

## **Delta Operations for Salmonids and Sturgeon (DOSS) Group**

**3/4/14**

**Objective:** Provide advice to the Water Operations Management Team (WOMT) and National Marine Fisheries Service (NMFS) on measures to reduce adverse effects from Delta operations of the Central Valley Project and the State Water Project on salmonids and green sturgeon. DOSS will work with other technical teams. DOSS notes and advice can be found at: [http://www.westcoast.fisheries.noaa.gov/central\\_valley/water\\_operations/doss.html](http://www.westcoast.fisheries.noaa.gov/central_valley/water_operations/doss.html).

### **Attendees**

**DWR:** Dan Yamanaka, Kevin Reece, Farida Islam, Aaron Miller, James Gleim, Mike Ford

**FWS:** Leigh Bartoo, Roger Guinee, Craig Anderson

**NMFS:** Barbara Rocco, Jeff Stuart, Barb Byrne, Garwin Yip

**Reclamation:** Josh Israel, Russ Yaworsky

**DFW:** Colin Purdy, Bob Fujimura, Chris McKibbin, Krystal Acierto

**SWRCB:** Scott Ligare

**EPA:** Erin Foresman

**USGS:** not present

### **Agenda**

1. Agenda review and introductions
2. Fish Monitoring
3. Current Ops
4. Heads up re: "OMR Index Demonstration Project" on using an OMR index rather than measured gage data for compliance on the 14-day average. NMFS letter available at: [http://www.westcoast.fisheries.noaa.gov/publications/Central\\_Valley/Water%20Operations/Operations,%20Criteria%20and%20Plan/nmfs\\_response\\_to\\_reclamation\\_s\\_omr\\_index\\_demonstration\\_project\\_-\\_february\\_27\\_2014.pdf](http://www.westcoast.fisheries.noaa.gov/publications/Central_Valley/Water%20Operations/Operations,%20Criteria%20and%20Plan/nmfs_response_to_reclamation_s_omr_index_demonstration_project_-_february_27_2014.pdf)
5. Drought Contingency Plan (focus on DCC trigger table) for March 2014:
  - NMFS letter and DCC trigger table at: [http://www.westcoast.fisheries.noaa.gov/publications/Central\\_Valley/Water%20Operations/Operations,%20Criteria%20and%20Plan/2\\_28\\_2014\\_nmfs\\_march\\_contingency\\_plan\\_response\\_letter\\_and\\_enclosures.pdf](http://www.westcoast.fisheries.noaa.gov/publications/Central_Valley/Water%20Operations/Operations,%20Criteria%20and%20Plan/2_28_2014_nmfs_march_contingency_plan_response_letter_and_enclosures.pdf)
  - SWRCB Order revised February 28, 2014: [http://www.swrcb.ca.gov/waterrights/water\\_issues/programs/drought/docs/022814\\_revised\\_tucp\\_order.pdf](http://www.swrcb.ca.gov/waterrights/water_issues/programs/drought/docs/022814_revised_tucp_order.pdf)
6. SWG
7. Review Current and Upcoming RPA Actions
8. DOSS Advice?

**Fish Monitoring:** The following table presents fish monitoring data. Unless otherwise noted, reported sizes are fork length. See also:

<http://www.water.ca.gov/swp/operationscontrol/calfed/calfedmonitoring.cfm>.

Location	Chippis Is. Midwater Trawl	Sacramento Trawls	Mossdale Kodiak Trawl	GCID <sup>1</sup>	Knights Landing RST <sup>2</sup>	Tisdale RST	Beach Seines	Jersey Point
Sample Date	2/26, 28	2/26–28	2/26, 28	2/26–28	2/26–3/2	2/26–28	2/25–28	2/27–3/1
Total Catch	9	151	0	495	8,711	4,758	4,146	26
FR		145		456	8,592	4,638	4,122	1
WR	2	2		2	32	24	8	
SR		3		27	87	48	10	
LFR								
Ad-Clipped Chinook		1		10	14	28		
DS							4	25
Splittail								
Longfin	7							
SH (ad-clip)					1	19	2	
SH (wild)					4	1		
W. Temp. (avg. °F)	13.7	13.8	15.3	59.2	58.0	55.4	13.9	13.7
Flows (avg. cfs)					7,664	6,683		
Turbidity (avg. NTU unless noted otherwise)	42.5	12.9	12.8	2.95	28.7 <sup>3</sup>	53.7	22.1	17.5
WR/LFR Avg. CPUE					0.33	0.13		
FR/SR Avg. CPUE					102.0	27.4		

CPUE = catch per unit of effort reported as the average fish/hour over reported sampling dates; ACT = acoustic tag; GCID = Glenn-Colusa Irrigation District; RST = rotary screw trap

<sup>1</sup>The trap cone was raised on 2/27 because of high flows and heavy debris. Sampling will not continue until further notice.

