

Delta Operations for Salmonids and Sturgeon (DOSS) Group
3/18/14

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.

Attendees

DWR: Dan Yamanaka, Kevin Reece, Farida Islam, Aaron Miller, James Gleim
FWS: Leigh Bartoo, Roger Guinee
NMFS: Barbara Rocco, Jeff Stuart, Barb Byrne
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. Updates to March Drought Contingency Plan
5. Check-in items:
 - a. current and upcoming RPA actions
 - b. notes catch-up
6. SWG
7. 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 ¹	Knights Landing RST ²	Tisdale RST ³	Beach Seines	Jersey Point
Sample Date	3/10, 12, 14	3/10, 12, 14	3/10, 12, 14	3/15–17	3/11–16	3/11–16	3/11–13	3/9–15
Total Catch	66	831	0	314	12,648	5,061	814	164
FR	5	762		260	12,038	4,978	796	139
WR	23	8		10	18	2	1	
SR	13	51		42	250	68	3	4
LFR								

Ad-Clipped Chinook	8 (2 LFR, 6 WR)	1 (WR but might be SR, 85 mm)		2	6	2		
DS		6 (62–74 mm)					14 (66–82 mm)	21 (61–75 mm)
Splittail								
Longfin	5 (61–130 mm)							
SH (ad-clip)	12	1			18	9		
SH (wild)		2			18	2		
W. Temp. (avg. °F)	58.3	57.0	61.5	61.7	59.0	56.1	58.5	58.5
Flows (avg. cfs)					13,680	11,606		
Turbidity (avg. NTU)	42.7	71.8	20.5	3.9	58.5	41.1	70.8	15.0
WR/LFR Avg. CPUE				4.48	0.16	0.019		
FR/SR Avg. CPUE					105.0	42.7		

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

¹The cones were lowed on 3/14 for 3 days.

²Daylight hours only. Heavy debris.

³Daylight hours only until 3/16 when switched to night.

Lower American River Rotary Screw Trap (RST) at Watt Avenue: No data for this week. There was a question on the data from last week on how likely those listed as winter run are actually winter run. Byrne (NMFS) discussed this with biologists in the American River Group and noted that the 2013 data showed that both winter-run- and spring-run-sized fish were caught in the traps just below Watt Avenue on the American River; genetic analysis confirmed 39 winter run and (tentatively) 14 spring run. The details are in the full report on the 2013 RST data (http://www.fws.gov/sacramento/fisheries/CAMP-Program/Documents-Reports/Documents/2013_American_River_rotary_screw_trap_annual_report.pdf). Based on sampling last year, last year’s reporting and the length-at-date table were adjusted retroactively for the American River to increase the size to be considered spring run. A similar adjustment is expected to be applied to 2014 data, but the adjustment has not yet been made. No adjustment was deemed necessary for the winter-run-sized juveniles. DOSS members are fairly confident that those identified as winter run this year are actually winter run; it is likely that some of the spring-run-sized fish in this year’s data are genetically fall-run Chinook. No spawning in the spring or summer has been observed on the American River, so it is generally believed that the winter-run and spring-run Chinook juveniles are moving into the American River from the Sacramento River for rearing.

Coded Wire Tags (CWTs): One CWT fish, from the late-fall-run Chinook production release from Coleman National Fish Hatchery, has been seen at the fish facilities so far.

Fish Salvage: Fujimura (DFW) provided an update on fish salvage at CVP’s Tracy Fish Collection Facility (TFCF) and SWP’s Skinner Fish Collection Facility (SFCF). From 3/10 through 3/16, the number of salvaged wild steelhead decreased. A single wild steelhead was salvaged on 3/11 at SWP for an estimated combined daily loss of 0.3 fish/TAF and a season total of 55 fish. There were also 30 hatchery steelhead salvaged during this period. The first spring-

run-sized Chinook were salvaged last week. There were 48 non-clipped winter run salvaged for a loss density of from 0.2 to 3.0 fish/TAF. No ad-clipped fish were salvaged; no sturgeon were observed. Preliminary results from 3/17 indicate that non-clipped winter run and spring run were salvaged at SWP and both wild and hatchery steelhead were salvaged. The TFCF began daily construction-related outages for up to 2 hours/day on 3/12 and 3/13, and announced that similar outages are scheduled for this week. The tentative start date for a 21-day outage at TFCF for installation of traveling screens in the secondary channel is 4/14.

