

**WARD'S FERRY TAKE-OUT 2016 OBSERVATIONS**  
**TECHNICAL MEMORANDUM**  
**DON PEDRO PROJECT**  
**FERC NO. 2299**



**Prepared for:**  
**Turlock Irrigation District – Turlock, California**  
**Modesto Irrigation District – Modesto, California**

**Prepared by:**  
**HDR, Inc.**

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## 1.0 BACKGROUND

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Commercial and private whitewater boaters on the upper Tuolumne River use the Ward's Ferry Bridge site as a take-out location. As part of the relicensing proceeding for the Don Pedro Hydroelectric Project, the Districts completed the Whitewater Boating Take-Out Improvement Feasibility Study, which assessed the feasibility of improving the take-out for continued use by whitewater boaters (TID/MID 2013). In 2016, the Districts completed an assessment of use patterns at the Ward's Ferry take-out. This memorandum summarizes those observations.

## 2.0 STUDY GOAL AND METHODOLOGY

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The goal of this assessment was to observe and record use patterns and behaviors at the Ward's Ferry take-out. The assessment included the following activities:

- evaluate the number of vehicles on the bridge and road shoulders, winch operations, traffic;
- identify vehicles associated with boating on private/commercial trips versus other recreation (fishing, waterplay, etc.);
- time how long it takes for a boat to off load from start to finish (from reaching shore to departing from the site); and
- develop a summary to present monitoring and observations results, describe group size, time spent at the site, take-out behaviors, and pedestrian and traffic patterns (including coping strategies to deal with or avoid congestion).

## 3.0 RESULTS

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HDR observed use patterns and behaviors at the Ward's Ferry take-out on eight randomly selected weekend days and weekdays during the 2016 whitewater boating season on days on which recreation flows were being provided (Tables 3.0-1 and 3.0-2). Observations were conducted from 2:00 PM to 6:00 PM, the time during which commercial rafting trips exit the river. Typical summer recreation flows of 1,100 cfs were forecast for all study days. Data were collected on monitoring forms (Attachment A) and then tabulated (Attachment B). Photographs were also taken as part of data collection (Attachment C).

**Table 3.0-1. Days when field observations were completed.**

No.	Date	Week Day	Non-Holiday Weekend Day	Holiday Weekend Day
1	7/2/2016			X
2	7/12/2016	X		
3	7/17/2016		X	
4	7/21/2016	X		
5	7/30/2016		X	
6	8/9/2016	X		
7	8/13/2016		X	
8	9/4/2016			X

**Table 3.0-2. Summary of observations.**

No.	Date	Water Elevation at 2:00 PM (ft) <sup>1</sup>	No. of Commercial Groups Observed	No. of Commercial Group Customers Observed	No. of Commercial Group Employees Observed	Private Whitewater Boaters Observed	Non-Whitewater Boats Observed
1	7/2/2016	789.7	3	20	9	6	10
2	7/12/2016	787.2	4	43	24		5
3	7/17/2016	784.5	5	102	34		8
4	7/21/2016	784.1	4	49	24		8
5	7/30/2016	780.7	3	47	16		12
6	8/9/2016	777.2	4	64	23		8
7	8/13/2016	776.1	3	43	14		10
8	9/4/2016	769.7	2	27	13	9	6

<sup>1</sup> [http://waterdata.usgs.gov/nwis/uv?cb\\_62614=on&format=html&site\\_no=11287500&period=&begin\\_date=2016-07-02&end\\_date=2016-09-23](http://waterdata.usgs.gov/nwis/uv?cb_62614=on&format=html&site_no=11287500&period=&begin_date=2016-07-02&end_date=2016-09-23), accessed September 22, 2016.

### 3.1 Summary of Key Findings

Key findings from the assessment are as follows:

- Peak use of the site was observed on weekend days and holidays from 3:00 PM – 4:30 PM, primarily driven by the arrival of commercial outfitter whitewater groups.
- At no time was available parking observed to be filled to capacity.
- On-water shade is at a premium at the site, with the bridge structure providing the only shade. Commercial outfitters and general public recreationists sought this crescent of shade, occasionally resulting in crowding.
- Reservoir elevation decreased from 789.7 ft on July 2, 2016 to 769.7 on September 4, 2016. As elevations receded, the water surface area at the site was reduced. This constricted on-water uses at the site into a smaller area.
- On July 12, August 9, and September 4, U.S. Forest Service and one commercial outfitter were observed using motorboats to tow rafts, presumably to Moccasin Point.

