habitat than are available in the East Fork during lower flow conditions. The presence of a positive relationship in the West Branch suggests that the effects of superimposition here are minimal at spawner escapements below 350 female spawners. It seems more likely for superimposition to occur in the East Fork.

3.1.2.2 Juvenile rearing habitat

Even if spawning habitat is being used to its full potential, 0+ spring rearing habitat could be the most important limiting factor if it appears that the number of emergent fry typically produced is enough to exceed the capacity of spring rearing habitat. Based on graphs of 0+ versus emergent fry for the West Branch, it appears that the number of 0+ smolts levels off at high numbers of emergent fry, suggesting density-dependence (Figure 13). Although evidence of such a relationship is less clear for the East Fork, the estimated number of emergent fry are far greater than the number of 0+ smolts produced, suggesting that there are enough emergent fry in most years to fully seed the spring rearing carrying capacity and that there is a density-dependent mechanism operating between emergence and outmigration (Figure 14).

Spring rearing habitat quantity may be dictated by the amount of high flow refuge habitat available for fry or by the typical amount of suitable rearing habitat available in the spring. There was a strong significant relationship between peak winter flow and 0+ smolt estimates (Figure 15), suggesting that entrainment of emergent fry may be the primary density-dependent

mechanism. This would help explain the somewhat strong negative relationship between peak winter flow and trapping totals for the West Branch, as trap totals decrease with increasing winter peak flows (Figure 16). This is less convincing for the East Fork, although there is a decreasing trend here as well. It is possible that the effect of fry entrainment may be much greater in the East Fork than the West Branch. The East Fork is more geologically confined and bedrock-influenced than the West Branch, and likely has less velocity refuge than the West Branch (based on Ozaki 2003, unpubl. data).

The two low flow years, WY 2001 and 2002, produced the two highest estimates of 0+ smolts during the study (Figures 13, 14). Low spring base flows may have resulted in abundant low velocity rearing habitat and much higher than typical numbers of 0+ juveniles rearing to smolt size. It is difficult to discern, without early spring or summer dive data, which flow mechanism (i.e., entrainment due to high peak spring/winter flows versus more rearing habitat due to low spring base flows) is more likely to have influenced carrying capacity for 0+ smolts. Regardless, it is apparent that there is a density-dependent force acting on the population from emergence to outmigration.

3.2 Population Models

Population dynamics models were developed and used to help identify critical uncertainties and prioritize restoration actions for coho and Chinook salmon populations. Both models predict adult production by assuming a smolt-to-adult survival rate and running to equilibrium with returning adults. Model input values and their sources, for the coho and Chinook salmon models, respectively, under current conditions, are provided in Appendices B and C.

3.2.1 Coho salmon carrying capacity

A graphical approach was used to estimate carrying capacity for 0+ juveniles and 1+ smolts. The estimation of the value for the model parameter early summer rearing carrying capacity (from the emergent fry to early summer 0+ life stages) was based on the analysis of the relationship between expected numbers of emergent fry and early summer 0+ described in Section 3.1.1.1 (Figures 5). We estimated a 0+ juvenile carrying capacity of 25,000 for the West Branch and 12,000 for the East Fork. The estimated 1+ smolt carrying capacity was 5,500 and 2,300 for the West Branch and East Fork, respectively, based on Figures 8 and 10.

3.2.2 Coho salmon survival

Survival was estimated using data from Mill Creek where possible. Late summer, overwinter, and marine survival rates were all estimated, based on dive survey, outmigrant trapping, and redd count data.

Late summer survival in the West Branch was estimated to be 0.8, assuming 50% mortality of fish in the dry reaches during the summer juvenile abundance snorkel surveys (Table 3-1), based on the estimated number of 0+ juveniles in potential stranding areas. Ozaki (2004, unpubl. data) observed stranding of several thousand salmonid juveniles in the Park reach (approximately 2000 m long) of West Branch Mill Creek during late summer of 2003, confirming the potential for these reaches to strand fish. The extent of stranding may vary annually however, depending on summer base flows and rate of water withdrawal at the Mill Creek campground.

Table 3-1. Potential late summer mortality due to stranding, West Branch of Mill Creek, 1999 to 2006.

Year	Mortality rate (assume 100% mortality of stranded fish)	Mortality rate (assume 50% mortality of stranded fish)
1999	0.30	0.15
2000	0.41	0.21
2001	0.46	0.23
2002	0.26	0.13
2003	0.24	0.12
2004	0.31	0.16
2005	0.16	0.08
Overall	**0.26**	**0.13**

Overwinter survival rate was estimated to be 0.5, based on data from 1995, 1996, 1998, and 2001, years where the number of 0+ juveniles were estimated at near the 1+ smolt winter carrying capacity. However, this rate does not account for any density-dependent mechanisms which are likely still taking place. We used a density-independent survival rate of 0.8 for overwintering, assuming that density-dependent mechanisms were at least partly responsible for the observed survival rates.

Estimated smolt to spawner survival rates ranged from 0.001 to 0.313 (Figure 17), and were highly variable over the course of the study. Survival rates between the East Fork and West Branch appeared to exhibit similar trends. These rates are likely highly influenced by flow and ocean conditions, with flow influencing the timing of outmigration and consequently size of outmigrants (i.e., earlier outmigration resulting in smaller smolts), and likely the survival of these outmigrants in the ocean. The change from a gradual trend to a rapidly increasing trend in smolt-to-adult survival since 2000 was consistent with trends observed for Oregon coastal coho salmon between Cape Blanco and the mouth of the Columbia River (Chilcote et al. 2005).

3.2.3 Chinook salmon carrying capacity

Carrying capacity for 0+ Chinook salmon was estimated based on outmigrant trapping data. No efficiency data were collected for Chinook salmon during the study period, so numbers trapped were used, and a relatively high trap efficiency was assumed. This seems to be a reasonable assumption, given the smaller size of these fish and the greater likelihood of capture, and that the entire stream was funneled into these traps. The carrying capacity for fish >55 mm FL (assumed to be smolts) was estimated at 6,000 for the West Branch and 5,000 for the East Fork, based on graphs of 0+ versus emergent fry (Figures 13, 14). Although there were values greater than these in the dataset, they come from abnormal low flow years (WY 2001 and 2002).

3.2.4 Chinook salmon survival

For Chinook salmon, smolt-to-returning adult ratios ranged from 0.01 to 0.04, based on combined numbers of smolts and adults from the West Branch and East Fork (Figure 18). We assumed that 62% of adults from each year's estimated spawning run were 3-year old fish, based on the ratio of 3-year old returning adults from WY 1993 to 2003 (Waldvogel 2005). These are conservative estimates of survival, as the ratios are based only on the estimated number of 3-year old returning

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

adults. Survival rates from the literature were however comparable. Mean ocean survival rates of CWT release groups from California and coastal Oregon were estimated from 0.07 to 0.16, over the period from 1972 to 1998 (Magnusson 2002).

3.3 Factors Affecting Population Dynamics of Coho Salmon

Following a cohort from the West Branch or East Fork illustrates that although many eggs are deposited, the carrying capacity for eggs is higher than the amount that is currently being deposited. 0+ juveniles in both reaches appear to saturate the available habitat at the current spawner escapement level (based on redd counts from 2005, one female per redd). In the West Branch, there are a sufficient number of 0+ juveniles to saturate overwintering habitat, whereas in the East Fork, overwintering carrying capacity is not currently being reached. Mortality during each life step results in population declines, such that nearly 48,000 emergent fry, 16,000 0+ juveniles, and 8,000 1+ smolts survive to reach the mainstem Mill Creek below the West Branch and East Fork.

Although 1+ smolts are the primary life stage for evaluating the coho salmon population, emergent fry and 0+ juveniles also have considerable ecological value. Coho salmon fry and juveniles may be an important part of the food base for cutthroat trout and possibly juvenile steelhead in the mainstem Mill Creek below the East Fork and West Branch and the mainstem Smith River. Coho salmon that leave the East Fork and West Branch may also rear in the mainstem Mill and/or Smith River and emigrate as 1+ smolts. Emergent fry and 0+ juveniles leaving the Study Area are not necessarily losses, and may potentially survive to become returning adult spawners.

3.3.1 Adult escapement estimates (number of spawners)

Choice of an initial input value for adult escapement does not affect the equilibrium population size or interpretation of the model results. The population model runs were not affected in any meaningful way by the uncertainty associated with the adult escapement estimates. Until summer rearing habitat is fully seeded, the population will continue to increase with each succeeding generation.

3.3.2 Sensitivity analyses

The sensitivity analysis conducted on the coho salmon model under current conditions indicated that the coho salmon population is primarily influenced by the model parameter "1+ smolt ocean survival", found in the last row of the model. While this parameter strongly affects model results, smolt-to-adult survival estimates have high and currently unquantifiable uncertainty; the smolt survival parameter was only included to allow the population model to estimate escapement and predict equilibrium conditions. However, the influence of this parameter indicates the importance of smolt-to-returning-adult survival in the coho salmon life-cycle. This could have important implications for the Mill Creek coho salmon population as it is not uncommon to have order of magnitude differences in coho salmon ocean survival rates between high and low adult return years (Chilcote et al. 2005).

The model is sensitive (>10% change in spawner abundance) to overwinter carrying capacity, summer rearing habitat carrying capacity and overwinter survival as well as late summer survival (Table 3-2; see Appendix D for more detailed reporting of sensitivity analyses).

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

Table 3-2. Results of sensitivity analyses for the coho salmon population model.

Parameter	% change (with doubling)	% change (with halving)
1+ smolt ocean survival	77	-42
West Branch overwinter carrying capacity	45	-24
East Fork overwinter carrying capacity	19	-10
West Branch early summer carrying capacity	24	-12
West Branch overwinter survival	6	-12
West Branch late summer survival	6	-12

3.3.2.1 Rearing habitat carrying capacity

Our conceptual model hypothesized that rearing habitat, particularly overwintering habitat, would limit the current population, which is supported by model results. Doubling overwintering habitat in both tributaries increased the adult population size by more than 15% (Table 3-2). Although these values are not to be taken too literally, they do give an indication of the relative magnitude in population change with respect to potential habitat changes. Increasing summer rearing habitat has less of an impact on the population given the current parameter values than increasing overwintering habitat (for the West Branch, only a 24% increase in the adult population size when doubling the habitat, as compared to a 45% increase when doubling overwintering habitat).

3.3.2.2 Survival

Increases or decreases in 1+ smolt ocean survival have a dramatic effect on equilibrium population size, with an increase of 77% with a doubling of ocean survival and a decrease of 42% with a halving of the ocean survival rate. These results highlight the importance of obtaining a 1+ smolt ocean survival estimate as accurate as possible for adult spawner projections to be realistic. In addition, these modeling results indicate that it would be misleading to use trends in adult spawner numbers alone as an indicator of changes to freshwater habitat conditions.

Decreasing overwinter and late summer survival in the West Branch given current conditions has an impact on the population (12% decrease in equilibrium population size), although the change is not dramatic if marine survival is high enough to produce enough returning adults to fully seed the overwintering habitat. Model runs with marine survivals more typical of pre-WY2000 conditions (assumed to be 0.006, based on OPI marine survival indices from Chilcote et al. 2005) indicated that a 50% decrease in any one of the density-independent survival rates would lead to extinction (Appendix D).

3.4 Factors Affecting Population Dynamics of Chinook Salmon

Following a cohort from the West Branch or East Fork illustrates that although many eggs are deposited, the carrying capacity for eggs is higher than the amount that is currently being deposited. Emergent fry in both reaches appear to saturate the available habitat at the current spawner escapement level (based on redd counts from WY 2005, one female per redd). Mortality during each life step results in population declines, such that nearly 125,000 emergent fry and

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

11,000 0+ smolts survive to reach the mainstem Mill Creek below the West Branch and East Fork.

Although 0+ smolts are the primary life stage for evaluating the Chinook salmon population, emergent fry also have ecological value. Chinook salmon fry may be an important part of the food base for cutthroat trout and possibly juvenile steelhead in the mainstem Mill Creek below the East Fork and West Branch and the mainstem Smith River. Chinook salmon emergent fry that leave the East Fork and West Branch may also rear in the mainstem Mill Creek and/or Smith River and emigrate as 0+ smolts. Therefore, emergent fry leaving the Study Area could potentially survive to become returning adult spawners.

3.4.1 Sensitivity analyses

The sensitivity analysis conducted on the Chinook salmon model under current conditions indicated that the Chinook salmon population is primarily influenced by the model parameter "smolt-to-adult survival", found in the last row of the model. While this parameter strongly affects model results, smolt-to-adult survival estimates have high and currently unquantifiable uncertainty; the smolt survival parameter was only included to allow the population model to estimate escapement and predict equilibrium conditions. However, the influence of this parameter indicates the importance of smolt-to-returning-adult survival in the Chinook salmon life-cycle. This could have important implications for the Mill Creek Chinook salmon population in years with poor ocean conditions and low marine survival rates.

The model is sensitive (>10% change in spawner abundance) to spring rearing carrying capacity, and no other freshwater parameters (Table 3-3; see Appendix E for more detailed reporting of sensitivity analyses).

Table 3-3. Results of sensitivity analyses for the Chinook salmon population model.

