

February 22, 2010

TO: Erin Strange (NOAA Fisheries), Donald Ratcliff (USFWS), Mike Healey (CDFG), Kevin Kauffman (SEWD), Doug Demko (FISHBIO)
Cc: Trevor Kennedy (FFC), Michelle Palmer (FISHBIO), Warden Oldfather (CDFG)
FROM: Kari Burr
SUBJECT: Summary of Calaveras River and Mormon Sough/ Diverting canal Fish Stranding and Relocation Events February 17-19, 2010

During (Feb.17-19) pre-project, post high flow event monitoring for the Budiselich Barrier Removal project, Fishery Foundation of California (FFC) discovered a total of 34 live and 3 dead *O.mykiss*, one delta smelt (*Hypomesus transpacificus*) and hundreds of other fish of various species (details to follow) in the Calaveras diverting canal near Wilson Way. The delta smelt was turned over to FWS biologist Lori Smith at the collection site. Live *O.mykiss* were relocated downstream in the Calaveras River and other fish were returned to the pools after processing.

At approximately 4:30 in the afternoon on February 17, 2010, FFC discovered four *O.mykiss* stranded in a hydraulically disconnected shallow pool (Figure 1) in the diverting canal upstream of the confluence with the Old Calaveras channel (about parallel with the telephone pole near the house on the north levee). The weather was sunny and daytime temperatures reached 70 °F. The stranding pool was about 8 feet long and 4 feet wide with a maximum depth of 7 inches. Water temperature was 66 °F. One partially eaten *O.mykiss* carcass was also discovered on the dry channel bed nearby (Figure 2). Additionally, 7 Bluegill (*Lepomis macrochirus*), 1 Green Sunfish (*Lepomis cyanellus*), 1 Sacramento Sucker (*Ptychocheilus grandis*) and 4 Inland Silverside (*Menidia beryllina*) and one Black Bullhead (*Ameiurus melas*) were observed (Figure 3) and returned to the pool. DFG, SEWD and USFWS AFRP were notified and FFC proceeded to collect, process and relocate the four *O. mykiss* as per permit #1416 issued to FFC by NMFS under section 10 of the ESA. All *O. mykiss* were immediately placed in aerated five gallon buckets (Figure 4). Fork lengths were estimated and smolt stages noted (Figures 5-6), all four *O. mykiss* were classified as silvery parr (Table 1). During this time DFG Warden Lori Oldfather arrived at the site just before dark to photo document the event and offer assistance. After leaving the site at approximately 6:30pm, Kari Burr (FFC) was joined by Dr. Stacy Luthy (UOP) and they proceeded to a release location downstream in the Calaveras River near Brookside housing development. The fish were released from a dock on the Darrah property opposite Brookside in a tidal reach of the Calaveras River about one quarter mile from the confluence with the San Joaquin River/Stockton Deep Water Ship Channel. All fish were in good condition and actively swam away.

February 18, 2010

FFC resumed the stranding survey and relocation effort at 8:00am on February 18, 2010. The weather was partly cloudy and slightly cooler than the day before. We returned to the site where four *O.mykiss* were discovered the previous day and found it completely dewatered. All non-salmonids from the previous day were dead or dying on the dry channel bed and one additional partially eaten *O.mykiss* carcass was observed. Three additional hydraulically isolated pools in the Diverting Canal between the Central traction Rail Bridge upstream of Wilson Way and the confluence with the old Calaveras channel were identified for seining.

The first pool, located about 400 meters downstream of Wilson Way was 120 feet long, 35 feet wide and had an average depth of about 2 feet. The water temperature was 55 °F. Two seine hauls at 9:15am yielded 3 threadfin shad (*Dorosoma petenense*), 9 bluegill, 2 inland silversides, and 12 mosquitofish (*Gambusia affinis*). Fork lengths were estimated and fish were returned to the pool.