Loss Calculations during Outages: Hatchery steelhead are not part of the OMR trigger limits. For estimating loss during specific types of facilities outages, DFW and DWR have requested clarification about the interim fill-in method approved by NMFS earlier this year. Byrne drafted for NMFS review a clarification for the interim calculation method to specify how loss should be calculated. This is a temporary interim fix for the scheduled shutdowns associated with contractor inspections in preparation of the installation of a traveling fish screen in mid-April. Days on which the fill-in method affects the calculated loss are flagged on the salmon and steelhead salvage/loss tables on the DFW ftp site. The loss calculation is important in terms of getting the loss density, so it makes sense to have a method by which to fill in these sampling gaps.

It was asked how sampling gaps are filled at other locations, such as the Glenn–Colusa Irrigation District (GCID), that stop activities for various reasons, such as heavy debris. It was suggested that the RSTs at GCID are not used to estimate take at the GCID pumps, but rather are a monitoring station. Byrne will take a look at the GCID RST incidental take permit and report on the official “purpose” next week.

There is an interest by the regulatory and other agencies involved to estimate take at the fish collection facilities when pumping is continuing but sampling is temporarily stopped, but some monitoring staff are not comfortable with interpolating data when no monitoring is being conducted because there are assumptions that need to be made that might not be accurate.

Fish Distribution: Last week, for winter run and yearling spring run, DOSS agreed that at least 75% had entered and 10% had exited the Delta. There was a large pulse flow that came through Tisdale and Knights Landing with the latest precipitation, and there were 108 winter run seen at Tisdale on 3/4 and then only 2 over last 6 or 7 days. Although there has been reduced sampling effort, this pulse flow increase of fish was also seen at Knights Landing. Fish are beginning to move out of the Delta now. Last Wednesday, the winter-run report showed that the increase in flows triggered emigration of 5,000–6,000 winter run past Red Bluff Diversion Dam (RBDD). On the second day of high flows, there were ~3,000 winter run, and in mid-March, another pulse of 26,000 cfs moved ~2,000 winter run past RBDD. Based on historical data, it is expected that by the end of March, ~80% of winter run will have exited the Delta. For yearling spring run, DOSS expects that most have entered the ocean by this time. For young-of-year spring run, the fraction that DOSS expects to be in the Delta is 25–50% and only ~5% have most likely exited. April data from RBDD will be reviewed to determine whether there was a pulse of spring run and what the RBDD RSTs saw in February this year was typically seen in April in most years. It could be that those seen early were unmarked fall run. In 2011, 65–70% had passed Tisdale by 3/1.

In summary, DOSS estimates the current distribution as follows:

	Yet to enter Delta	In the Delta	Exited the Delta past Chipps Island
<i>Young-of-year winter-run Chinook salmon</i>	~15%	~65%	~20%
<i>Yearling spring-run Chinook salmon</i>	Most yearling spring run have most likely exited the Delta.		
<i>Young-of-year spring-run Chinook salmon</i>	~45–70%	~25–50%	~5%

DOSS Weekly Salvage Update
Reporting Period: March 10-17, 2014
 Prepared by Bob Fujimura on March 17, 2014 2030
Preliminary Results -Subject to Revision

Criteria	10-Mar	11-Mar	12-Mar	13-Mar	14-Mar	15-Mar	16-Mar	Trend	
Loss Densities									
Wild older juvenile CS	0.23	1.83	3.03*	2.28	0	1.57	0	→	1.3
Wild steelhead	0	0.31	0	0	0	0	0	↘	0.0
Exports									
SWP daily export	6,041	7,618	6,386	5,067	5,586	8,015	6,888	↗	6,514
CVP daily export	6,598	6,492	6,666	6,657	5,427	5,735	6,621	↗	6,314

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)
 *Value includes the latest interpretation of a NMFS/USBR interim procedure to estimate loss due to secondary channel construction outage.