Parameter	% change (with doubling)	% change (with halving)
0+ smolt ocean survival	100	-50
West Branch spring carrying capacity	55	-27
East Fork spring carrying capacity	45	-23

3.4.1.1 Rearing habitat carrying capacity

The Chinook salmon conceptual model hypothesized that spring rearing habitat would limit the current population, which is supported by model results. Doubling spring rearing habitat in both tributaries increased the adult population size by more than 40% (Table 3-2). These values provide the relative magnitude in population change with respect to potential habitat changes. Increasing spring rearing habitat in the West Branch has slightly more value (55% increase) than increasing spring rearing habitat in the East Fork (45% increase).

3.4.1.2 Survival

The model is not sensitive to any of the density-independent survival rates in freshwater habitat. It is however very sensitive to survival from smolt to returning adult, with a 100% increase in the

number of adult returns by doubling the 0+ smolt ocean survival, and a 50% decrease in the number of returning adults by halving the 0+ smolt ocean survival.

3.5 State-space Model

State-space modeling was used to obtain improved estimates of coho salmon 1+ smolts and spawners (filtered estimates) and predicted numbers of 1+ smolts and spawners, based on the underlying stock-production model and input values for spawner and smolt observations (Table 3-4). Filtered and predicted estimates for 1+ smolts and spawners in the West Branch Mill Creek are presented in Figure 19.

Table 3-4. State-space model input values for coho salmon spawning adults (based on finite normal mixture estimates using redd counts) and 1+ smolts (based on population estimates from outmigrant trapping) in the West Branch Mill Creek.

WY	Spawners	Smolts	
	Estimate	Estimate	Variance
1995	150	2,717	17,823
1996	90	1,277	76,491
1997	104	1,392	108,434
1998	16	5,554	346,580
1999	4	1,342	7,857
2000	4	2,140	39,192
2001	4	10,821	1,345,600
2002	98	5,004	342,225
2003	280	2,931	64,009
2004	76	3,832	219,961
2005	1,120	763	16,384

The 95% confidence intervals for both predicted and filtered estimates typically contained the observed data (Figure 19). Predicted estimates for WY 2006 were 47 spawners (with a 95% CI of 4–194) and 2006 1+ smolts (95% CI of 278–6751).

Predicted values tended to be higher than filtered values for spawners but lower than filtered values for 1+ smolts (Figure 19). Filtered estimates for 1+ smolts were fairly precise, and less precise for spawners. Due to the incorporation of observation data from a given year, filtered estimates are more precise than predicted values.

Filtered and predicted estimates of spawners based on state-space modeling would be more precise if estimates of variance for spawner estimates are obtained. In addition, further improvements to the model could include a predictive equation for smolt to adult survival based on flow and/or ocean conditions. The likelihood of the model could then be maximized based on the choice of a parameter within the predictive equation (e.g., slope or intercept) rather than the current parameter of smolt to adult survival. This would allow for variability in the smolt to adult survival rate over time.

Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

4 RECOMMENDATIONS

4.1 Juvenile/Smolt Monitoring

We recommend a continuation of the existing sampling methodologies of outmigrant trapping and juvenile abundance snorkel surveys. Coho smolt and juvenile data were essential for estimating values for model parameters. We were able to evaluate the potential carrying capacity due to the length of the dataset, and will be able to evaluate any changes in carrying capacity that result from future management actions.

A complete quality control of the juvenile abundance data, similar to that which was conducted for the spawner surveys, is recommended. Once the quality assurance and control is completed, older datasets (WY 1994 to 1998) could be re-run using DARR 2.0 to obtain population estimates for smolts, and more recent years could be re-analyzed for any potential changes.

In the East Fork, estimation of spring and summer rearing habitat carrying capacity was problematic, due to a limited dataset for 0+ juvenile abundance. We strongly recommend continued juvenile abundance snorkel surveys here to better define coho salmon summer carrying capacity, a sensitive model parameter, and improve our understanding of population dynamics in the East Fork. Chinook salmon spring rearing capacity, another sensitive model parameter, may be better defined if these surveys are conducted in the spring, before typical outmigration of any Chinook salmon 0+ smolts. Habitat mapping is recommended to quantify the amount of suitable spring and summer rearing habitat, providing a habitat-based method to assess spring and summer carrying capacity.

Because there is little available data for the mainstem Mill Creek, where there may be substantial rearing of juveniles; we recommend sampling via trapping or snorkel surveys here. The population model could then be expanded to include mainstem Mill Creek parameters as well, improving the capability to assess the Mill Creek coho salmon population.

Trapping data could be used to attempt to separate age classes of steelhead and cutthroat trout in conjunction with evaluating steelhead and cutthroat juvenile densities with regard to coho salmon juvenile densities. This analysis could be focused on effects of interspecies interactions on coho salmon overwinter and summer carrying capacities.

In addition, we recommend winter juvenile abundance snorkel surveys before and after winter freshets to help better quantify overwintering carrying capacity, the most sensitive freshwater model parameter for coho salmon. This monitoring effort could be contextualized within a BACI (before-after control-impact) study design to also help evaluate any habitat enhancement which takes place. Such a study would also help better describe the relationship between flow and overwinter carrying capacity, which in turn would improve the ability of the state-space model to predict adult returns.

4.2 Spawning Surveys

Redd counts were useful in obtaining spawning escapement estimates, and future counts are recommended. The current frequency of redd surveys is adequate for describing spawning timing. The methodology of flagging new redds allowed approximate identification of redd

creation dates. These data were critical for assigning a species to redds of unknown species origin.

Minimum escapement estimates involved a fair amount of subjectivity and are not adequate for population monitoring. Estimates of the number of females per redd based on such data are likely to be vast underestimates. Because surveys are conducted on a weekly basis, it is possible for fish to have entered and died between survey dates; therefore, it is not reasonable to assume that carcasses from a current survey were counted as live fish during a past survey. Also, due to the frequency of surveys, it is likely that not all live fish will be counted. Observation probabilities are unknown, hence it is not possible to generate an estimate of the total number of spawners using these data.

More accurate estimates of spawning escapement are needed for the state-space model to better predict adult returns. Weir counts could potentially be used to establish a relationship between the total numbers of spawners and redd counts to improve both past and future estimates for spawning escapement. We recommend that weir counts be conducted for at least 4 to 5 years to establish a relationship between weir-based estimates and redd counts. If a strong relationship exists, we could use redd counts in the future to estimate escapement, with periodic validation from weir counts.

4.3 Restoration Needs

Population modeling identified overwintering habitat as the limiting factor for coho salmon populations, and we recommend that increasing overwintering habitat be the highest priority for any restoration activities. Large woody debris enhancements could potentially help increase overwintering habitat as well as summer rearing habitat. Juvenile coho select habitat primarily on the basis of water velocity (Shirvell 1990), preferring low-velocity habitats throughout the juvenile rearing period. In coastal streams, low-velocity habitat conditions are primarily created by LWD.

The BACI study design recommended in section 4.1 can be used to monitor the response of the coho salmon population to habitat restoration or enhancement. BACI studies have been successfully conducted in other watersheds to evaluate environmental restoration projects, including the response of coho salmon populations to habitat enhancement (Solazzi et al. 2000, Michener 1997).

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Modesto Irrigation District/Turlock Irrigation District
Joint Comments on Draft SED - Appendix G

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Figures

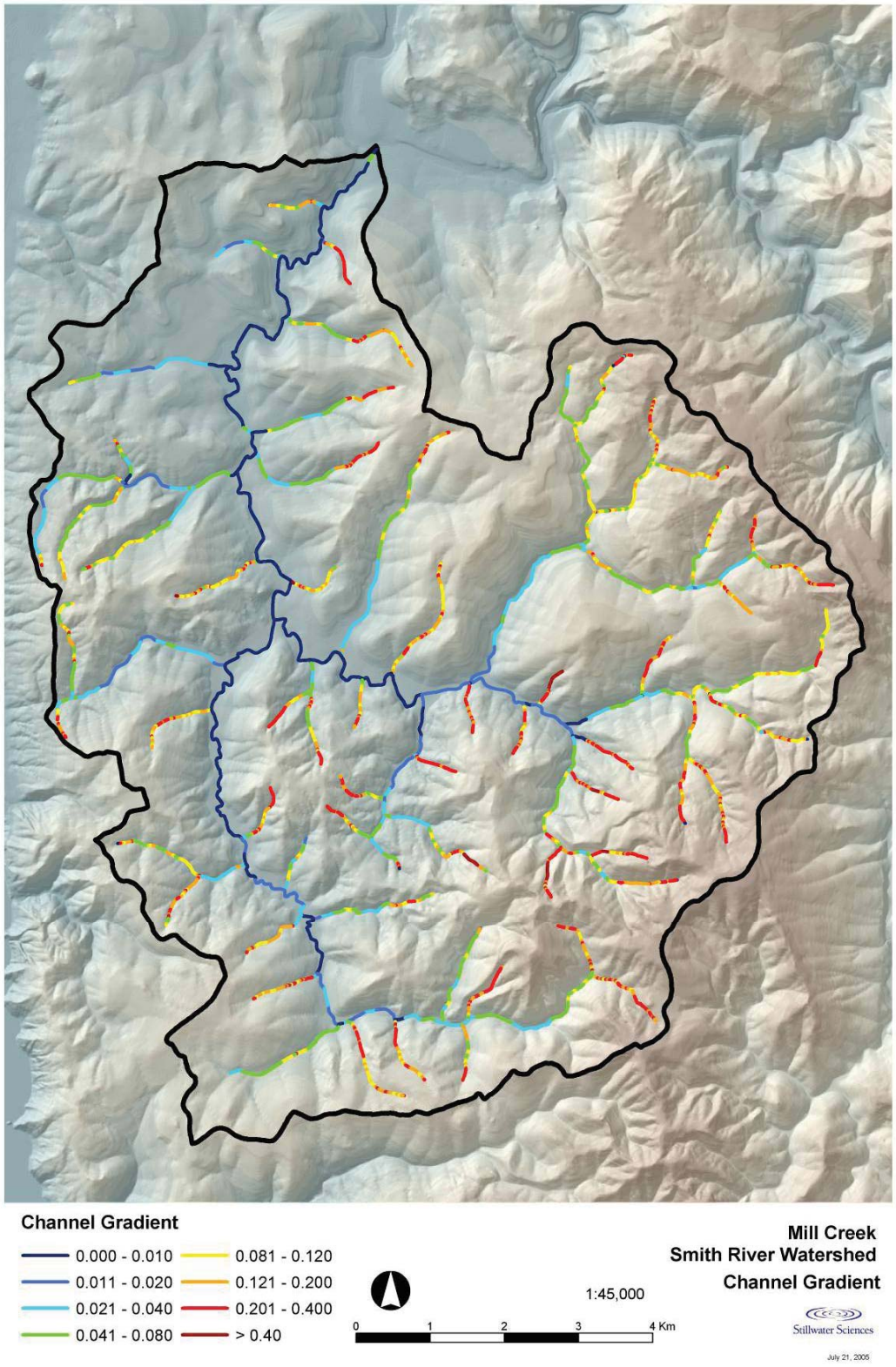


Figure 1. Mill Creek Study Area, Smith River Waterhsed, California.

Mill Creek Coho Salmon Population Model
Version 1.1

Stillwater Sciences

Initial population

Lifestage (Stock)		Stock-Production Model			Lifestage (Production)		
Lifestage	population	model	r	K	population	Lifestage	details
returning adults to mainstem Mill	352	Linear	0.5	176		*total female spawners*	
total female spawners	176	Linear	0.5	88		*W. Branch female spawners*	
			0.5		88	*E. Fork female spawners*	

W. branch subreach

Lifestage (Stock)		Stock-Production Model			Lifestage (Production)		
Lifestage	population	model	r	K	population	Lifestage	details
W. branch female spawners	88	Superimposition	2300	1,048,442	184,246	*deposited egg*	
deposited eggs	184,246	Linear	0.5	92,123		*emergent fry*	
emergent fry	92,123	Hockey Stick	0.8	25,000	25,000	*early summer 0+*	
					48,699	*mig em fry*	
early summer 0+	25,000	Linear	0.8		20,000	*late summer 0+*	
					0	*mig early summer 0+*	
late summer 0+	20,000	Hockey Stick	0.8	5,530	5,530	*spring 1+ smolts*	
					10,470	*mig late summer 0+*	