The second pool was located at the confluence with the Old Calaveras and extended downstream (Figures 7-8). Length was 90 feet, width 28 feet and average depth was about 2 feet. Water temperature was 55-56 °F. Three seine hauls were made at beginning at 11:00am yielding: 76 bluegill, 6 carp (*Cyprinus carpio*), 81 Golden Shiners (*Notemigonus crysoleucus*), 9 inland silversides, 4 Largemouth bass (*Micropterus salmoides*), 41 Threadfin shad, and 18 *O.mykiss*. An additional *O.mykiss* was netted in a small stranding pool just downstream of pool 2. Fish were processed and 19 *O.mykiss* (5 smolts and 14 silvery parr) were relocated to The Calaveras River and released at 1:30pm in good condition at the same release point used the previous day.

The third pool (Figure 9) was located just upstream of the RR Bridge near the cement stormwater culvert. Pool 3 was 73feet long, 16.5 feet wide and average depth was 1 foot. Water temperature was 66 °F. One seine haul at 2:30 yielded 10 Threadfin shad and one bluegill. Fish were processed and returned to the pool.

FFC surveyed upstream to check for more isolated pools and noted several more sites to seine between Wilson Way and the Central Traction Railroad bridge. We then checked Budiselich for hydraulic disconnection and found it still connected at the Hwy 99 Bridge.

February 19, 2010

FFC resumed the stranding survey and relocation effort at 9:00am on February 18, 2010. The weather was cloudy and cool with a light sprinkle. Budiselich was checked and was still connected, but near disconnection just downstream of Hwy 99. There appeared to be a few points of disconnection between Cherokee bridge and the Central Traction RR bridge but the most significant dewatering occurred downstream near Wilson Way therefore efforts were focused in that area.

Four new pools were identified for seining, one upstream of Wilson way and three downstream. Pools one and three from the previous day were seined again to ensure no *O.mykiss* were missed.

The first pool was located about 300 meters downstream of the Central Traction Rail Bridge and measured 60 feet long and 9 feet wide, average depth 0.5 feet. At 11:05am the water temperature was 57 °F. Two seine hauls yielded 275 bluegill, 9 carp, 27 black bullhead, 5 golden shiner, 11 inland silverside, 14 Pumpkinseed (*Leopomis gibbosus*) 4 redear sunfish, 1 Sacramento sucker, 2 smallmouth bass and 6 green sunfish (Figure 10).

Upstream of the first pool about 140 meters from the Central Traction RR bridge was a freshly dewatered area where 60 bluegill, 4 mosquitofish several bullfrog tadpoles and four catfish were observed nearby (Figure 11).

The second pool was about 300 meters downstream from Wilson Way, 80 feet long 10 feet wide and 0.5 feet deep. Water temperature was 57 °F. One haul at 10:30am brought only three mosquitofish, a few tadpoles and a crayfish.

At about 12:00pm a pool seined the previous day approximately 400 meters downstream of Wilson Way had diminished in size and was seined again. The pool was now 30 feet long, 10 feet wide and 0.5 feet average depth. (Figure 12) Water temperature was 59 °F. Two passes were made with the seine and one delta smelt (*Hypomesus transpacificus*) was hauled in along with one inland silverside, one threadfin shad, one brown bullhead, 22 bluegill and 16 mosquitofish. FFC contacted FWS who sent biologist Lori Smith to collect the fish. The delta smelt (Figure 13) was kept in an aerated five gallon bucket until Ms. Smith arrived and positively identified the fish then transported it off site. Also present was Jim Inman from FISHBIO who contacted Erin Strange at NMFS and Kevin Kauffman (SEWD).

The third new pool located 200 meters downstream of Wilson Way, was 105 feet long, 30 feet wide and had an average depth of one foot. Water temperature was 61 °F and one seine haul at 1:45pm yielded; one *O. mykiss*, 19 bluegill, 4 redear sunfish, 3 carp, 34 golden shiner, 3 largemouth bass and 2 brown bullhead.