<sup>2</sup>3/1–3/2 sampling during daytime hours only; heavy in-river debris.

<sup>3</sup>Note that Formazin Turbidity Units (FTUs) is used at Knight's Landing to measure turbidity in place of Nephelometric Turbidity Units (NTUs).

**Lower American River Rotary Screw Trap (RST) at Watt Avenue, 2/16–3/2:** The total catch of unmarked Chinook salmon over the reporting period was 61,612, of which 59,047 were live fall run, 2,530 were dead fall run, 34 were live spring run, and 1 was a dead spring run. There were 8 total steelhead, of which 7 were live smolts and 1 was a live fry. There were also 493 marked Chinook and 13 ad-clipped steelhead caught.

It was noted that some of the fall-run Chinook coming down the American River now might be large enough to fit within the winter-run size class. Israel (Reclamation) will request data from FWS on individual sizes and weights of fish in the seine and trawl catches from the Delta. The storm a few weeks ago resulted in increased releases at Nimbus (from runoff, not from Folsom releases), which was associated with an increase of daily RST catches to 9,000 fish. Supported by the Real-Time Drought Operations Team (RT-DOT), a 24-hour pulse of 1,000 cfs will begin today on the American River; enhanced fish monitoring is being funded by the Water Forum. It is anticipated that a large number of fish will move with this pulse tomorrow. The benefit of increasing the volume of water is that it decreases predation and provides an opportunity for fish to move downstream. The Water Forum estimates that fry emergence will be 95% complete by 3/6; the pulse is being targeted now to also help get the already-emerged fry out of the side

channels. The flows will ramp back down to 500 cfs after the pulse period. Crews will help clear debris tomorrow morning, if necessary, to ensure that RSTs remain unclogged.

**Fish Salvage<sup>1</sup>:** Fujimura (DFW) provided an update on fish salvage at SWP and CVP. From 2/24 through 3/2, no steelhead, Chinook salmon, delta smelt, or green or white sturgeon were salvaged at either facility. The Tracy Fish Collection Facility opened all primary louver bypass gates (#1–4) on 2/26 and they remained open through midnight on 3/2.

Preliminary results for 3/3 indicated no salvage of salmonids or sturgeon at SWP. CVP salvaged the first Chinook salmon of the season. Two individuals were winter-run size, which converts to ~8 fish salvaged, but the preliminary reporting did not indicate whether the fish were clipped or nonclipped. During the DOSS call, Islam (DWR) received confirmation that the fish were nonclipped and ran a preliminary loss calculation that resulted in an estimated combined loss of 6.7 fish and a loss density of 0.8 fish/TAF. Fujimura offered to forward to DOSS the calculation tool, which is in an Excel spreadsheet after this call. There is no additional information on operations for 3/3 but there have been increases in recent pumping and debris problems and Tracy has requested a variance for closing down bypass gates 1 & 2 because of excessive debris.

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<sup>1</sup>Salvage data reported in this section represent the total estimated and expanded salvage based on the number of fish observed at the fish collection facility. For example, if one steelhead is observed in the typical ½-hour sampling period within a 2-hour operation period, the single steelhead is expanded to a salvage of four.

**DOSS Weekly Salvage Update**  
**Reporting Period: February 24-March 2, 2014**  
 Prepared by Bob Fujimura on March 3, 2014 1830  
**Preliminary Results -Subject to Revision**

Criteria	24-Feb	25-Feb	26-Feb	27-Feb	28-Feb	1-Mar	2-Mar	Trend	
<b>Loss Densities</b>									
Wild older juvenile CS	0	0	0	0	0	0	0	→	0.0
Wild steelhead	0	0	0	0	0	0	0	↘	0.0
<b>Exports</b>									
SWP daily export	1,199	1,009	1,563	1,017	1,190	2,559	4,048	↘	1,798
CVP daily export	1,582	1,588	1,587	1,597	1,640	1,609	2,891	↘	1,785

Loss Density = fish lost/TAF; water export = AF; Trend = compared to previous week; wild = adipose fin present  
 Loss = estimated number of fish lost at the CVP and SWP Delta export facilities based on estimated salvage (see below)