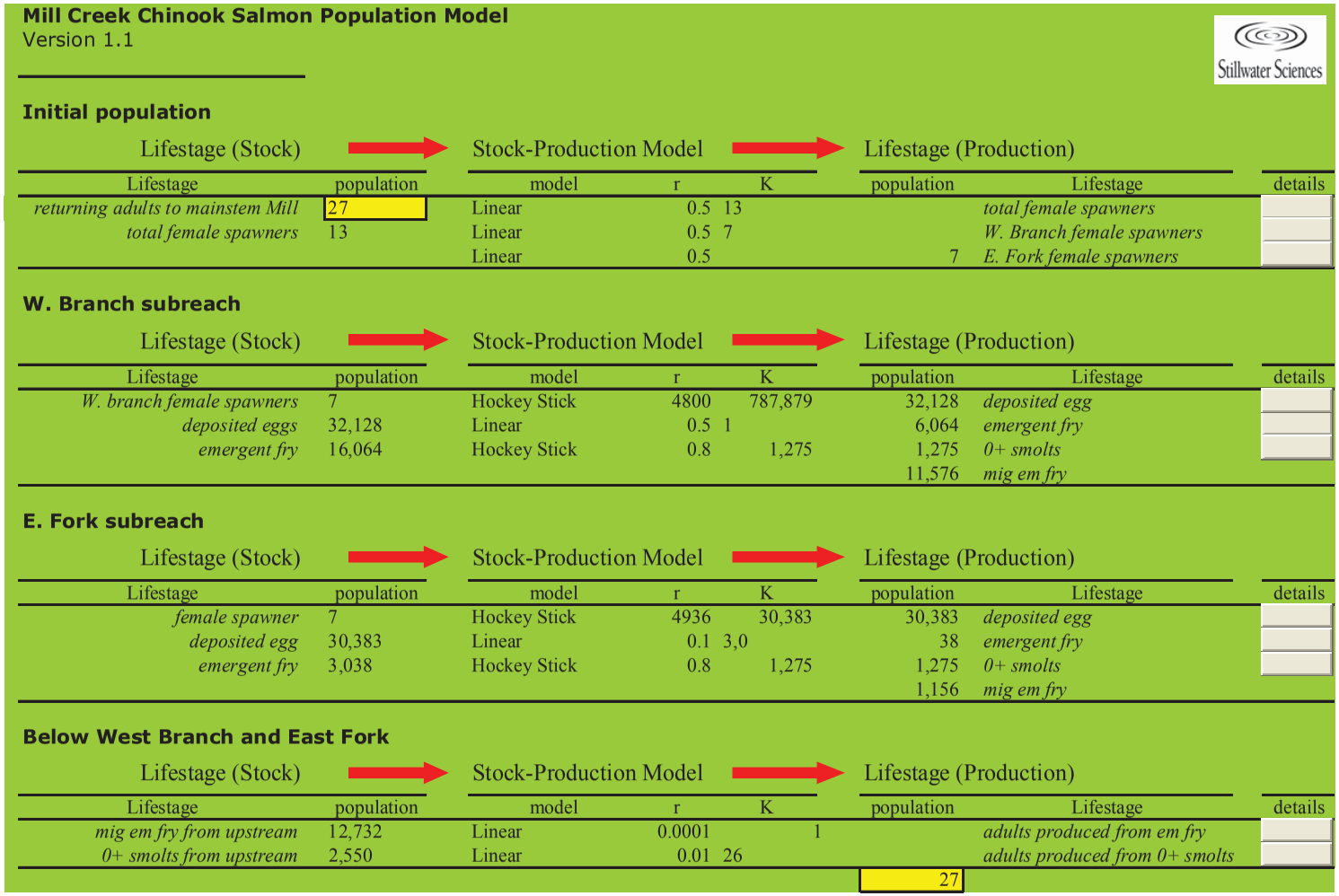
E. Fork subreach

Lifestage (Stock)		Stock-Production Model			Lifestage (Production)		
Lifestage	population	model	r	K	population	Lifestage	details
female spawner	88	Superimposition	2300	873,701	180,844	*deposited egg*	
deposited egg	180,844	Linear	0.1	18,084		*emergent fry*	
emergent fry	18,084	Hockey Stick	0.8	2,844	2,844	*early summer 0+*	
					11,623	*mig em fry*	
early summer 0+	2,844	Linear	0.8		2,275	*late summer 0+*	
					0	*mig early summer 0+*	
late summer 0+	2,275	Hockey Stick	0.8	2,370	1,820	*spring 1+ smolts*	
					0	*mig late summer 0+*	

Below West Branch and East Fork

Lifestage (Stock)		Stock-Production Model			Lifestage (Production)		
Lifestage	population	model	r	K	population	Lifestage	details
mig em fry from upstream	60,322	Linear	0.0001	6		*adults produced from em fry*	
mig early summer 0+ from upstream	0	Linear	0.001	0		*adults produced from early summer 0+*	
mig late summer 0+ from upstream	10,470	Linear	0.005	52		*adults produced from late summer 0+*	
spring 1+ smolts from upstream	7,350	Linear	0.040	294		*adults produced from spring 1+ smolts*	
					352	***Total returning adults***	

Figure 2. Mill Creek Coho Salmon Population Model interface.



Mill Creek Chinook Salmon Population Model
Version 1.1

Stillwater Sciences

Initial population

Lifestage (Stock)		Stock-Production Model			Lifestage (Production)		
Lifestage	population	model	r	K	population	Lifestage	details
returning adults to mainstem Mill	27	Linear	0.5	13		*total female spawners*	
total female spawners	13	Linear	0.5	7		*W. Branch female spawners*	
		Linear	0.5		7	*E. Fork female spawners*	

W. Branch subreach

Lifestage (Stock)		Stock-Production Model			Lifestage (Production)		
Lifestage	population	model	r	K	population	Lifestage	details
W. branch female spawners	7	Hockey Stick	4800	787,879	32,128	*deposited egg*	
deposited eggs	32,128	Linear	0.5	1	6,064	*emergent fry*	
emergent fry	16,064	Hockey Stick	0.8	1,275	1,275	*0+ smolts*	
					11,576	*mig em fry*	

E. Fork subreach

Lifestage (Stock)		Stock-Production Model			Lifestage (Production)		
Lifestage	population	model	r	K	population	Lifestage	details
female spawner	7	Hockey Stick	4936	30,383	30,383	*deposited egg*	
deposited egg	30,383	Linear	0.1	3,0	38	*emergent fry*	
emergent fry	3,038	Hockey Stick	0.8	1,275	1,275	*0+ smolts*	
					1,156	*mig em fry*	

Below West Branch and East Fork

Lifestage (Stock)		Stock-Production Model			Lifestage (Production)		
Lifestage	population	model	r	K	population	Lifestage	details
mig em fry from upstream	12,732	Linear	0.0001	1		*adults produced from em fry*	
0+ smolts from upstream	2,550	Linear	0.01	26		*adults produced from 0+ smolts*	
					27		

Figure 3. Mill Creek Chinook Salmon Population Model interface.

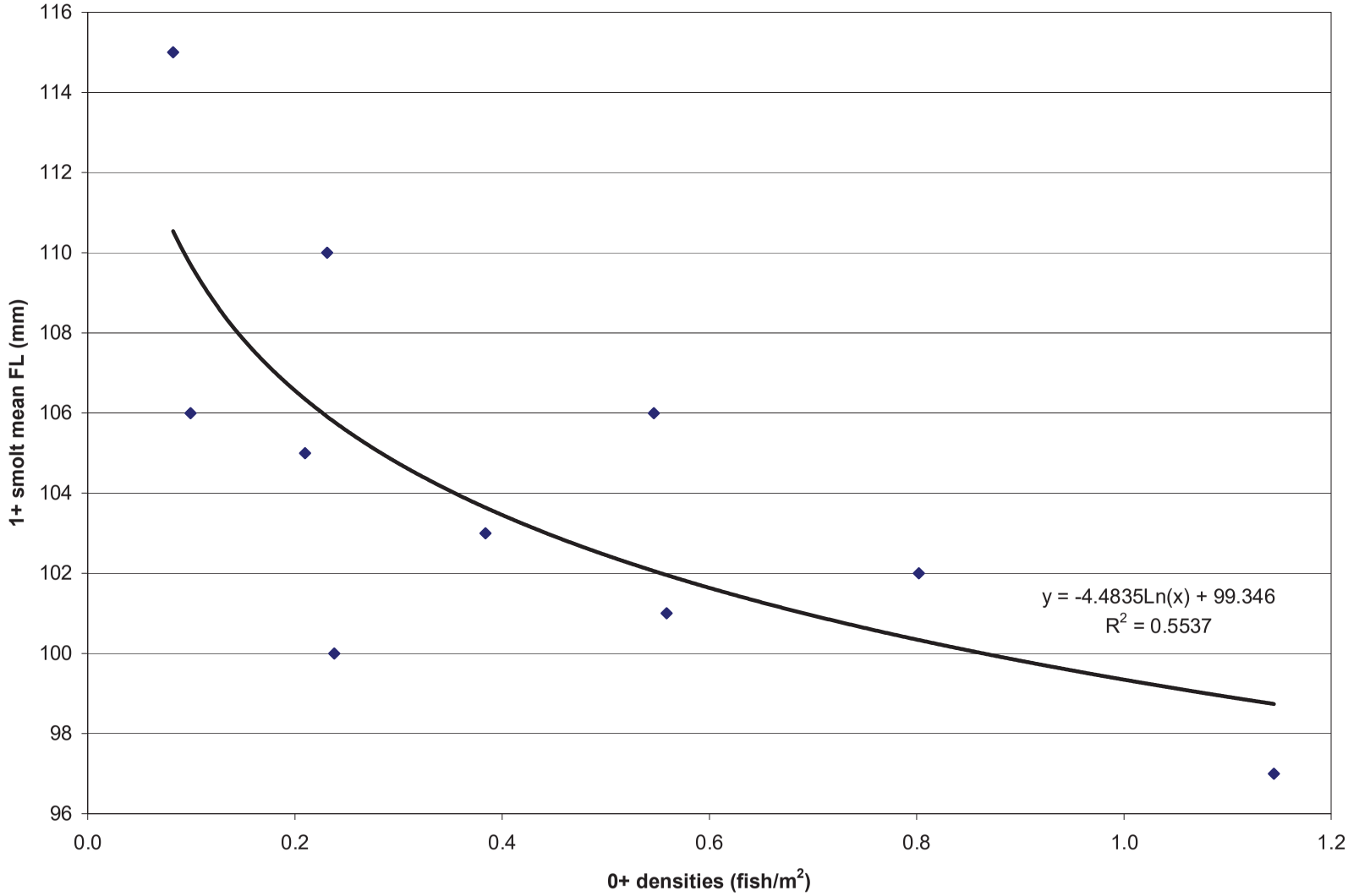


Figure 4. Mean size (fork length in mm) of 1+ coho salmon smolts vs. 0+ densities (fish/m^2) from the preceding water year, West Branch Mill Creek, 0+ densities from WY 1994, 1996 to 2004 and mean smolt sizes from WY 1995, 1997 to 2005.

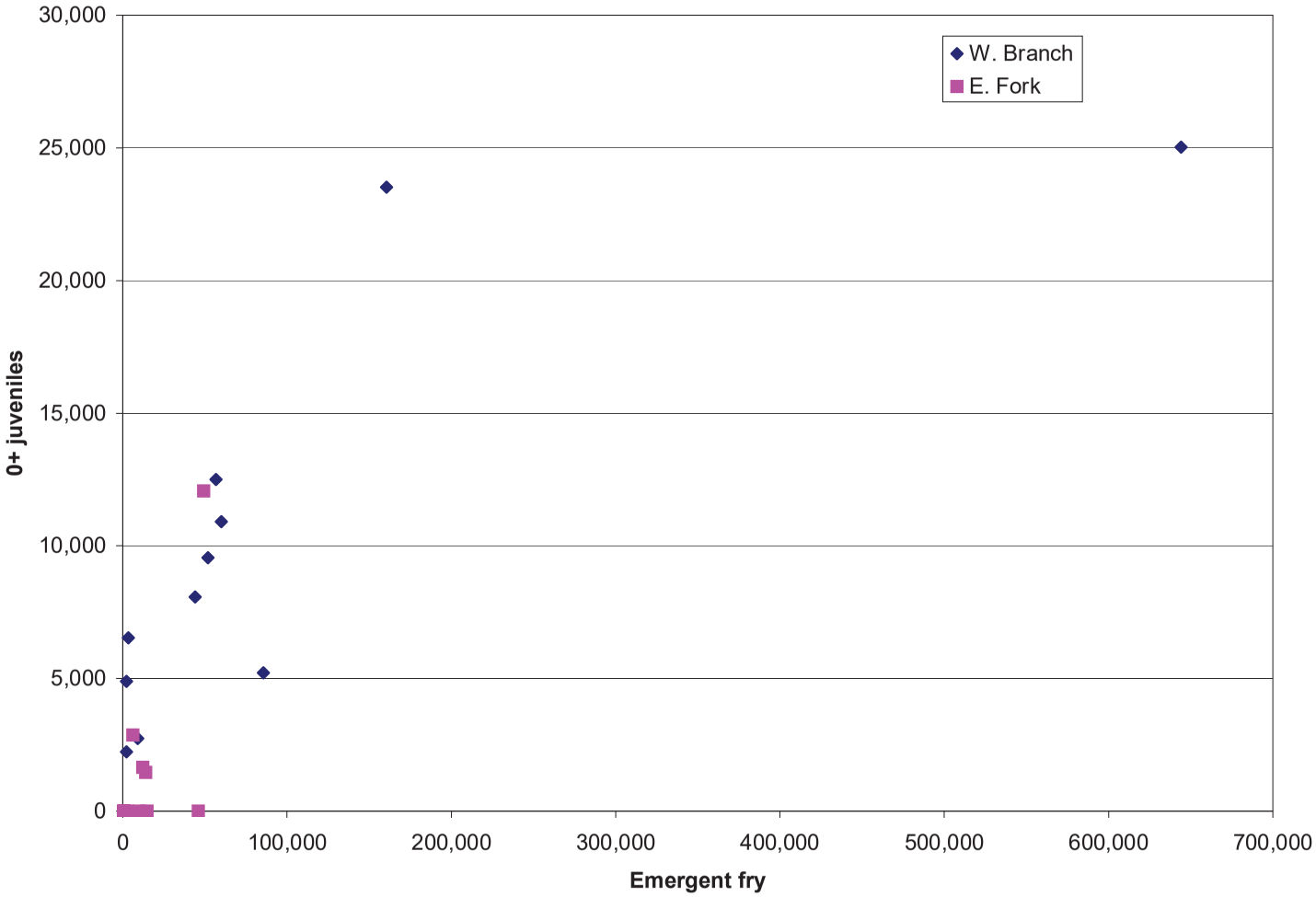


Figure 5. Estimated annual number of coho salmon 0+ juveniles (based on juvenile abundance snorkel surveys) vs. estimated number of emergent fry (assuming a constant survival to emergence of 0.5 and fecundity of 2,300 eggs/female), Mill Creek, WY 1995 to 2005.