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
Wild					
Winter Run	48	117*	→	101	235*
Spring Run	6	11	↗	6	11
Late Fall Run	0	0	→	0	0
Fall Run	0	0	→	0	0
Unclassified	0	0	→	0	0
Total	54	128*		107	246*
Hatchery					
Winter Run	0	0	↘	4	3
Spring Run	0	0	→	0	0
Late Fall Run	0	0	→	0	0
Fall Run	0	0	→	0	0
Unclassified	0	0	→	0	0
Total	0	0		4	3

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	1	4	→	55	99
Hatchery	30	57	↘	106	152
Total	31	61		161	251

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

Chinook Salmon - Daily Summary Table

California Department of Fish and Wildlife - Results Subject to Revision

Prepared by Geir Aasen and Bob Fujimura Report Date: 3/17/2014 Report Time: 8:45 PM

DATE	STATE WATER PROJECT						CENTRAL VALLEY PROJECT						LENGTH (FL mm)	RACE*		OLDER JUV LOSS DENSITY
	NON-CLIPPED			CLIPPED			NON-CLIPPED			CLIPPED				SIZE	CWT	
	CATCH	SALVAGE	LOSS	CATCH	SALVAGE	LOSS	CATCH	SALVAGE	LOSS	CATCH	SALVAGE	LOSS				
3/3/14							2	8	6.71				111-132			0.80
3/5/14							1	4	2.88				144	W		0.30
3/6/14	1	2	8.90				2	8	5.76				115-218	W		1.31
3/7/14	2	4	17.87				2	8	5.76	1	4	2.88	109-185	W	LF	1.60
3/8/14	3	10	41.59				1	3	2.16				118-239	W		3.13
3/9/14	2	6	26.62										196-243	W		2.00
3/10/14							1	4	2.88				114	W		0.23
3/11/14	1	4	17.52				3	11.5	8.29				109-192	W		1.83
3/12/14	2	6	26.90				2	8	12.64**				116-214	W		3.03**
3/13/14	4	8	34.93				1	4	2.54				65-243	W,S		2.28
3/15/14	1	4	18.45				1	4	3.19				109-120	W		1.57

The table will only be updated with catch, salvage, loss, length, race, and loss density on dates when salmon were salvaged, although the report and "report date" will be updated each week day to indicate that the information is current.

Non-clipped = adipose fin present; Clipped = adipose fin removed; Race: S = spring run, F = fall run, LF = late fall run, W = winter run
U = Unknown race; fish was larger than any established race by length of the fish at date criteria (> 300 mm).

*Race of clipped (hatchery) salmon reported in this report is determined by length of the fish at date criteria on date of salvage. Actual race determination will be determined from the coded wire tag data once the tag has been read (if available).

SIZE = race determined by fish length at date of salvage criteria; CWT = hatchery fish race from coded wired tag information
Older Juvenile Loss Density = daily combined (SWP+CVP) losses of older non-clipped juveniles /1000AF (SWP+CVP exports)

**Values include the latest interpretation of a NMFS/USBR interim procedure to estimate loss due to secondary channel construction outage

**Calculations used in the loss estimate for 3/12/14 at the 1200 outage at the TFCF has not been validated/accepted by NMFS or USBR

Operations (3/18/14)

SWP		CVP	
Exports (cfs)			
Clifton Court Forebay	1,500 (will increase today to 2,300 cfs but will decrease back down to 1,500 cfs tomorrow and will most likely decrease through the end of the week)	Jones Pumping Plant	3,300 (will decrease to 2,400 cfs on 3/20 as outflows recede)
Reservoir Releases (cfs)			
Feather - Oroville	800	American - Nimbus	500
		Sacramento - Keswick	3,250
		Stanislaus - Goodwin	550
Reservoir Storage (in TAF, % of capacity)			
San Luis (SWP)	375	San Luis (CVP)	451 (47)
Oroville	1,603	Shasta	2,062
New Melones		Folsom	400
Delta Operations			
DCC	Closed	Sacramento River at Freeport (cfs)	11,617 (receding)
Outflow Index (cfs)	6,200	San Joaquin River (cfs) at Vernalis	949 (receding slightly)
Total Delta Inflow (cfs)	13,086	OMR (daily) (cfs)	
Water Temperature (°F)		OMR 5-day avg (cfs)	-5,600
X2 (km)	74	OMR 14-day avg (cfs, index method)	-5,500