**Chinook Salmon Weekly/Season Salvage and Loss**  
 Combined salvage and loss for both CVP and SWP fish facilities  
 Race determined by size at date of capture; hatchery = adipose fin missing;

Category	Weekly Total			Season Total	
	Salvage	Loss	Trend	Salvage	Loss
<b>Wild</b>					
Winter Run	0	0	→	0	0
Spring Run	0	0	→	0	0
Late Fall Run	0	0	→	0	0
Fall Run	0	0	→	0	0
Unclassified	0	0	→	0	0
<b>Total</b>	<b>0</b>	<b>0</b>		<b>0</b>	<b>0</b>
<b>Hatchery</b>					
Winter Run	0	0	→	0	0
Spring Run	0	0	→	0	0
Late Fall Run	0	0	→	0	0
Fall Run	0	0	→	0	0
Unclassified	0	0	→	0	0
<b>Total</b>	<b>0</b>	<b>0</b>		<b>0</b>	<b>0</b>

Trend = weekly loss per race; Salvage = estimated number of fish collected by the CVP and SWP fish protective facilities per unit of time

**Steelhead Weekly/Season Salvage and Loss**  
 Combined salvage and loss for both CVP and SWP fish facilities

Category	Weekly Total			Season Total	
	Salvage	Loss	Trend	Salvage	Loss
Wild	0	0	↘	28	34
Hatchery	0	0	↘	44	30
<b>Total</b>	<b>0</b>	<b>0</b>		<b>72</b>	<b>63</b>

State Water Project loss = salvage x 4.33; Central Valley Project loss = salvage x 0.68

Generated by Bob Fujimura on March 3, 2014

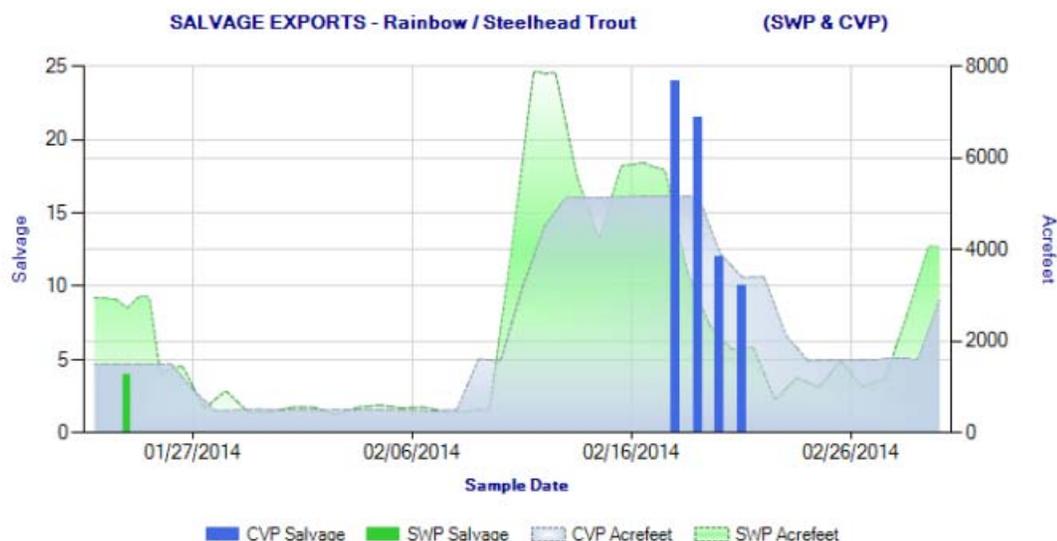


Figure 1. Daily salvage of steelhead and water exports from the state and federal fish salvage facilities during January 20 through March 3, 2014. Graph obtained from the DFG salvage monitoring web-page: <http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx>

### Operations (3/4/14)

SWP		CVP	
<b>Exports (cfs)</b>			
Clifton Court Forebay	2,200 (E:I controlling)	Jones Pumping Plant	2,400
<b>Reservoir Releases (cfs)</b>			
Feather - Oroville	800	American - Nimbus	700 (Reclamation could not confirm pulse to 1,000 cfs tonight; will confirm after the call)
		Sacramento - Keswick	2,700
		Stanislaus - Goodwin	200
<b>Reservoir Storage (in TAF, % of capacity)</b>			
San Luis (SWP)	307 (31)	San Luis (CVP)	373 (39)
Oroville	1,447	Shasta	1,826
New Melones		Folsom	327
<b>Delta Operations</b>			
DCC	Closed	Sacramento River at Freeport (cfs)	21,367
Outflow Index (cfs)	24,900	San Joaquin River (cfs) at Vernalis	977