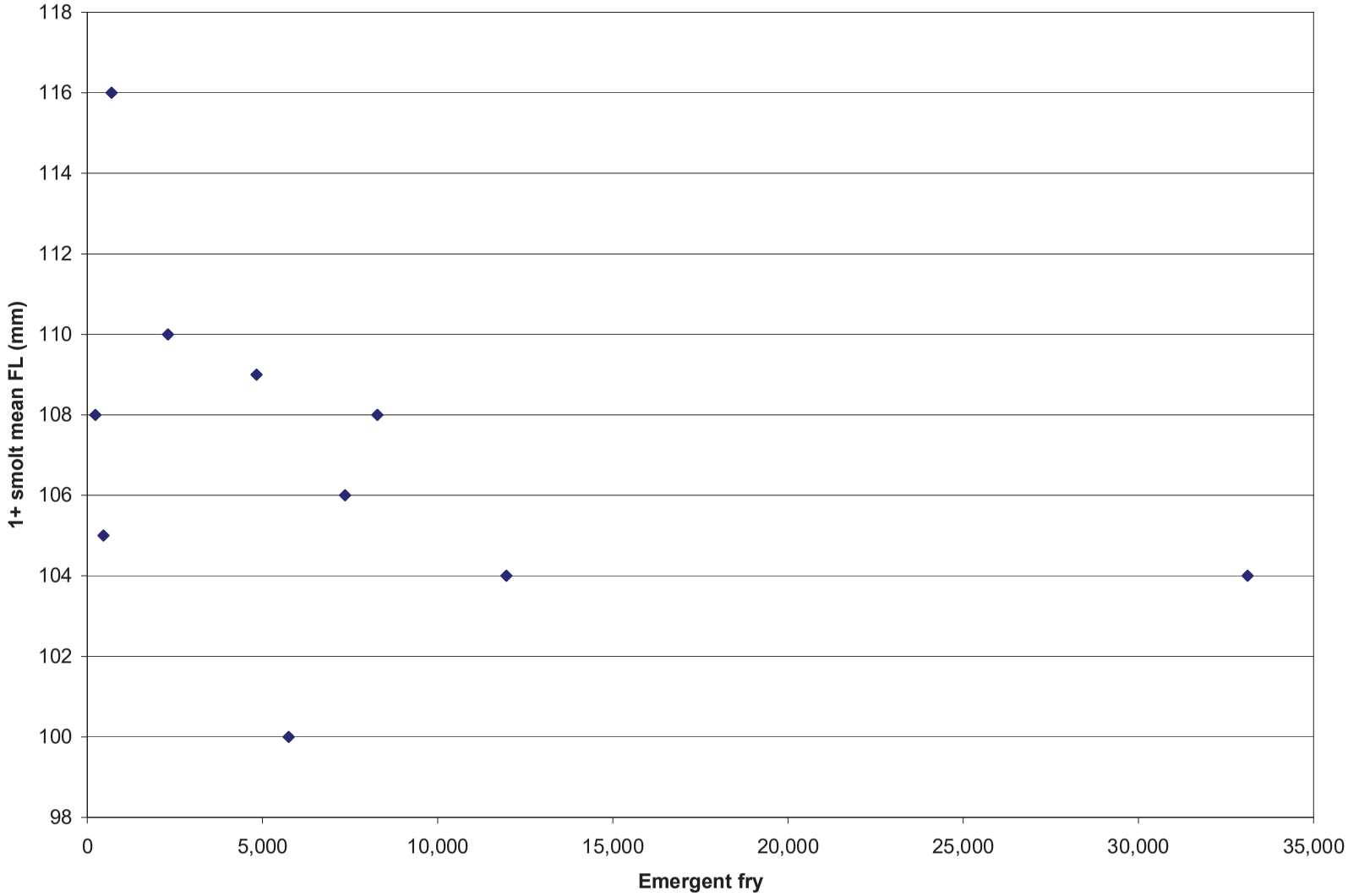


Figure 6. Mean size (fork length in mm) of 1+ coho salmon smolts vs. number of emergent fry from the preceding water year, West Branch Mill Creek, 0+ densities from WY 1995 to 2004 and mean smolt sizes from WY 1996 to 2005.

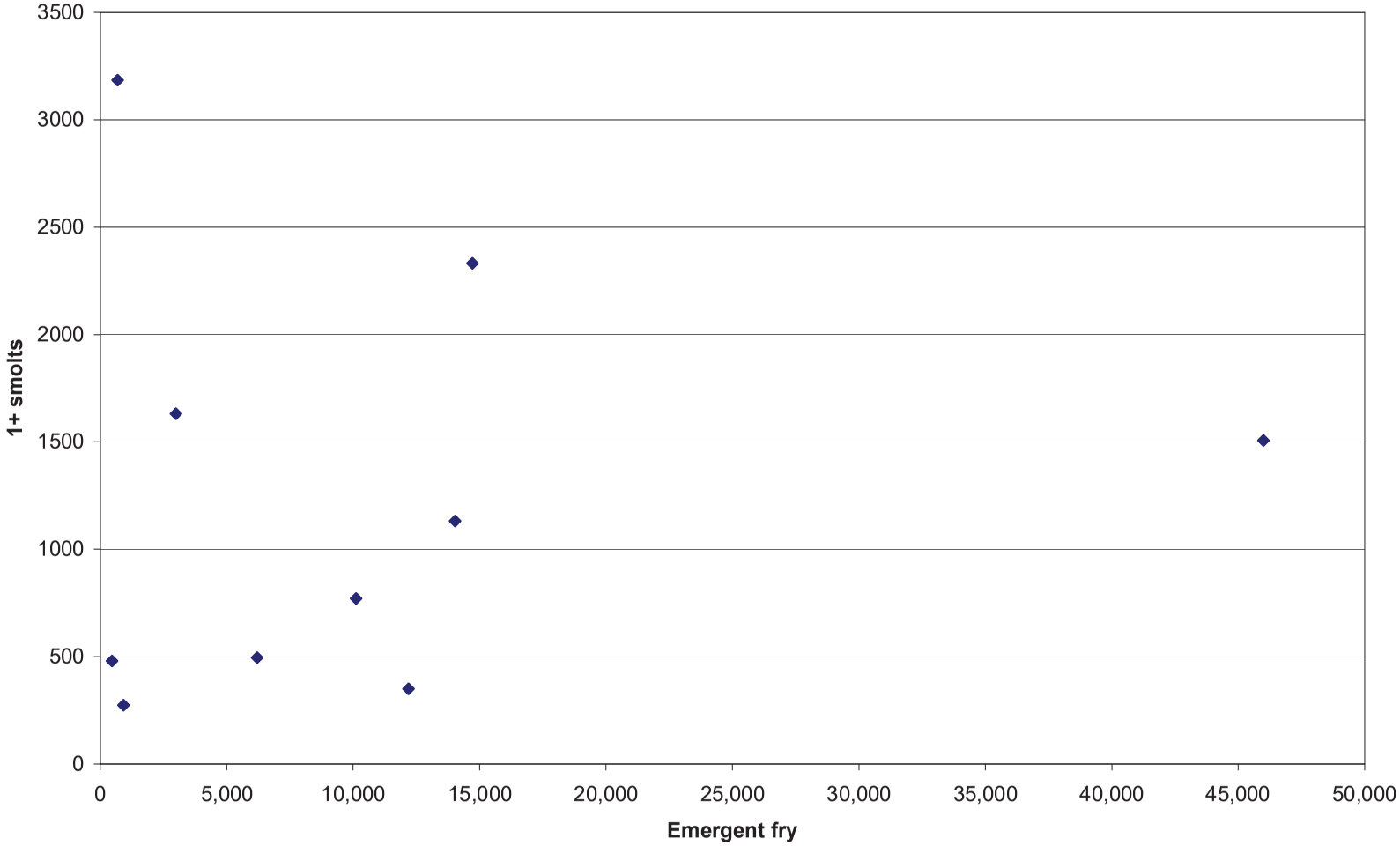


Figure 7. Estimated annual number of coho salmon 1+ smolts (based on outmigrant trapping) vs. estimated number of emergent fry (assuming a constant survival to emergence of 0.1 and fecundity of 2,300 eggs/female), East Fork Mill Creek, WY 1995 to 2005.

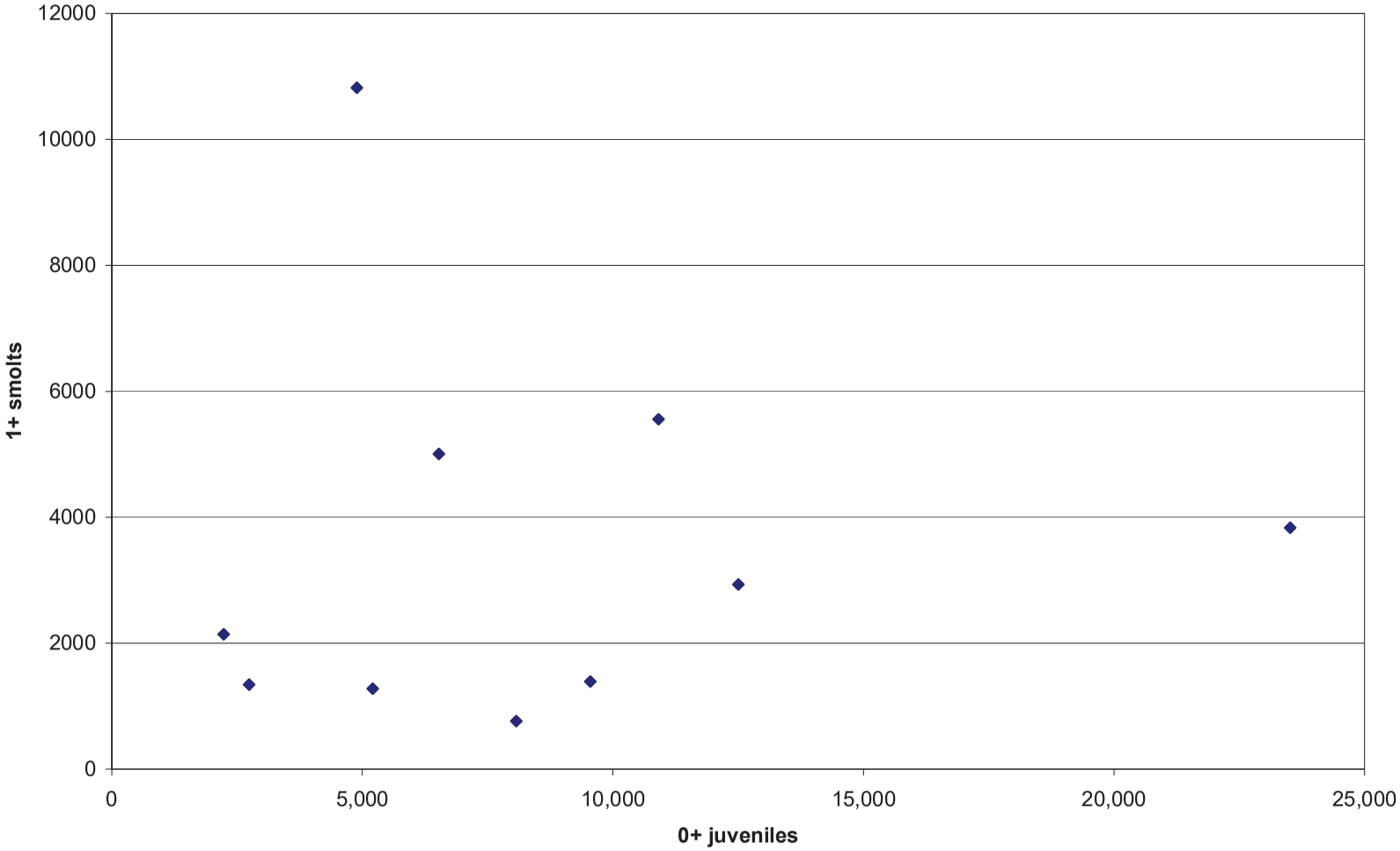


Figure 8. Estimated numbers of 1+ coho salmon smolts versus 0+ juveniles from the preceding water year, West Branch Mill Creek, smolt estimates from WY 1996 to 2005, and 0+ juvenile estimates from WY 1995 to 2004.