E/I (%)	26.2 (14-d avg)		
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X2 Requirement: EC is not a concern at Collinsville yet. There are three ways to meet the outflow requirement: Outflow can be met at Chipps Island by either a 3-day average of 11,400 cfs outflow index or by a daily EC of ≤ 2.64 mmhos at Chipps Island, or a 14-d avg of ≤ 2.4 mmhos at Chipps Island. On 3/17, the 14-day EC at Chipps Island was 2.24 mmhos. The 14-day EC value will most likely hold for a few more days. In March, D-1641 requires 29 Chipps days and 2 Collinsville days. Based on February conditions, a 7-day credit can be applied to meet the Chipps requirement for March. At this point, Collinsville is still fresh and exports will be reduced to maintain moderate outflow so that there is not an intrusion of salinity. Outflows will drop by the end of the month.

E/I Ratio: The 14-day average E/I ratio is in effect beginning today as per the agreement by the Real-Time Drought Operations Team (RTDOT), and is approximately 26 to 27%.

On 3/16, OMR was controlling, on 3/17, 3-day E/I was controlling, and today (3/18), outflow is controlling.

Drought Contingency Plan: On 3/14, Reclamation submitted to NMFS a request for additional modifications to the Drought Contingency Plan for March that was approved on 2/28. The revised plan¹ allows for some export of unregulated flow when the outflow index is between 7,100 and 11,400 cfs, and adjusts, for up to 7 days, the implementation of the OMR requirement. There will be an errata sheet posted to correct some calculation errors in the operations table.

Weather Outlook: Dry for next 7 to 10 days. A new system might move in later next week.

DOSS Notes: NMFS is still behind on the DOSS notes.

NMFS BiOp Remand: NMFS and USFWS received an extension for 1 year so the CSAMP and CAMT process will continue. CAMT is meeting today and is expected to discuss an upcoming briefing on the chinook life-cycle model, which is tentatively scheduled on 4/15 as a webinar sometime after 10:30 a.m.

Real-Time Drought Operations Team (RTDOT): RTDOT meets more often than DOSS, and things change quickly. If DOSS members are interested in what RTDOT is doing, members should coordinate with their respective agency RTDOT representatives. If RTDOT has any specific questions for DOSS, those questions will be identified at the end of the RTDOT meeting and passed on to DOSS. Another drought contingency plan is expected for April, May, and June.

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.

¹See 3/14/14 NMFS letter:
http://www.westcoast.fisheries.noaa.gov/publications/Central_Valley/Water%20Operations/20140314_nmfs_continuity_plan_reponse_letter_and_enclosure.pdf

- IV.2.1 I:E ratio: Will go into effect on 4/1. Based on the current San Joaquin Basin year type of Critical, the required ratio in RPA is 1:1; exports may be equivalent to Vernalis flow or 1,500 cfs, whichever is greater.
- IV.2.3 (OMR flow management): The OMR action is implemented per the 3/14/14 NMFS letter approving a revised drought contingency plan for March 2014. Compliance is being assessed using the index method and not measured gage data. OMR data are available on the Reclamation CVO website:
<https://www.usbr.gov/mp/cvo/index.html>