Total Delta Inflow (cfs)	23,103	OMR (daily) (cfs)	-3,600
Water Temperature (°F)		OMR 5-day avg (cfs)	-1,400
X2 (km)	81	OMR 14-day avg (cfs)	-2,770
E/I (%)	35 (14-d avg)		

**Weather/Water Quality (WQ)/Factors Controlling Operations:** The forecast after this week is for warm and dry weather. The Delta Cross Channel (DCC) gates will remain closed because WQ in the Delta remains stable. WQ has improved overall and we presume that the current storm will provide for further improvement. Reservoirs are at minimum releases right now and no changes in releases are anticipated. The export-to-inflow (E:I) ratio requirement in D-1641 is controlling exports. As inflows drop, outflow and WQ are more likely to become controlling.

**OMR:** OMR flows are becoming more negative with the increased exports. Byrne (NMFS) reported that NMFS recently issued a letter to Reclamation approving the “OMR Index Demonstration Project”, which allows a 1-year trial of using a calculated OMR flow index, rather than measured USGS gage data, as the OMR measure used to assess compliance with the OMR requirements in Action IV.2.3.

([http://www.westcoast.fisheries.noaa.gov/publications/Central\\_Valley/Water%20Operations/Operations,%20Criteria%20and%20Plan/nmfs\\_response\\_to\\_reclamation\\_s\\_omr\\_index\\_demonstration\\_project\\_-\\_february\\_27\\_2014.pdf](http://www.westcoast.fisheries.noaa.gov/publications/Central_Valley/Water%20Operations/Operations,%20Criteria%20and%20Plan/nmfs_response_to_reclamation_s_omr_index_demonstration_project_-_february_27_2014.pdf)). Throughout this trial period, NMFS has requested weekly reports of how the index compares to the measured data. Reclamation will present results of the OMR Project to the Independent Review Panel during the 2014 annual review. DOSS members should review the letter for more information.

**Drought Contingency Plan/DCC Proposal:** The February forecast still showed that end-of-September Shasta storage was forecasted to be <1.9 MAF, which indicated the continuing need for a drought contingency plan per Action 1.2.3.C of the NMFS BiOp. Reclamation provided a proposed contingency plan for March that basically continued the February plan, which focused on relaxation of outflow requirements and some modification to DCC gate operations to preserve Shasta storage. The proposed contingency plan for March included an updated analysis of the biological effects of the proposed actions, based on the latest species status, hydrology, and fish distribution. NMFS approved the plan last Friday and included the updated DCC trigger table, which was also reviewed by RT DOT

([http://www.westcoast.fisheries.noaa.gov/publications/Central\\_Valley/Water%20Operations/Operations,%20Criteria%20and%20Plan/2\\_28\\_2014\\_nmfs\\_march\\_contingency\\_plan\\_response\\_letter\\_and\\_enclosures.pdf](http://www.westcoast.fisheries.noaa.gov/publications/Central_Valley/Water%20Operations/Operations,%20Criteria%20and%20Plan/2_28_2014_nmfs_march_contingency_plan_response_letter_and_enclosures.pdf)).

**DCC Trigger Table:** The two biggest changes to the DCC trigger table, compared to the DCC trigger table implemented during February, are that the WQ concern levels are an explicit component of the trigger, and that the catch indices have been modified. For example, the winter-run trigger now includes hatchery winter-run Chinook as well as “older juveniles” and there are separate triggers for spring-run Chinook and steelhead. DOSS members are encouraged to review the table and direct any questions or comments to Byrne (NMFS).

Field crews have been out working hard to meet the expanded monitoring (including daily Sacramento trawl and beach seine sampling) required by the drought contingency plan for February. The DCC trigger group suggested that monitoring be reduced to baseline levels when the DCC gates were closed. NMFS agreed but required that within 72 hours of expected DCC

gate opening, crews resume daily sampling so that 3 days of data are available before the gates are expected to open to assess fish risk. It was also suggested that operators provide information on trending WQ conditions (and possible DCC openings) as far in advance as possible so that the enhanced monitoring can be scheduled.