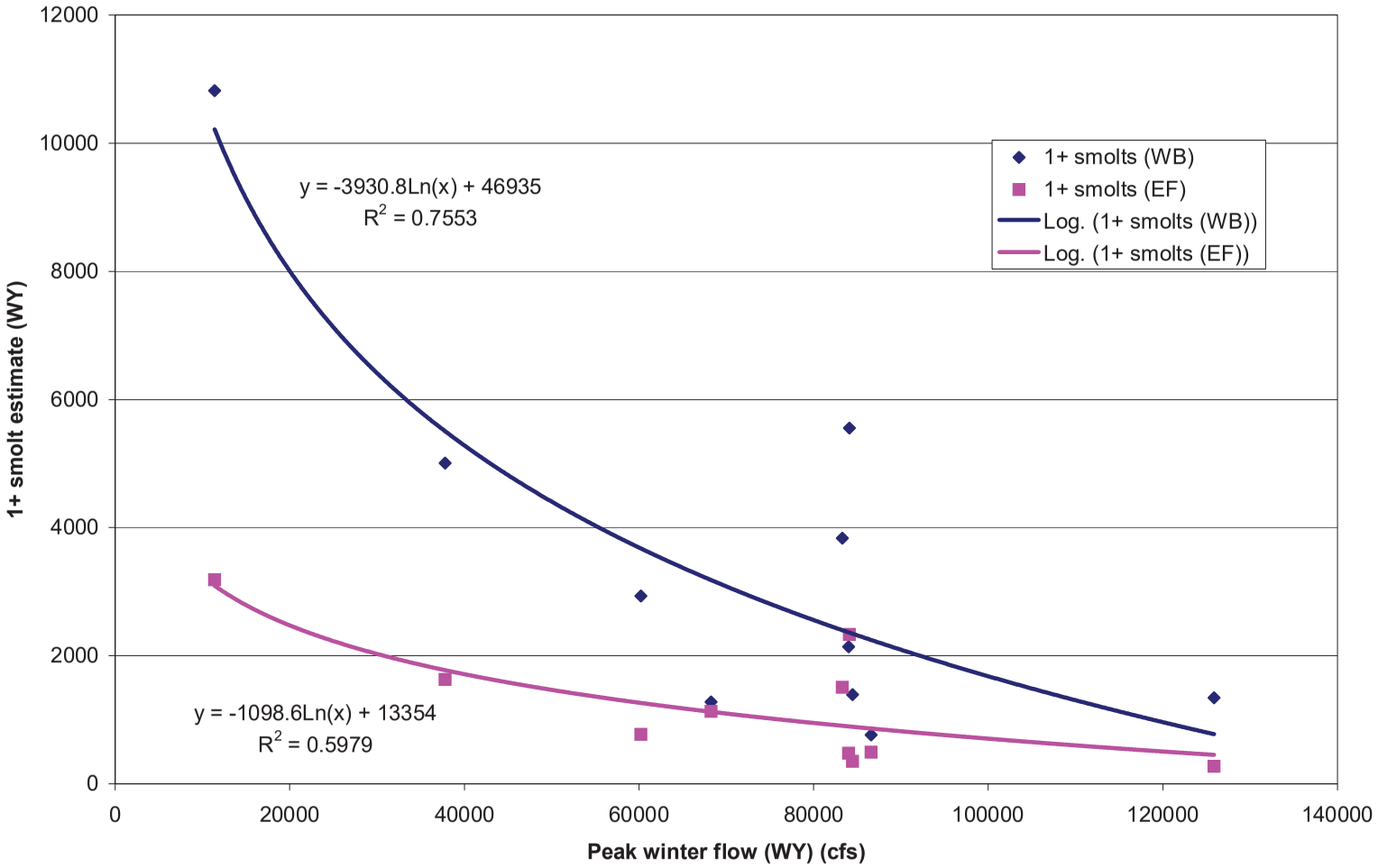


Figure 9. Estimated numbers of 1+ coho salmon smolts versus peak winter flow (cfs) from the preceding water year, West Branch Mill Creek and East Fork Mill Creek, WY 1996 to 2005.

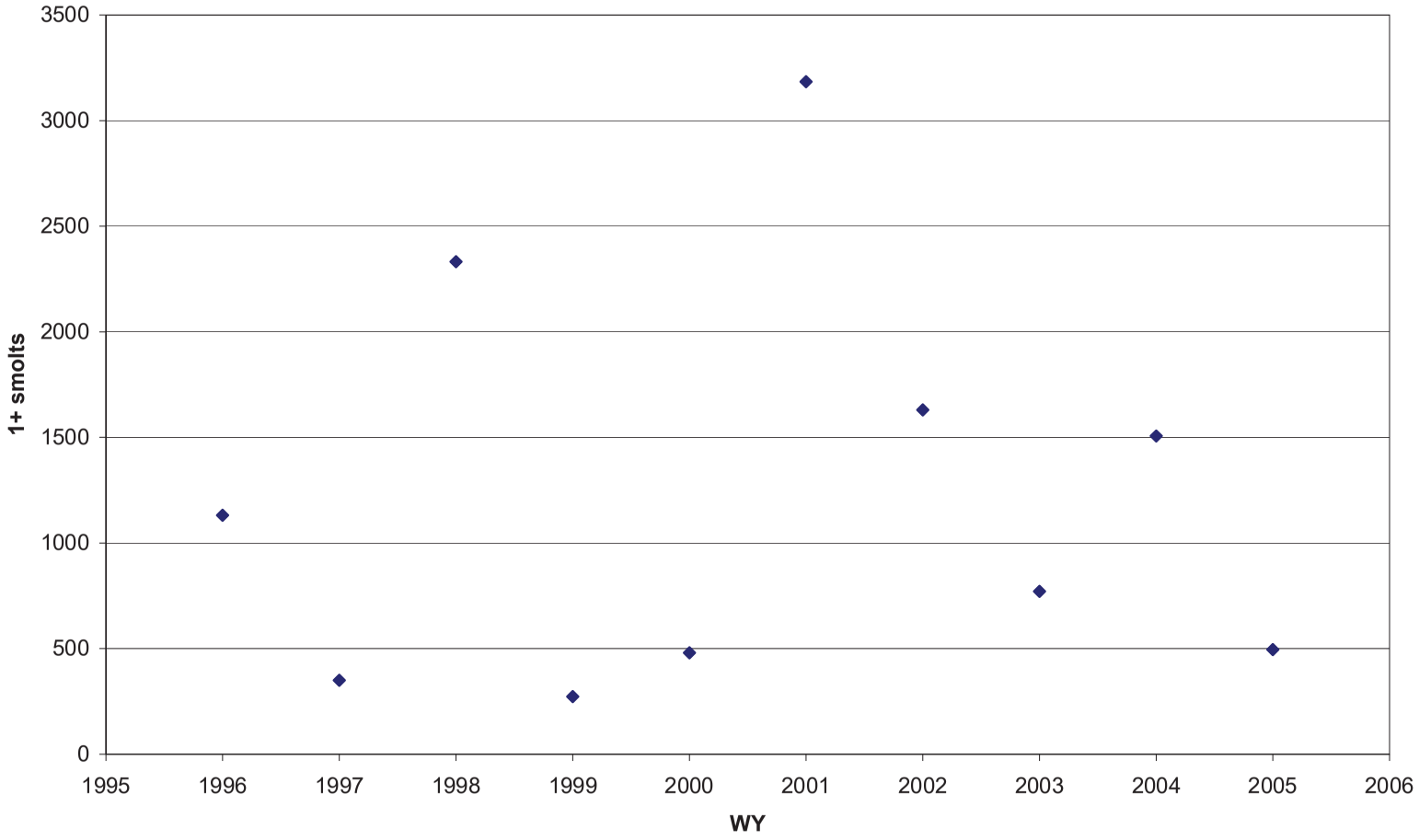


Figure 10. Estimated numbers of coho salmon 1+ smolts versus water year, East Fork Mill Creek.

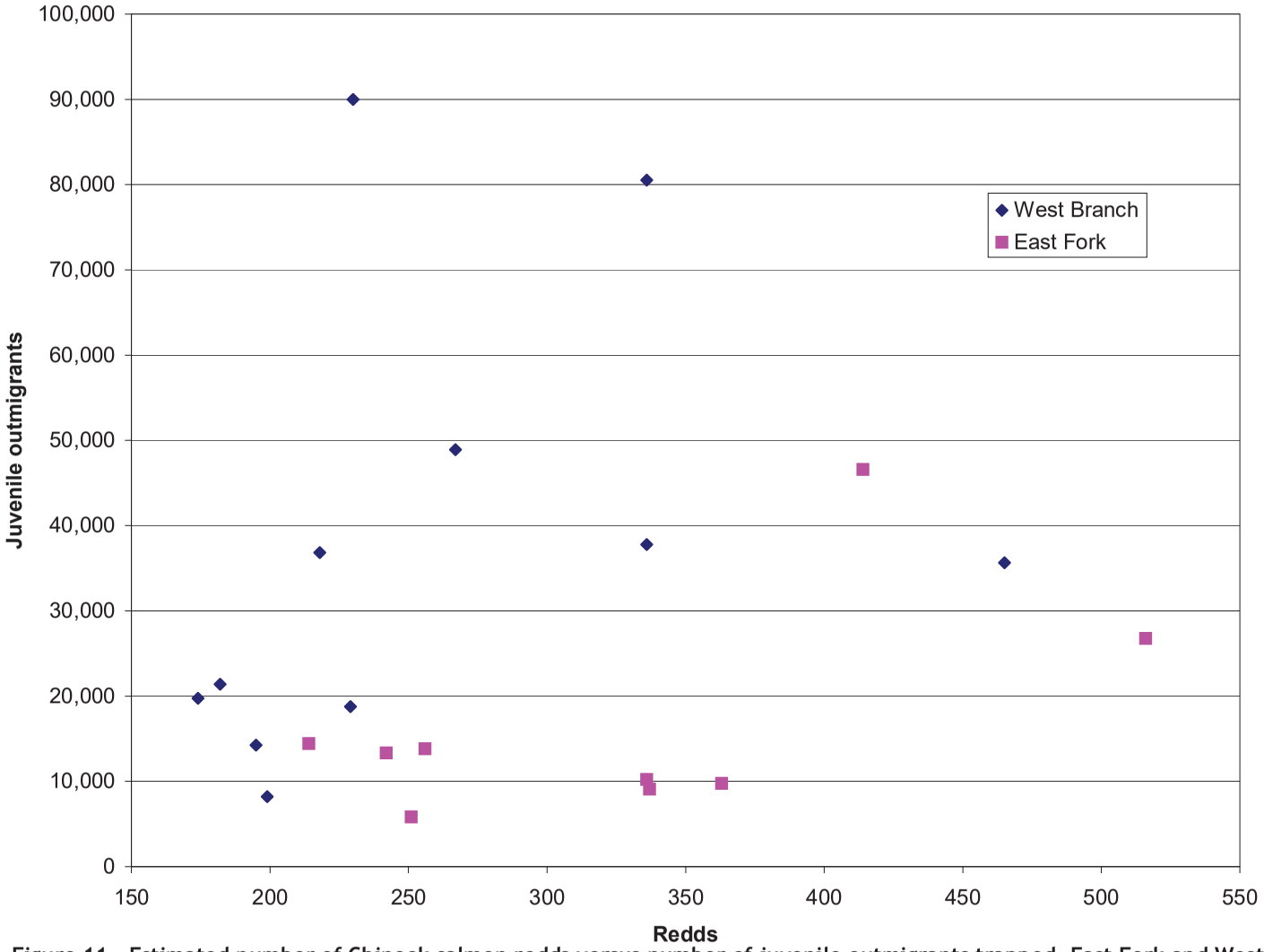


Figure 11. Estimated number of Chinook salmon redds versus number of juvenile outmigrants trapped, East Fork and West Branch Mill Creek, WY 1995 to 2005.