The fourth new pool was located 100 meters downstream of Wilson Way. It was 80 feet long 12 feet wide and average depth was 0.5'. Water temperature was 61 °F at 2:45pm and two seine hauls yielded; 12 *O. mykiss* (9 silvery parr & 3 smolts), 154 bluegill, 31 redear sunfish, 19 golden shiner and one largemouth bass. One *O. mykiss* (silvery parr) carcass was found completely out of water adjacent to the site.

A repeat seine was conducted at 1:40pm in the pool at the confluence (which was seined the previous day) with the Old Calaveras and one more *O. mykiss* (silvery parr) was discovered. Water temperature was 58 °F and average depth was 2.5 feet. Two *O. mykiss* were turned over to DFG Warden Lori Oldfather at the request of Captain DeAnda. The other 11 *O. mykiss* rescued were relocated to the Calaveras River release site on the Darrah property and released in good condition at 3:20pm (Figure 14-15).

FFC returned to upstream to check a pool between the footbridge downstream of the confluence and West Lane. Considering the pool's proximity to tidewater and the rain forecast for Saturday and Sunday, FFC decided not to seine as is likely to reconnect over the next two days which would allow

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fish to migrate out. FFC will assess conditions on Monday February 21, 2010 to determine if more surveys are needed.

Table 1. Number, estimated lengths, and smolt indices of 32 live *O. mykiss* and one carcass (*) from the Stockton Diverting Canal /Calaveras River February 17-19, 2009. Does not include the 2 partially eaten carcasses.

Fish Number	Fork Length (mm)	Smoltification stage
Lat/Long: N 37.992209 / W 121.273825		Date: 2/17/10
1	178	Silvery parr
2	254	Silvery parr
3	152	Silvery parr
4	140	Silvery parr
Lat/Long: N 37.994280 / W 121.280312		Date: 2/18/10
5	155	Silvery parr
6	170	Silvery parr
7	195	Silvery parr
8	205	Silvery parr
9	140	Silvery parr
10	155	Silvery parr
11	160	Silvery parr
12	210	Silvery parr
13	200	Silvery parr
14	200	Silvery parr
15	190	Silvery parr
16	130	Silvery parr
17	155	Smolt
18	210	Smolt
19	200	Smolt
20	250	Smolt
21	200	Smolt
Lat/Long: N 37.994128 / W 121.281406		Date: 2/18/10
22	165*	Silvery parr
Lat/Long: N 37.990787 / W 121.270902		Date: 2/19/10
23	190	Silvery parr
24	163	Silvery parr
25	191	Silvery parr
26	167	Silvery parr
27	134	Silvery parr
28	159	Silvery parr
29	145	Silvery parr
30	135	Silvery parr
31	125	Silvery parr
32	195	Silvery parr
33	203	Smolt
34	189	Smolt
35	220	Smolt



Figure 1. February 17, 2010. Pool where first four *O.mykiss* were discovered.



Figure 2. Feb. 17, 2010. Partially eaten *O.mykiss* carcass on dewaterd channel bed.



Figure 3. Feb.17,2010. bluegill, black bullhead, sacramento sucker, inland silverside, *O.mykiss* carcass.



Figure 4. Feb, 19, 2010. *O.mykiss* ready for transport and relocation.



Figure 5. *O.mykiss* silvery parr



Figure 6. *O.mykiss* smolt.



Figure 7. Feb 18, 2010. Upstream end of pool with Old Calaveras channel top center



Figure 8. Feb. 18, 2010. Downstream end of pool in figure 7.



Figure 9. Feb. 18, 2010. Pool at the culvert downstream of the footbridge and RR bridge.



Figure 10. Seine haul Feb.19, 2010 at pool 300 meters downstream of Central Traction RR bridge.



Figure 11. Feb. 19, 2010 Stranded fish downstream of Central Traction RR bridge.



Figure 12. Feb 19, 2010 Pool where delta smelt was discovered.



Figure 13. delta smelt (*Hypomesus transpacificus*)



Figure 14. Feb.19, 2010 long shallow pool downstream of Wilson way



Figure 15. Feb. 18, 2010 *O.mykiss* release in Calaveras River.



Figure 16. Feb.18, 2010 *O.mykiss* release in Calaveras River.