### 3.2 Observations related to commercial whitewater outfitters

- Commercial whitewater outfitters and their customers significantly outnumbered private whitewater boaters. On observation days, from two to five commercial groups arrived at the site, with group size ranging from five (5) to 22 customers.
- Commercial groups averaged 14 customers, five (5) water-based staff, and two (2) land-based staff.
- As many as three outfitters were present at one time, requiring coordination of winching and customer transport activities. On all afternoons, at least two outfitters were present.
- Each commercial outfitter group arrived in a fairly tight bunch, with the first and last rafts arriving on average within 10 minutes of one another.

- Commercial outfitters told observers that they coordinate arrival times and are very aware of one another's schedules. This helps them coordinate positioning winches on the bridge.
- Once a commercial group arrives at the site, average time to remove all rafts and equipment from the river and depart the site is one hour.
- Customers of the commercial outfitters depart the site approximately 30 minutes after arriving, on average.
- Winches spend an average of 1 to 1.5 hours on the site, arriving at least 30 minutes before the rafts.
- Outfitters have from 1 to 3 "land-side" employees who arrive by vehicle to the site to remove rafts and equipment, and transport customers from the site. Two (2) to 10 outfitter employees arrive with the group that has come down the river. The winch operator is typically a specially assigned person. Other outfitter employees, including the employees who have arrived by boat, fulfill several roles: equipment transport, boat lashing, shuttle driving, customer hosting.

### **3.3 Observations related to private whitewater boaters**

- Two groups of private whitewater boaters was observed during the assessment – one on July 2 (a group of six kayakers) and one on Labor Day weekend (a group of nine kayakers).
- Individual whitewater boaters were observed on some days, though it was difficult to distinguish commercial outfitter support staff from private, individual boaters (e.g., several whitewater groups were accompanied by a photographer in a kayak who might arrive to the site separately from the commercial group).
- On most observation days, no private whitewater boaters were observed.

### **3.4 Observations of other recreation activities**

- Shore-based recreation was observed at the site. Such activities included canoeing, fishing, and relaxing.
- Motorboats and jet skis were present at the site, passing up and down the river, and occasionally anchoring or floating in the immediate vicinity of the bridge.

## **4.0 REFERENCES**

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Turlock Irrigation District and Modesto Irrigation District (TID/MID). 2013. Whitewater Boating Take-Out Improvement Feasibility Study Report (RR-02). Prepared by HDR Engineering, Inc. December 2013.



**WARD'S FERRY TAKE-OUT 2016 OBSERVATIONS  
TECHNICAL MEMORANDUM**

**ATTACHMENT A**

**METHODS, OBJECTIVES, AND MONITORING FORMS**

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## Wards Ferry Take-Out Use Assessment Methods, Objectives, and Monitoring Forms

The purpose of this assessment is to observe and record use patterns and behaviors at the Wards Ferry Take-Out.

Evaluate the number of vehicles on the bridge and road shoulders, winch operations, traffic; identify vehicles associated with boating on private/commercial trips versus other recreation (fishing, waterplay, etc.); timing how long it takes for a boat to off load from start to finish (from reaching shore to departing from the site) — establishing variations, number of boats per group; commercial versus private; winches versus hand-carry out.

Develop a summary to present monitoring and observations results, describing group size, time spent at the site, take-out behaviors, pedestrian and traffic patterns (including coping strategies to deal with or avoid congestion).

River flow for the day and timing of releases will be obtained from internet sources. This determines the amount of flexibility commercial and private boaters have to organize their day, depart from camp etc. If it is a short window, this could be contributing to the back up at take-out.

Questions about boating and boaters pertain to whitewater boating unless otherwise noted.

Vehicle and Boating Instantaneous Observations. Conduct every 15 minutes if feasible, or every 30 minutes. Intent is to capture the build-up to peak use and the slow-down

Date	
Time	
Observer(s)	
Number of vehicles parked on Wards Ferry Bridge	
Number of vehicles parked on the road shoulders	
Number of vehicles attempting to access area, but unable to find parking	
Out of the total number of vehicles, estimate the number of vehicles associated with boating on private trips (as opposed to commercial)	
Out of the total number of vehicles, estimate the number of vehicles associated with other recreation such as fishing or waterplay.	
How many winches are positioned on the bridge?	
How many winches are lifting boats at this time?	
Are one or more boats being hand-carried out?	

\*An assumption is that any vehicles parked on the bridge are associated with commercial whitewater operations. Please make a note if the vehicle count on the bridge includes any private vehicles.

NOTE any congestion or conflicts (e.g. motorboat wakes that bother rafters, shoreline users and whitewater boaters crowding in the same space).

Boat Unloading Observations Questions about boating and boaters pertain to whitewater boating.