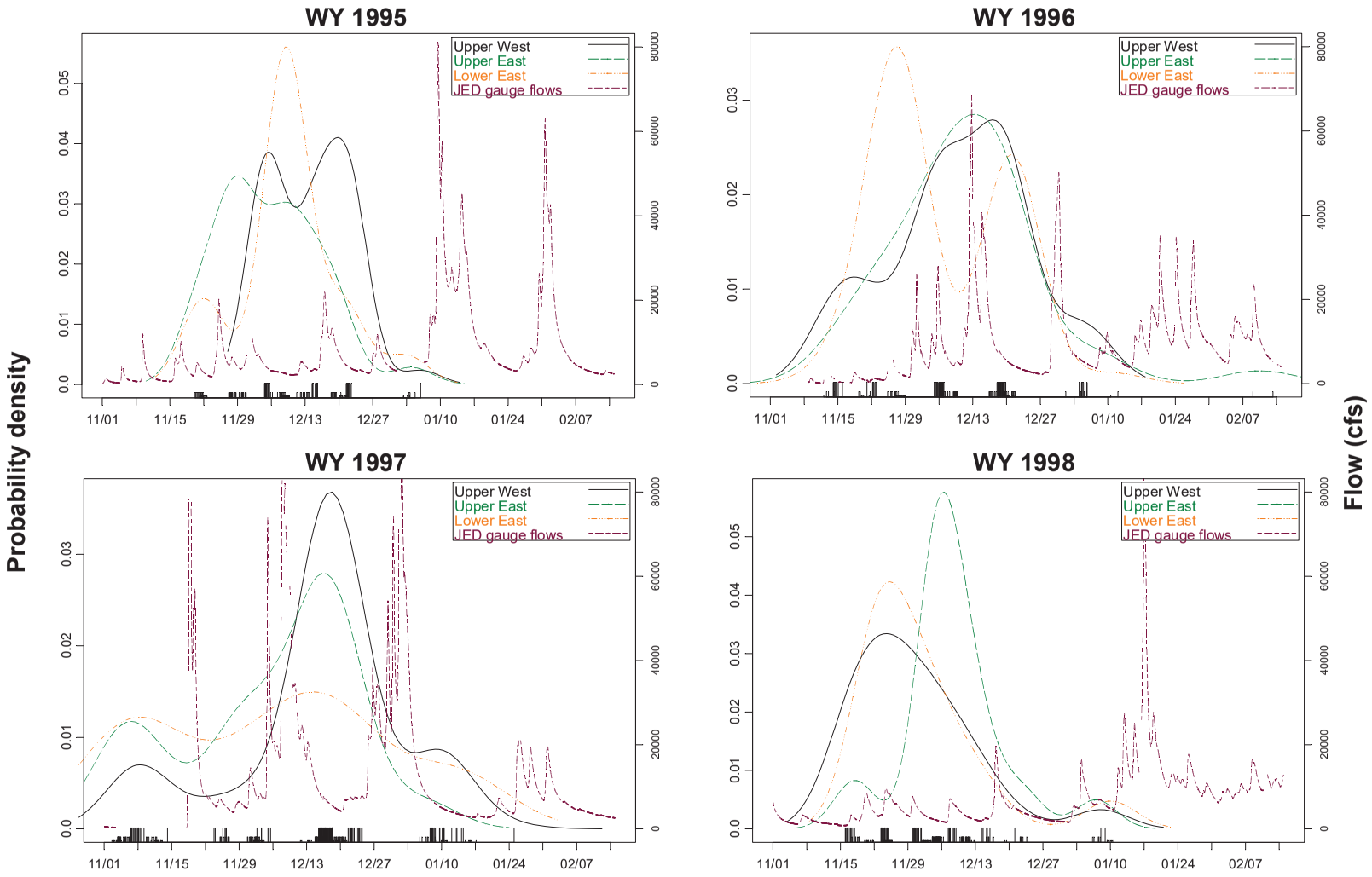


Figure 12a. Spawn timing and flow versus date. Primary y-axis values are probability densities based on smoothing techniques, Bowman and Azzalini (1997).

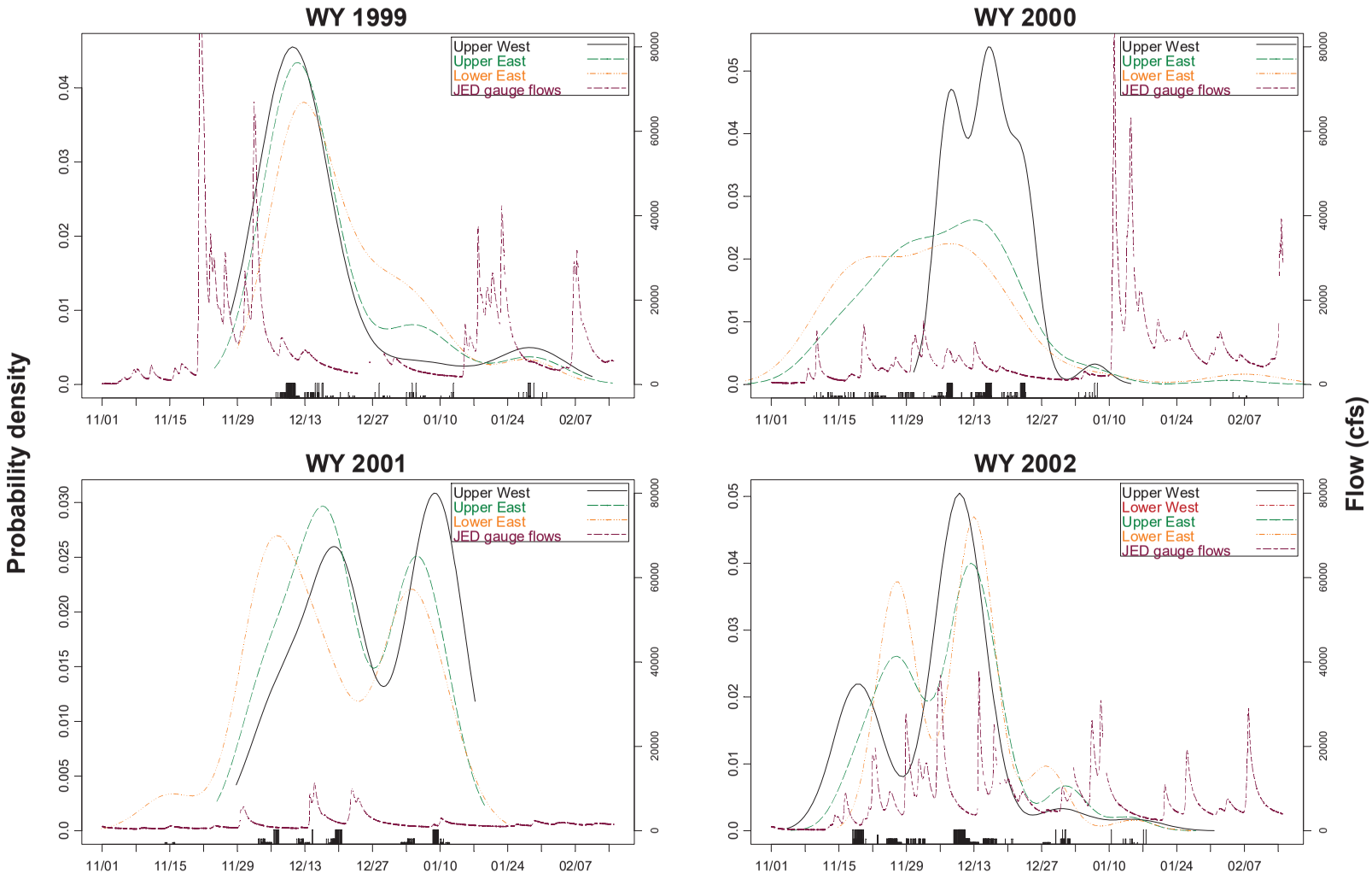


Figure 12b. Spawn timing and flow versus date. Primary y-axis values are probability densities based on smoothing techniques, Bowman and Azzalini (1997).

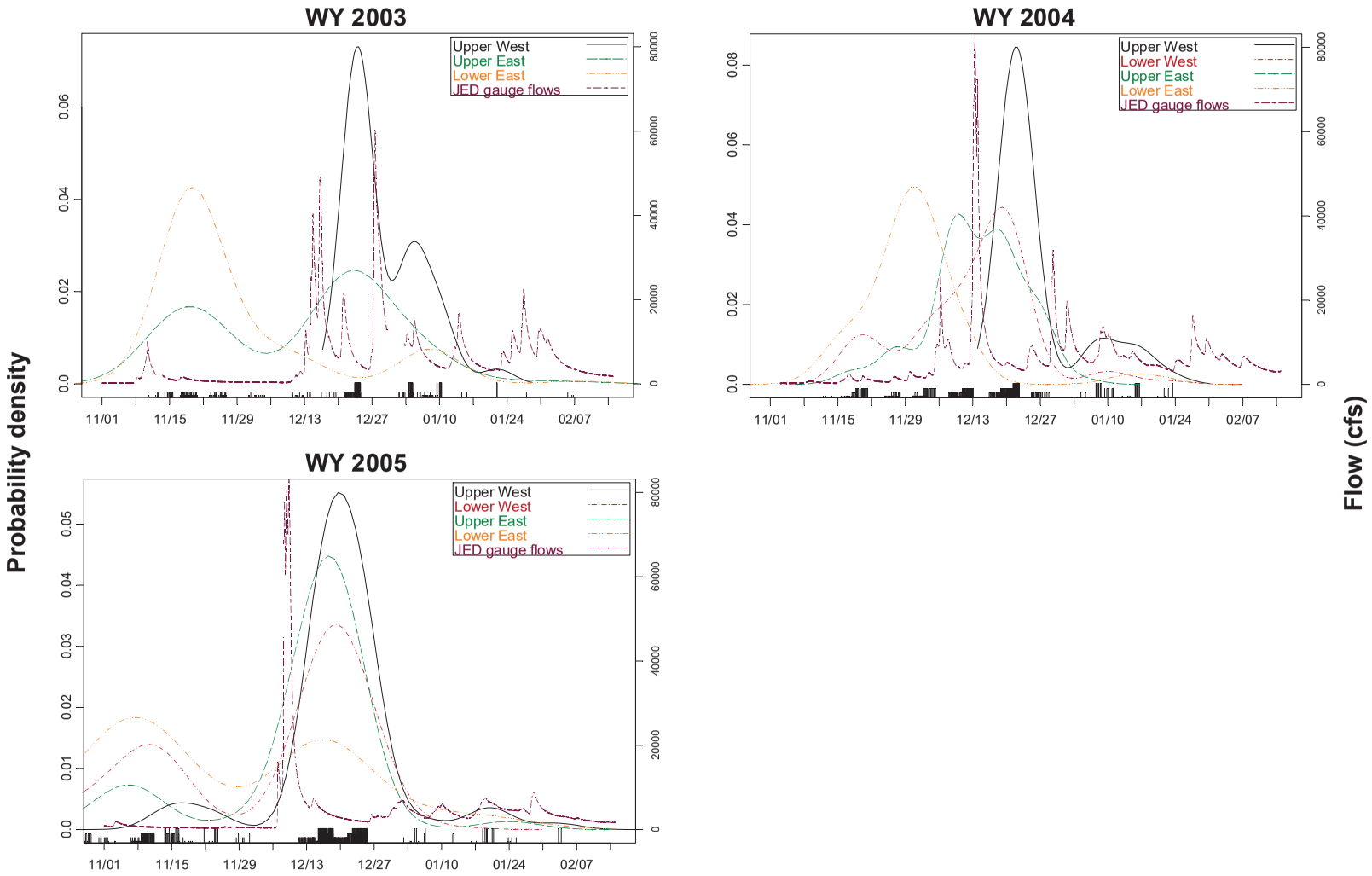


Figure 12c. Spawn timing and flow versus date. Primary y-axis values are probability densities based on smoothing techniques, Bowman and Azzalini (1997).

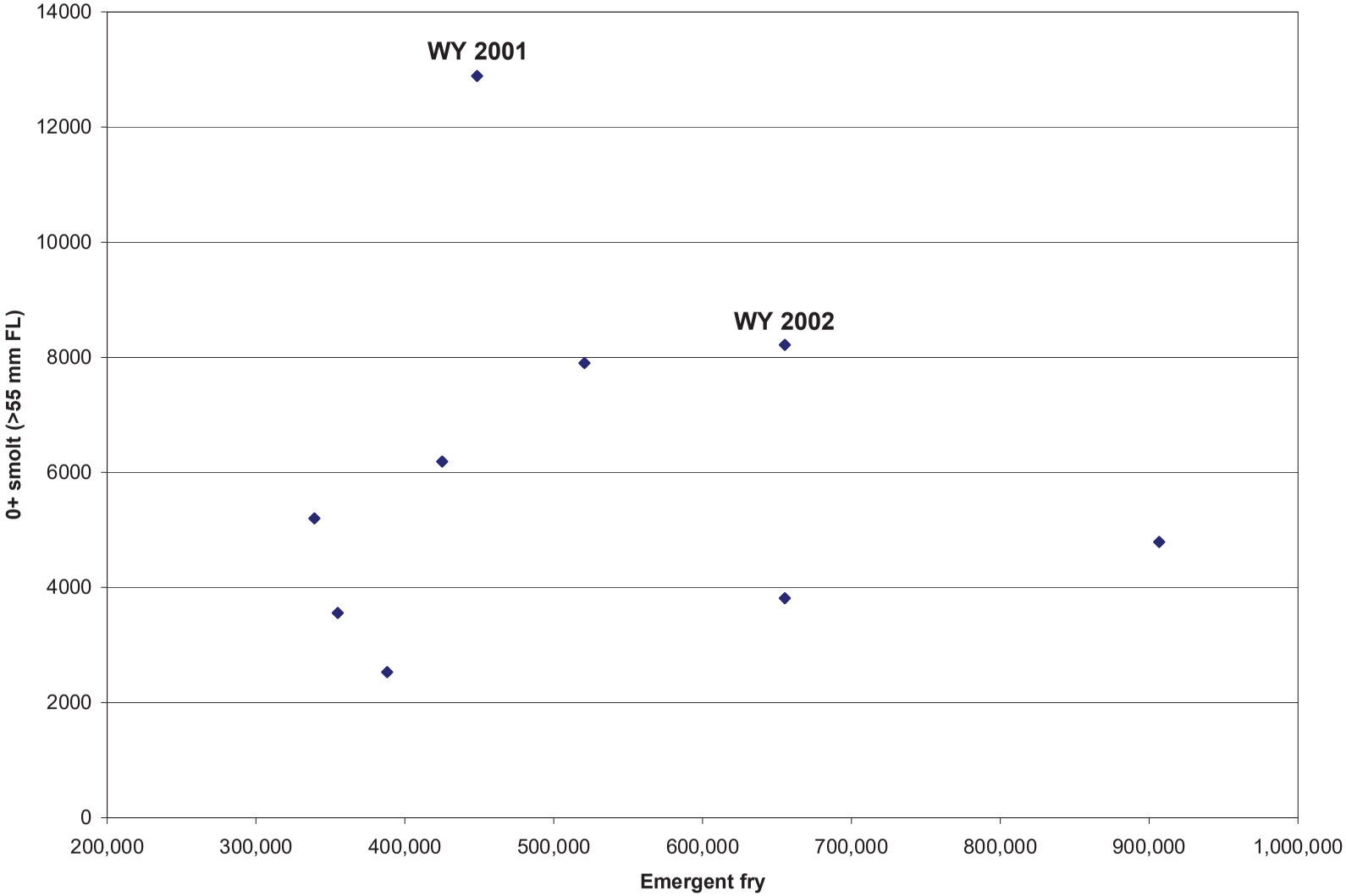


Figure 13. Estimated number of Chinook salmon 0+ smolts (>55 mm FL) based on outmigrant trapping versus estimated number of emergent fry (assuming a constant survival to emergence of 0.5 and fecundity of 3,900 eggs/female), West Branch Mill Creek, WY 1995 to 2005.