**RPA Actions:**

- IV.1.1 (monitoring and alerts for DCC gate operations): No alerts tripped in the past week.
- IV.1.2 (DCC gate operations): DCC gates are closed
- IV.2.3 (OMR flow management): The -5,000 cfs OMR limit is in effect; no triggers have been exceeded. Compliance is being measured by the index method and not measured gage data. The current requirement is that OMR be no more negative than -5,000 cfs, as measured on a 14-day average using the index method. OMR data are available on the Reclamation CVO website: <https://www.usbr.gov/mp/cvo/index.html>

**Smelt Working Group (SWG):** SWG met on 3/3; no recommendations were made to change operations for protection of delta smelt. Since the SWG meeting, larval fish tentatively identified as longfin smelt have been reviewed; those >20 mm have been confirmed as longfin smelt. Previous meeting notes are available at: [http://www.fws.gov/sfbaydelta/cvp-swp/smelt\\_working\\_group.cfm](http://www.fws.gov/sfbaydelta/cvp-swp/smelt_working_group.cfm).

**Distribution of Fish:** DOSS estimated the distribution of ESA-listed Chinook as follows:

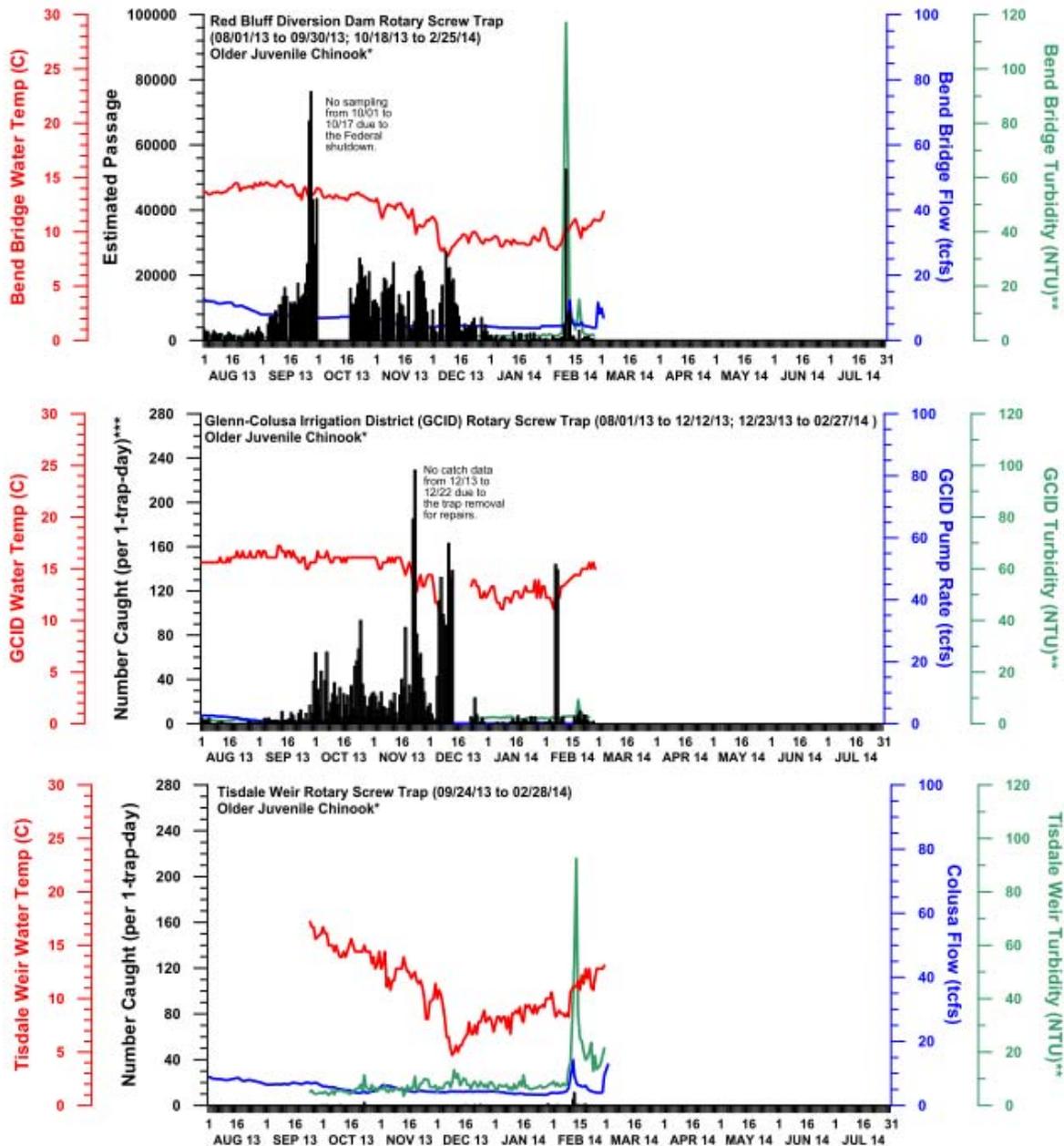
1. *Young-of-year (YOY) winter-run & yearling spring-run:* DOSS believes it likely that at least 75% of the winter-run Chinook YOY and spring-run Chinook yearling populations will have entered the Delta by the end of this week. DOSS believes it likely that approximately 10% of the winter-run Chinook YOY and spring-run Chinook yearling populations will have exited the Delta at Chipps Island by the end of this week.
2. *YOY spring-run:* DOSS believes it likely that approximately 25% of the spring-run Chinook YOY population will have entered the Delta by the end of this week. DOSS believes it likely that <5% of the spring-run Chinook YOY population will have exited the Delta at Chipps Island by the end of this week.