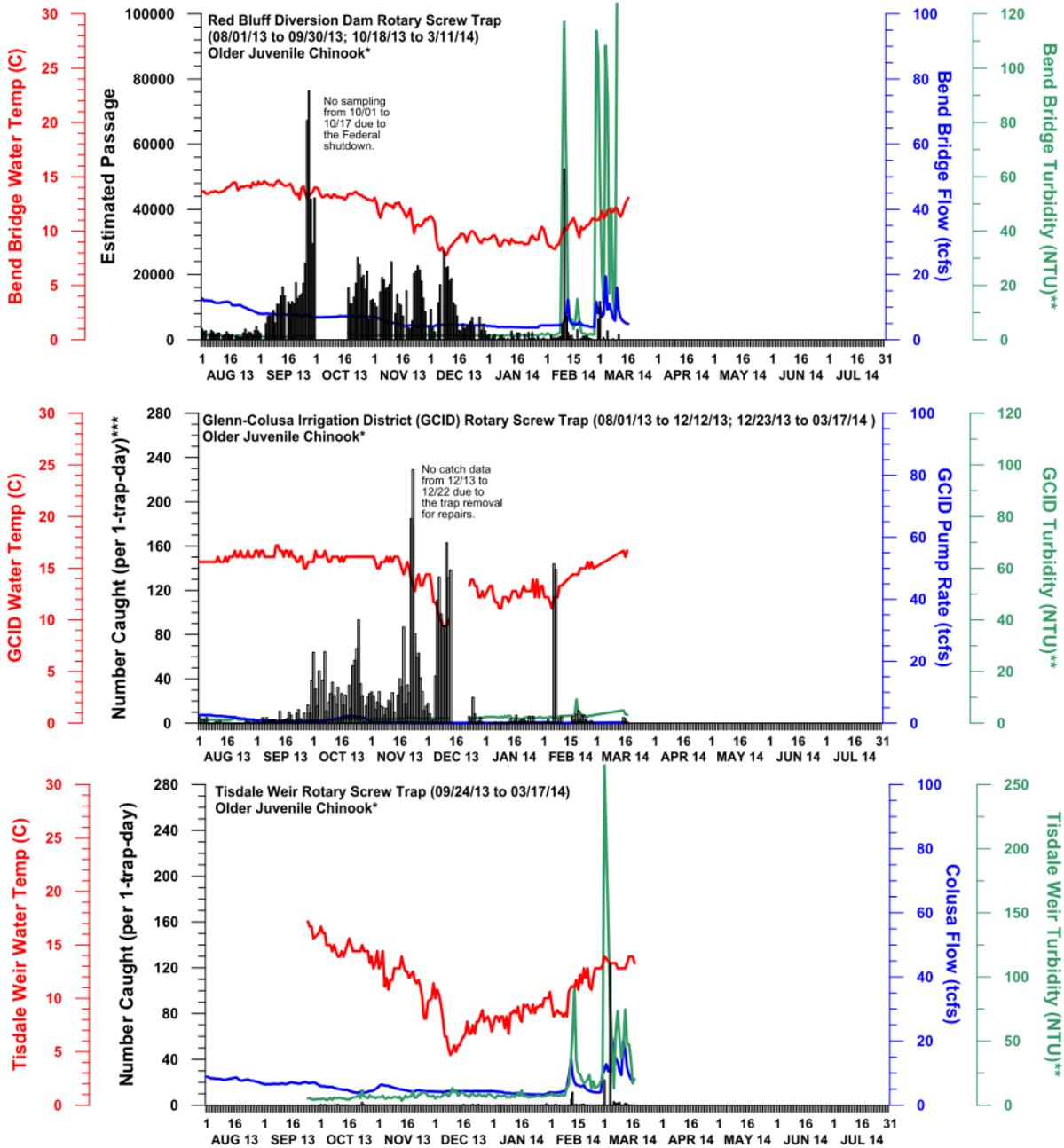
Smelt Working Group (SWG): SWG met on 3/17 and agreed, given present distribution, salvage, and conditions, that there was no indication that operations need to be more restrictive at this time. SWG will continue to monitor larval delta smelt. SWG is in the process of putting together a request for a particle-tracking modeling for next week. Previous meeting notes are available at: http://www.fws.gov/sfbaydelta/cvp-swp/smelt_working_group.cfm.

DOSS Advice to WOMT and NMFS: None.