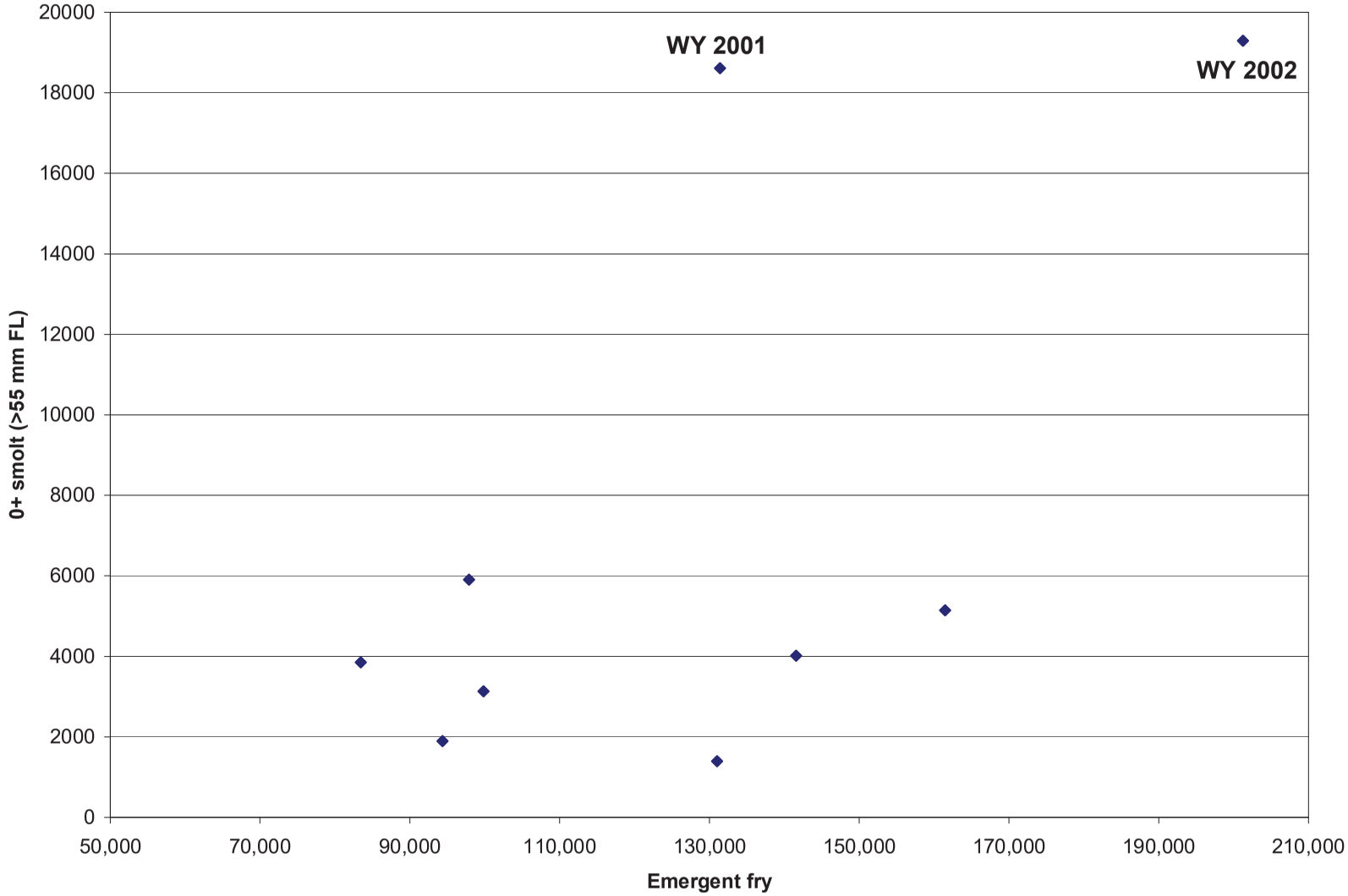


Figure 14. Estimated number of Chinook salmon 0+ smolts (>55 mm FL) based on outmigrant trapping versus estimated number of emergent fry (assuming a constant survival to emergence of 0.1 and fecundity of 3,900 eggs/female), East Fork Mill Creek, WY 1995 to 2005.

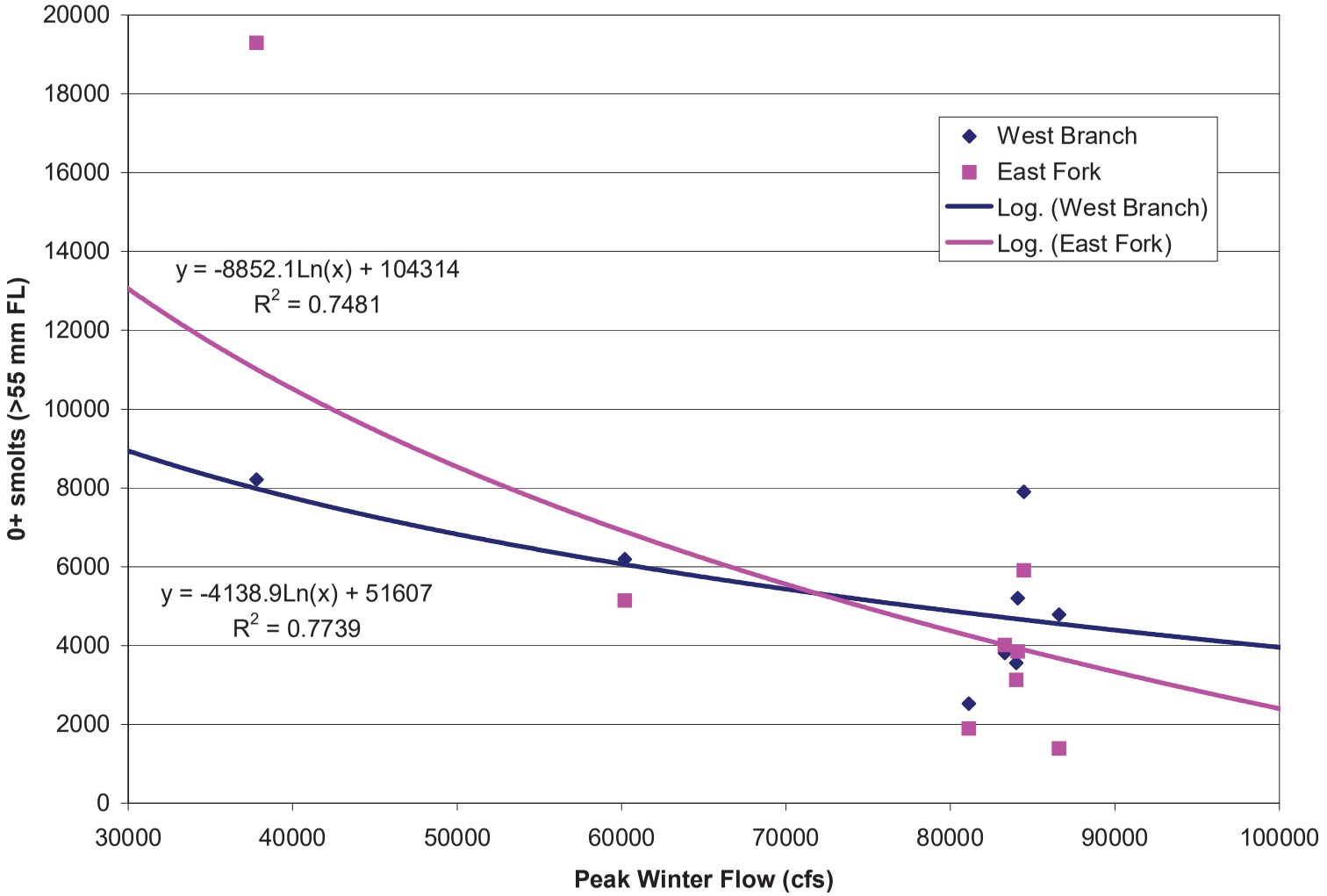


Figure 15. Estimated numbers of Chinook salmon 0+ smolts versus peak winter flow (cfs) from the same water year, West Branch Mill Creek and East Fork Mill Creek, WY 1995 to 2005.

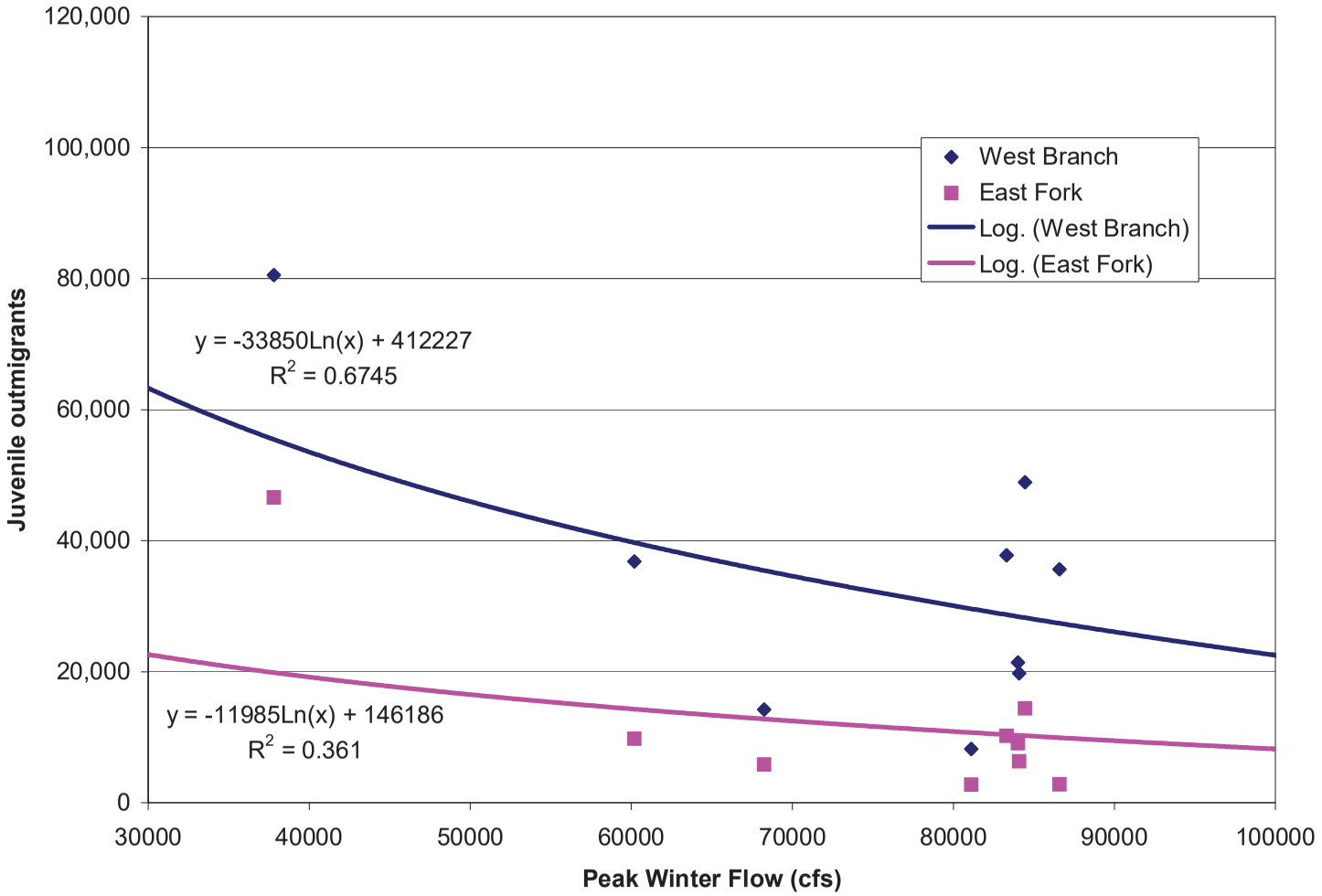


Figure 16. Estimated numbers of Chinook salmon juveniles versus peak winter flow (cfs) from the same water year, West Branch Mill Creek and East Fork Mill Creek, WY 1995 to 2005.