**DOSS Advice to WOMT and NMFS:** None.

**Next Meeting:** The next scheduled conference call will be on 3/11 at 9:00 a.m.

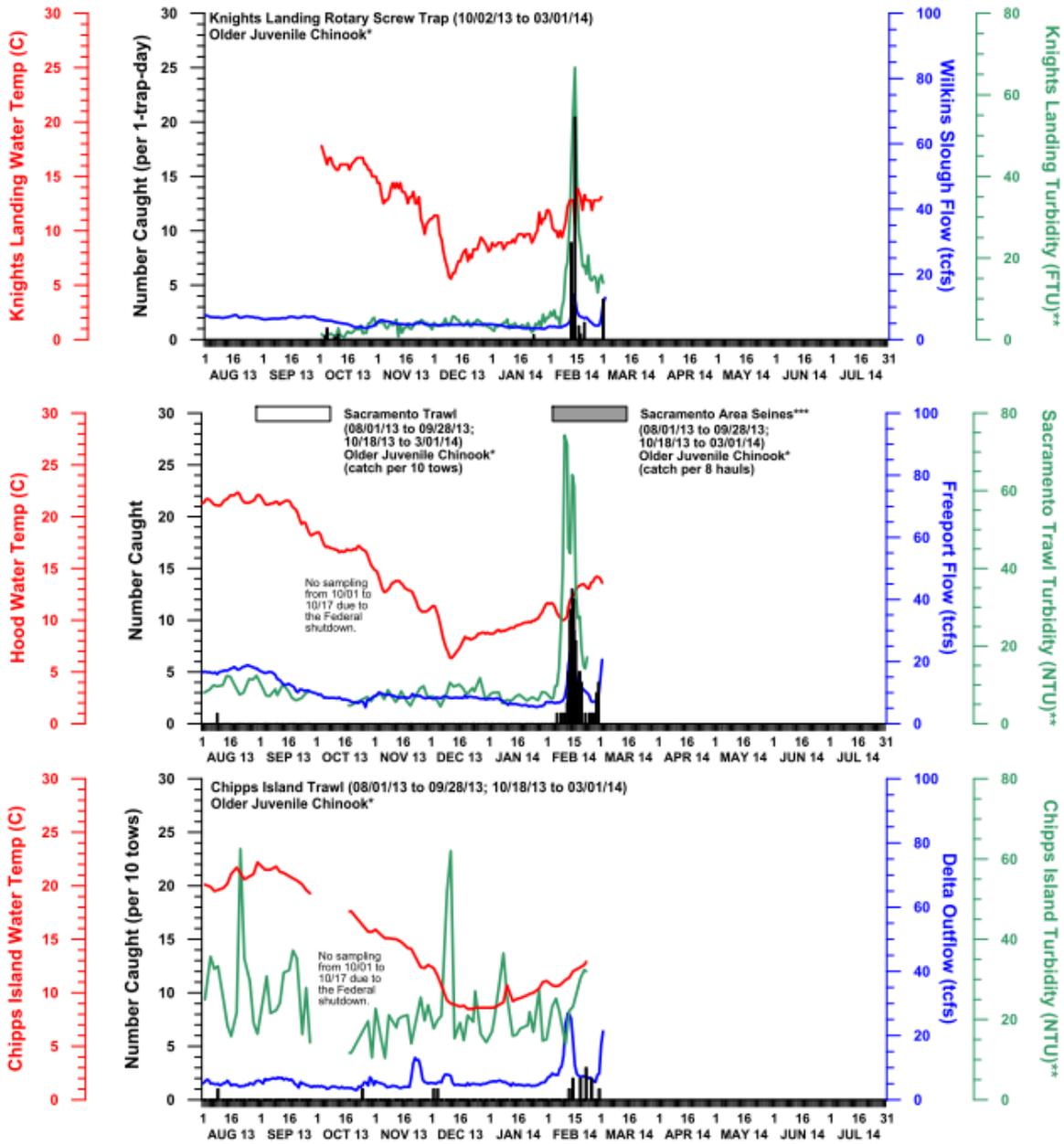
Below are graphs provided by DWR for Chinook salmon and steelhead observed at monitoring locations in the Sacramento and San Joaquin rivers and Delta. For additional graphs, please visit the DWR website at: <http://www.water.ca.gov/swp/operationscontrol/calfed/calfedmonitoring.cfm>.