Date	
Group No.	
Observer(s)	
<p>Boat and vehicle arrival times (when vehicle(s) park(s)/position(s) and when boat(s) reach(es) shore) (If the party is private, there may be as few as one vehicle involved. In that case, tally in the Vehicle to haul rafts/kayaks line(s) and note that boaters went in same vehicle(s).</p>	<p>Winch _____</p> <p>Utility support vehicle _____</p> <p>Vehicle to haul rafts/kayaks _____</p> <p>Vehicle to haul rafts/kayaks (if a 2<sup>nd</sup>) _____</p> <p>Vehicle to transport boaters _____</p> <p>First boat to reach shore _____</p> <p>Last boat to reach shore _____</p>
Exits river right or left?	
Number of kayaks	
Number of passenger rafts	
Number of equipment/supply rafts	
Is party commercial or private? If commercial, name outfitter.	
Number of boaters, tally guests and staff separately for commercial	
Are boats hand-carried or winched out?	
Number of commercial staff present at the take-out but not boating (i.e., winch operator)	
Time when boater(s) depart site	
Time when boat(s) depart site	

NOTES:

## Motorboat Tally

DATE: \_\_\_\_\_

Motorboat*	Direction of travel (upstream or down)	Number of people	Probable activity	Time observed
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				

\*Note in this column if you observe the same boat going back and forth (e.g., if boat #1 is tallied at 2:30 PM going upstream, and the same boat returns downstream as boat #13 at 5:00 PM, then write “1” in the 13 row of this column.

**WARD'S FERRY TAKE-OUT 2016 OBSERVATIONS  
TECHNICAL MEMORANDUM**

**ATTACHMENT B**

**BOAT UNLOADING OBSERVATIONS**

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Boat Unloading Observations						Boat arrival window (calculated)	Winch (number)	Utility support (number)	Vehicles to haul rafts (number)	vehicle to transport boaters (number)	Exit (R or L)	Kayaks	Passenger rafts	Supply rafts	Commercial or Private (C or M)	Outfitter name	Guests	Staff on river	Winched (Y or N)	Other staff on-site	Boaters depart	Boater time on-site (calculated)	Boats depart	Outfitter time on site after boats arrive (calculated)	Notes (Y or N)
Date	Group No.	Observer	Observer	Time first boat to shore	Time last boat to shore																				
9/4/16	1	PB	BB	15:57	16:03	0:06	1	1	0	1	L	1	4	2	C	All Outdoors	22	6	Y	3	16:35	0:38	17:06	1:09	N
9/4/16	2	PB	BB	16:05	16:08	0:03	1	0	0	1	R	1	1	1	C	Sierra Mac	5	2	Y	2	16:29	0:24	16:55	0:50	N
8/13/16	1	PB	BB	15:35	16:07	0:32	1	1	1	1	L	0	2	1	C	Sierra Mac	8	3	Y	3	16:18	0:43	16:50	1:15	Y
8/13/16	2	PB	BB	16:05	16:10	0:05	1	1	0	1	R	0	3	2	C	ARTA	17	5	Y	3	16:48	0:43	17:05	1:00	Y
8/13/16	3	PB	BB	15:34	16:05	0:31	1	0	0	1	R	2	3	2	C	OARS	18	5	Y	2	16:15	0:41	16:54	1:20	N
8/9/16	1	PB	BB	14:50	14:58	0:08	1	0	1	1	R*	0	2	3	C	All Outdoors	7	5	Y	1	15:21	0:31	16:19	1:29	Y
8/9/16	2	PB	BB	16:09	16:15	0:06	1	0	0	1	R	2	3	3	C	OARS	17	6	Y	2	16:40	0:31	17:21	1:12	Y
8/9/16	3	PB	BB	16:25	16:30	0:05	1	2	2	1	L	2	4	0	C	All Outdoors	20	4	Y	2	16:38	0:13	17:14	0:49	N
8/9/16	4	PB	BB	16:50	17:04	0:14	1	1	0	1	L	0	6	2	C	ARTA	20	6	Y	3	17:08	0:18	17:51	1:01	N
7/30/16	1	PB	BB	15:35	15:42	0:07	1	1	0	1	L	1	2	1	C	All Outdoors	10	3	Y	2	15:55	0:20	16:00	0:25	N
7/30/16	2	PB	BB	16:03	16:11	0:08	1	1	0	1	R	2	2	0	C	Sierra Mac	12	2	Y	2	16:30	0:29	16:40	0:37	N
7/30/16	3	PB	BB	16:05	16:40	0:35	1	1	0	1	L	1	3	2	C	ARTA	15	5	Y	2	16:50	0:45	17:17	1:12	Y
7/21/16	1	PB	BB	14:00	14:00	0:00	1	0	1	0	L	0	1	1	C	All Outdoors	4	2	Y	1	14:37	0:37	14:37	0:37	Y
7/21/16	2	BB		15:05	15:32	0:27	1	0	0	1	R	0	4	2	C	Sierra Mac	20	6	Y	1	15:47	0:42	16:15	1:10	N
7/21/16	3	PB	BB	15:47	15:53	0:06	1	1	1	1	L	0	4	3	C	ARTA	18	10	Y	3	16:14	0:27	16:48	1:01	N
7/21/16	4	PB	BB	17:00	17:01	0:01	1	1	0	1	L	0	2	0	C	All Outdoors	7	2	Y	2	17:20	0:20	17:20	0:20	N
7/17/16	1	PB	BB	14:05	14:23	0:18	1	0	1	1	L	0	4	2	C	All Outdoors	20	8	Y	1	14:45	0:40	15:15	1:10	N
7/17/16	2	PB	BB	15:52	16:22	0:30	1	1	0	1	R	0	3	1	C	Sierra Mac	14	6	Y	3	16:30	0:38	16:55	1:03	N
7/17/16	3	PB	BB	15:22	15:45	0:23	1	2	1	1	L	1	3	2	C	ARTA	17	7	Y	3	15:55	0:23	16:15	0:53	N
7/17/16	4	PB	BB	17:23	17:27	0:04	1	1	1	1	L	1	3	0	C	All Outdoors	20	3	Y	3	17:43	0:20	18:12	0:49	Y
7/17/16	5	PB	BB	17:24	17:32	0:08	1	1	0	0	L	1	4	0	C	All Outdoors	21	3	Y	3	17:44	0:20	18:25	1:01	N
7/12/16	1	PB	BB	14:50	15:09	0:19	1	2	1	1	L	0	0	1	C	ARTA	7	3	Y	2	14:56	0:06	15:39	0:49	N
7/12/16	2	PB	BB	15:47	15:55	0:08	1	0	1	1	R	1	3	2	C	OARS	8	6	Y	2	16:15	0:28	17:00	1:13	N
7/12/16	3	PB	BB	16:39	16:44	0:05	1	1	0	1	L	0	5	0	C	Sierra Mac	22	6	Y	2	16:55	0:16	17:34	0:55	N
7/12/16	4	PB	BB	17:05	17:10	0:05	1	1	1	2	R	1	1	0	C	McBain/City & County of San Francisco	6	2	Y	1	17:45	0:40	17:46	0:41	Y
7/2/16	1	PB	BB	14:05		1	1				R	0	1	0	C	ARTA	4	2	Y	1	14:55	0:50	15:12	1:07	Y
7/2/16	2	PB	BB	15:07		1	1				L	0	1	1	C	Sierra Mac	5	2	Y	1	15:43	0:36	15:38	0:31	Y
7/2/16	3	PB	BB	16:32		1	1				R	2	2	1	C	All Outdoors	11	2	Y	1	16:36		16:52		Y
7/2/16	4	PB	BB	16:31		0	0	0	0	1	L	6	0	0	P						0:30				
MEAN						0:12											13	4				0:30			0:57
MEDIAN							1					1	3	1						2					