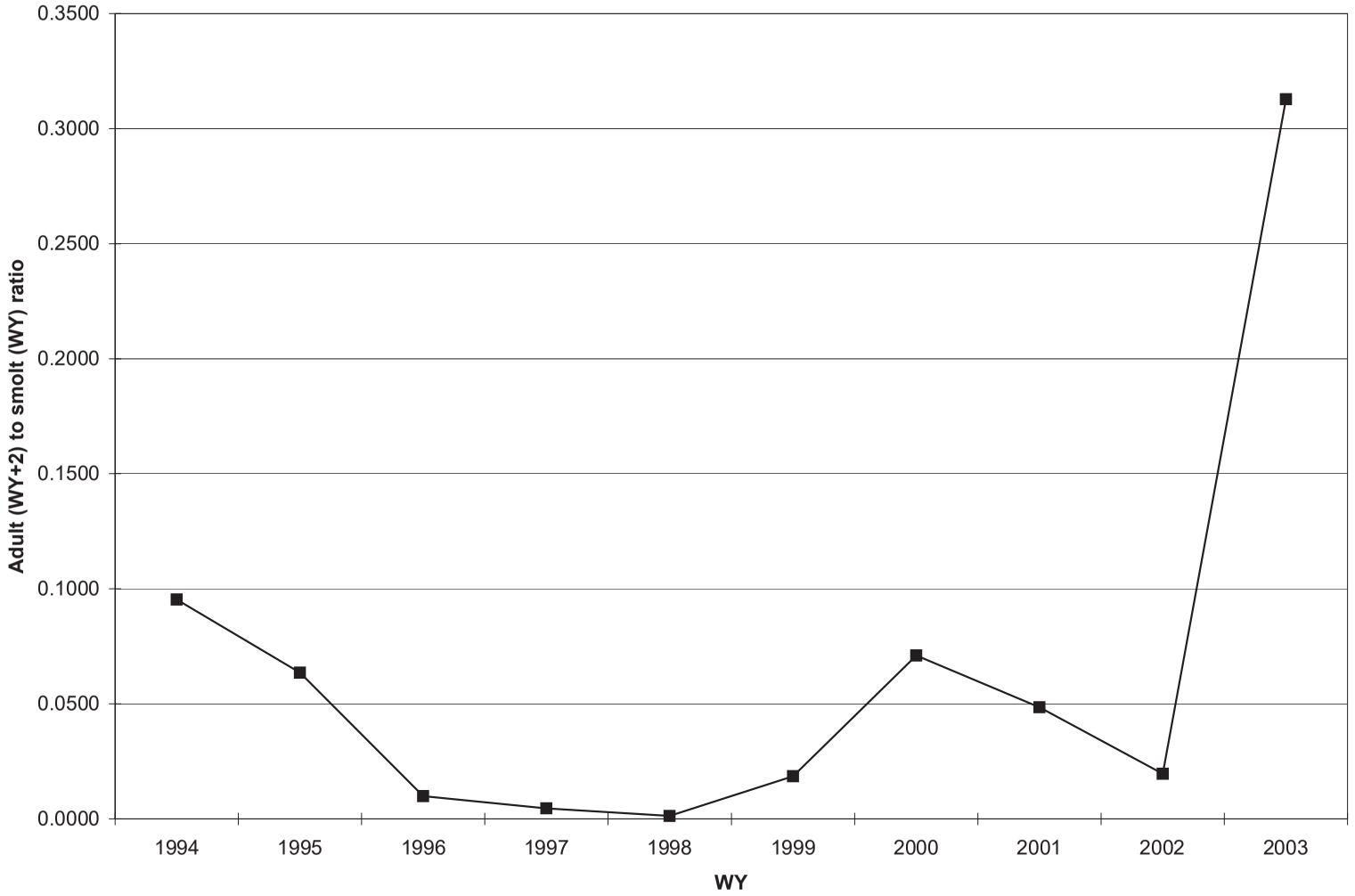


Figure 17. Coho salmon smolt to adult ratios based on smolt estimates from WY 1994 to 2003 and on adult estimates from WY 1996 to 2005 (twice the estimated number of redds), Mill Creek (West Branch and East Fork combined). (Adult estimates from WY 2005 based on raw redd counts rather than estimates.)

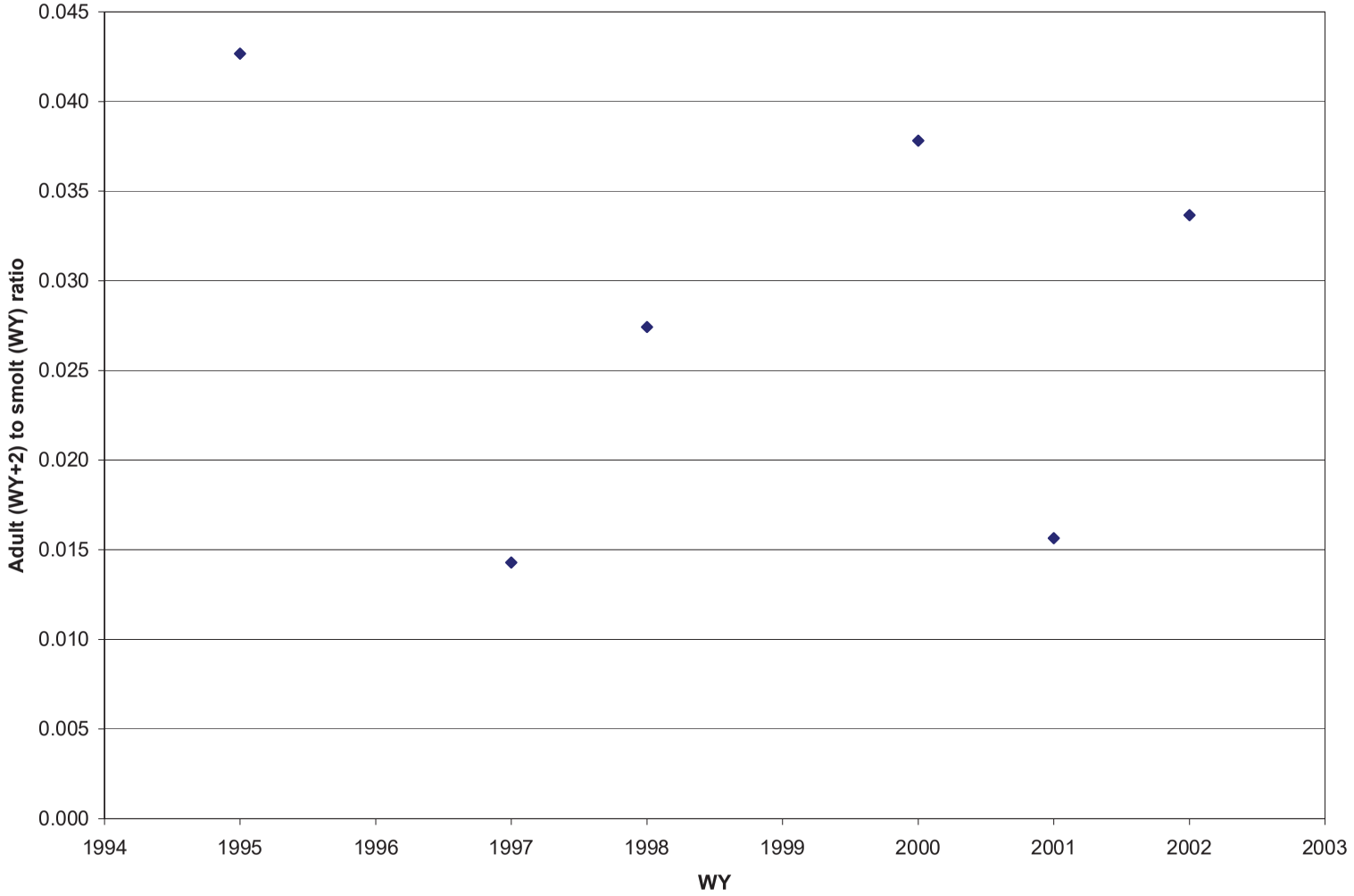


Figure 18. Chinook salmon smolt to adult ratios based on smolt estimates from WY 1995 to 2002 and on 3-year old adult estimates from WY 1998 to 2005 (twice the estimated number of redds produced by 3-year olds), West Branch Mill Creek. (Adult estimates from WY 2005 based on raw redd counts rather than estimates.)

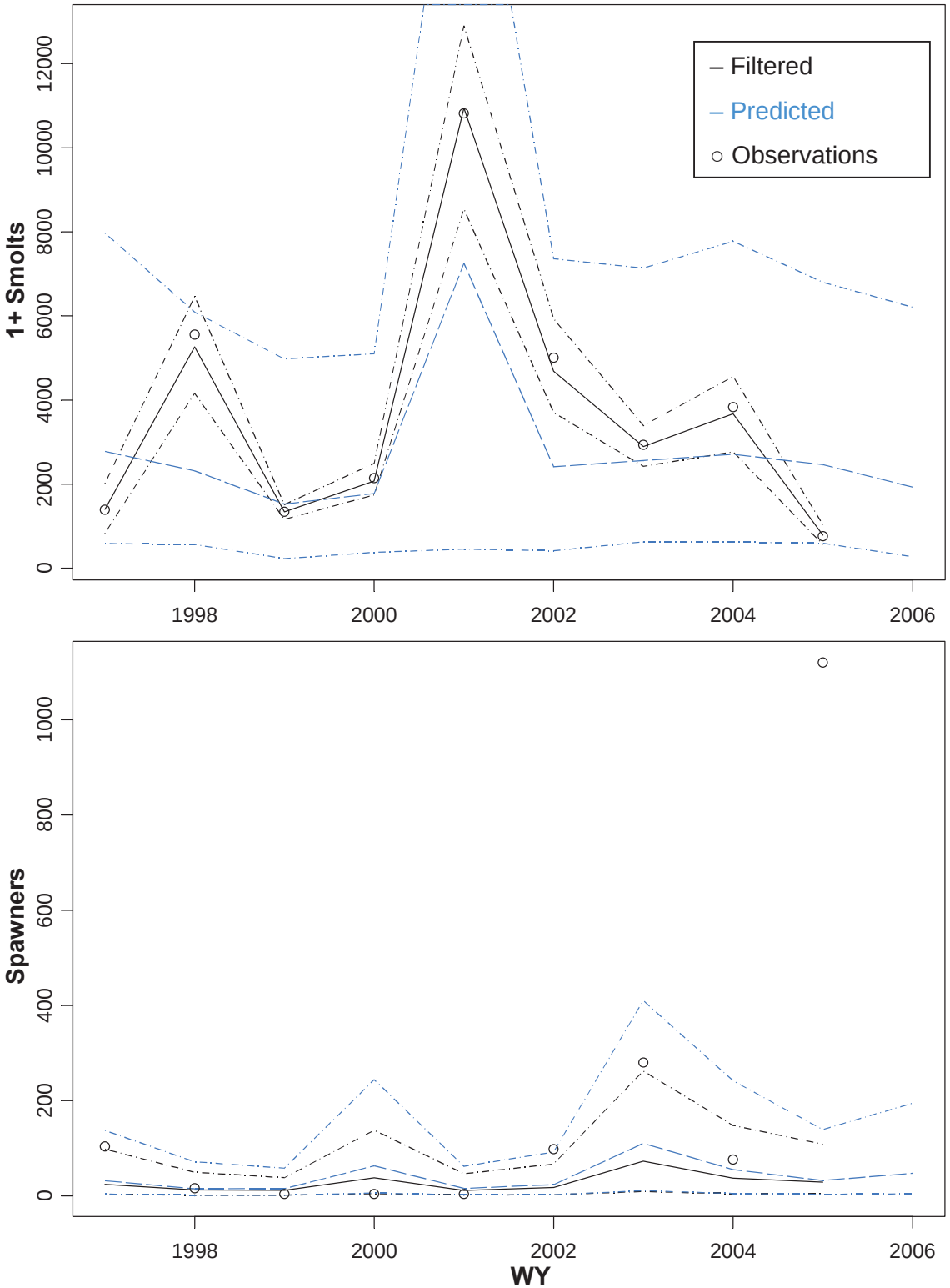


Figure 19. Filtered and predicted estimates of coho salmon 1+ smolts and spawners based on state-space modeling. Solid or long-dashed lines represent point estimates, and short-dashed lines represent 95% confidence intervals.