## NUMBER OF UNMARKED OLDER JUVENILE CHINOOK MEASURED IN THE SACRAMENTO RIVER



DWR-DES 3 MARCH 2014  
Preliminary data from DFW, FWS, GCID, and CDEC; subject to revision.  
\*Older juvenile Chinook defined as all Chinook greater than or equal to the minimum winter run length-at-date criteria and less than the maximum size included in the length-at-date criteria (Frank Fisher model) for which a race is assigned on a given sampling date.  
\*\*Turbidity is a discrete measurement and is not measured continuously. Therefore, data are interpolated on days when turbidity was not measured.  
\*\*\*GCID: Five older juveniles caught on 9/25, 9 older juveniles caught on 9/27, 57 older juveniles caught on 10/5 and 23 older juveniles caught on 11/14. However, catch could not be standardized to 1-trap day since hours fished could not be calculated due to problems with the revolution counter. As a result, data are not presented on the graph.

# NUMBER OF UNMARKED OLDER JUVENILE CHINOOK MEASURED IN THE LOWER SACRAMENTO RIVER AND CHIPPS ISLAND



DWR-DES 03 MARCH 2014

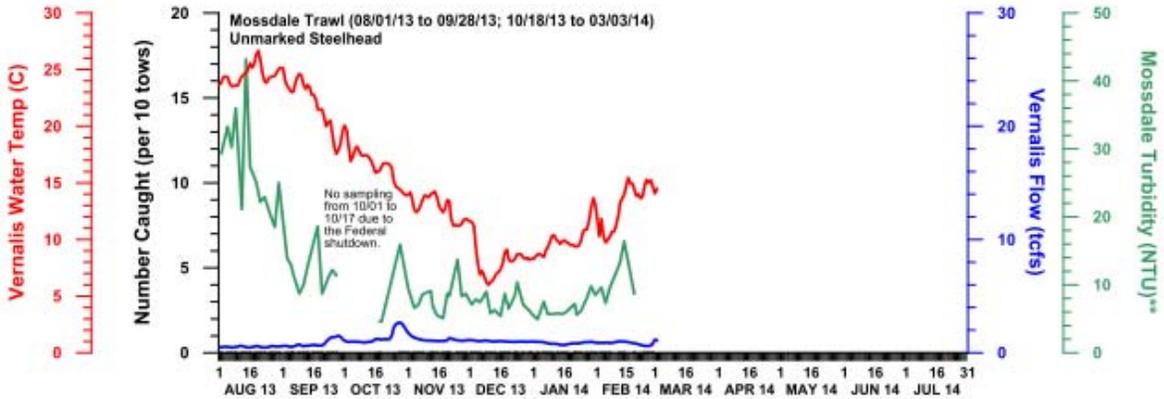
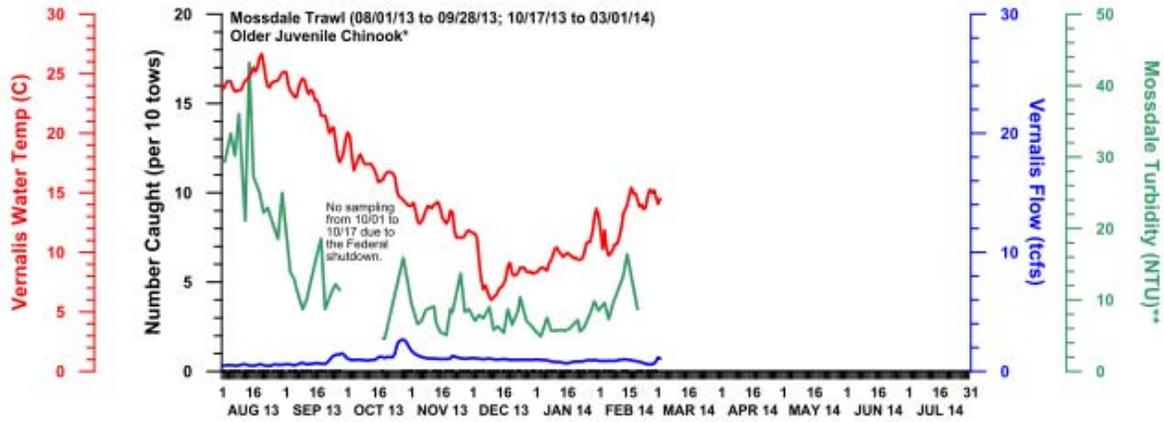
Preliminary data from DFW, FWS, and CDEC; subject to revision.