**WARD'S FERRY TAKE-OUT 2016 OBSERVATIONS  
TECHNICAL MEMORANDUM**

**ATTACHMENT C**

**PHOTOGRAPHS**

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**Figure 1.** Outfitter employee operating crane on Ward's Ferry Bridge to hoist raft and place it on the trailer.



**Figure 2.** Outfitter employee placing raft on trailer and removing straps.





**Figure 3.** Outfitter truck for hauling gear, and outfitter employees collecting gear from customers.



**Figure 4.** Outfitter employee preparing a raft for hoisting at Ward's Ferry Bridge. Note the shadow of the bridge where outfitters stage rafts for lifting. Many recreationists (rafters and others) at the site seek out the shoreline areas in this crescent of shade on hot afternoons, creating potential for crowding even though, overall, the site is not being used to capacity.





**Figure 5.** Outfitter employees hoisting raft and loading gear onto the truck-top rack, with raft in mid-lift.



**Figure 6.** Outfitter employees hoisting raft and loading gear onto the truck-top rack, with raft poised above bridge.





**Figure 7.** Outfitter employees on Ward's Ferry Bridge hoisting rafts and placing them on the truck-top rack, and outfitter customers loading into the bus.



**Figure 8.** Raft being hoisted to Ward's Ferry Bridge on river left with three outfitter employees waiting to transfer the raft to the trailer, and outfitter customers observing from mid-bridge. Note also the mini-bus waiting to transport customers and some gear. Black SUV on the right is driven by an outfitter employee who arrives to assist with raft loading.





**Figure 9.** Raft being placed onto trailer. Note also outfitter employee atop the mini-bus loading gear.



**Figure 10.** Outfitter employee guiding hoist straps back over the bridge to retrieve another raft.



**Figure 11.** Outfitter employees and customers unloading gear into the bus and onto the trailer on Ward's Ferry Bridge. Note there are two outfitters set up on the bridge, one on river right and one on river left; and a third outfitter haul truck is arriving.