\*Older juvenile Chinook defined as all Chinook greater than or equal to the minimum winter run length-at-date criteria and less than the maximum size included in the length-at-date criteria (Frank Fisher Model) for which a race is assigned on a given sampling date.

\*\*Turbidity is a discrete measurement and is not measured continuously. Therefore, data are interpolated on days when turbidity was not measured. Knights Landing turbidity measured in FTU, which should be roughly equivalent to NTU.

\*\*\*Sacramento area seine route consists of the following seine sites: Verona, Elkhorn, Sand Cove, Discovery Park, American River, Miller Park, Sherwood Harbor, and Garcia Bend. Bars are stacked if Chinook caught from the trawl and seines are from the same day.

## NUMBER OF UNMARKED OLDER JUVENILE CHINOOK AND STEELHEAD MEASURED IN THE SAN JOAQUIN RIVER



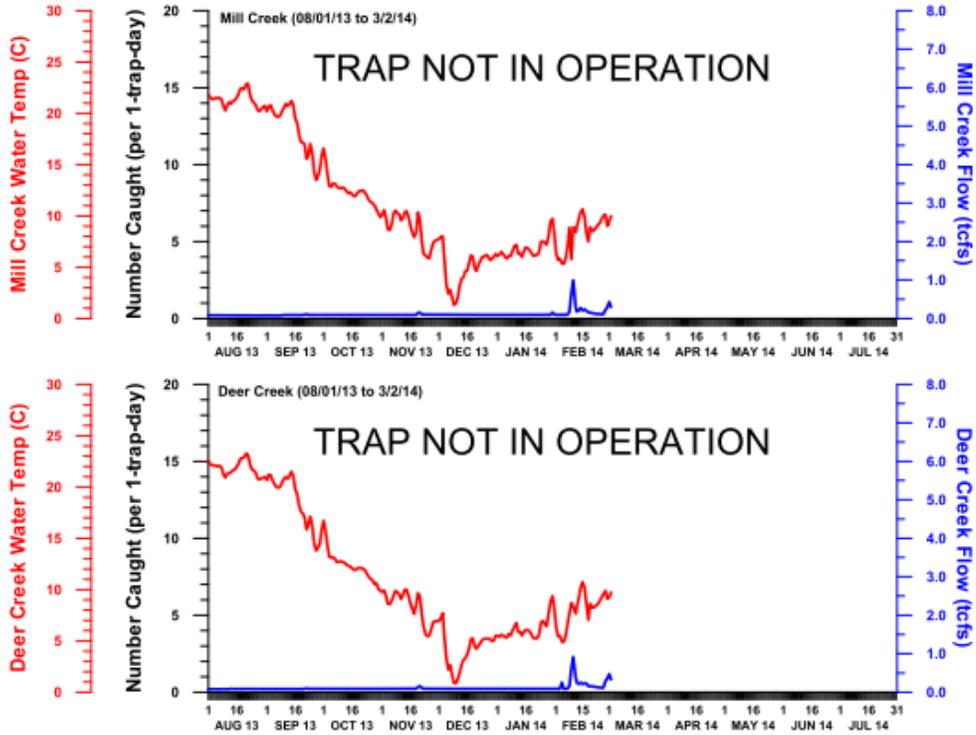
DWR-DES 3 MARCH 2014

Preliminary data from FWS and CDEC; subject to revision.

\*Older juvenile Chinook defined as all Chinook greater than or equal to the minimum winter run length-at-date criteria and less than the maximum size included in the length-at-date criteria (Frank Fisher model) for which a race is assigned on a given sampling date.

\*\*Turbidity is a discrete measurement and is not measured continuously. Therefore, data are interpolated on days when turbidity was not measured.

# WATER TEMPERATURE AND FLOW MEASURED AT MILL AND DEER CREEK



DWR-DES 3 MARCH 2014  
Preliminary data from CDEC; subject to revision.

## STEELHEAD SALVAGE AT THE DELTA FISH FACILITIES 01 OCT 2013 THROUGH 02 MARCH 2014