Next Meeting: The next scheduled conference call will be on 3/25 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



JWR-DES 17 MARCH 2014

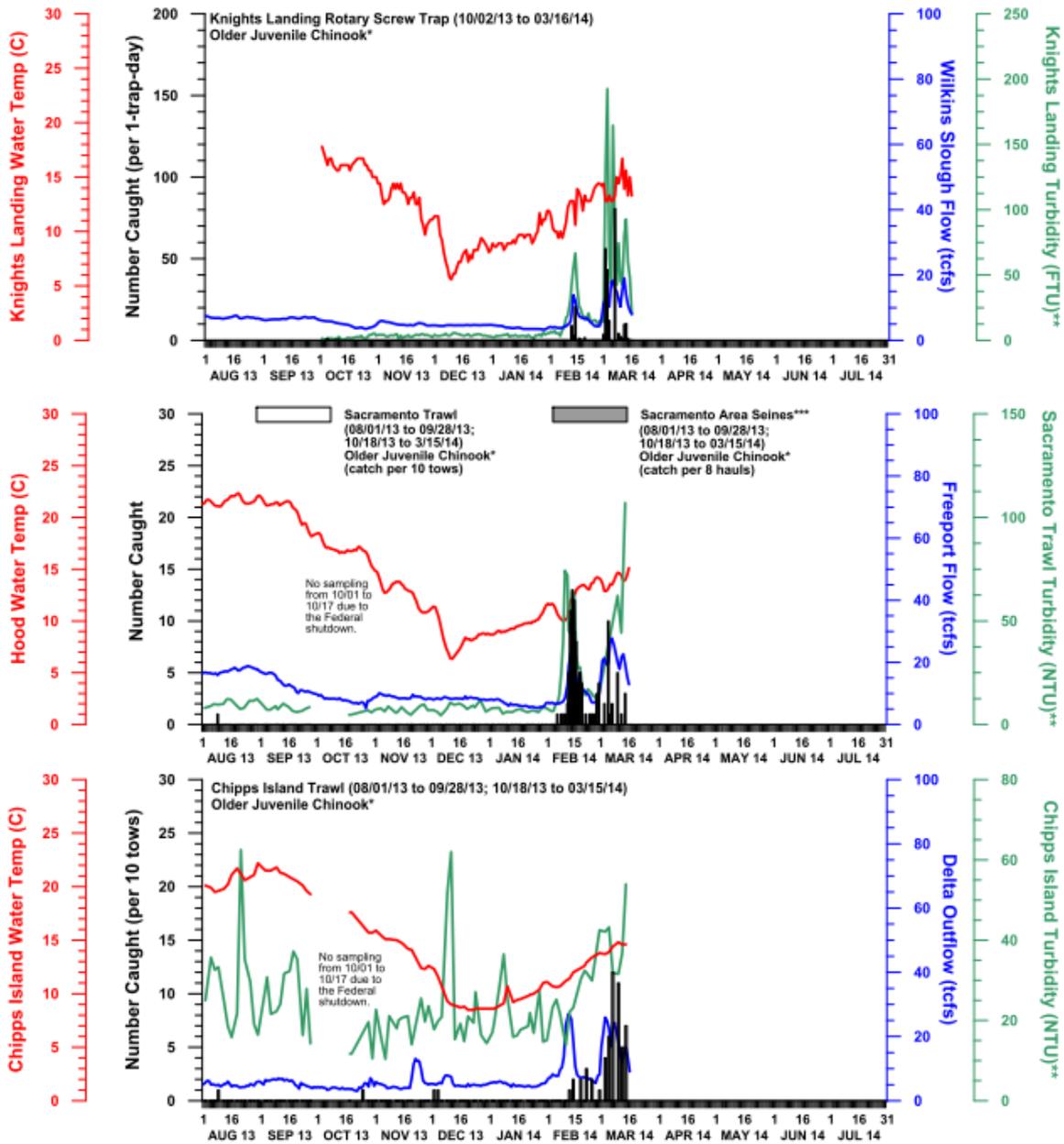
*preliminary data from DFW, FWS, GCID, and CDEC; subject to revision.

**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: The trap cone was raised on February 27, 2014 due to high flows and heavy debris. Trapping resumed on March 15, 2014.

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



DWR-DES 17 MARCH 2014

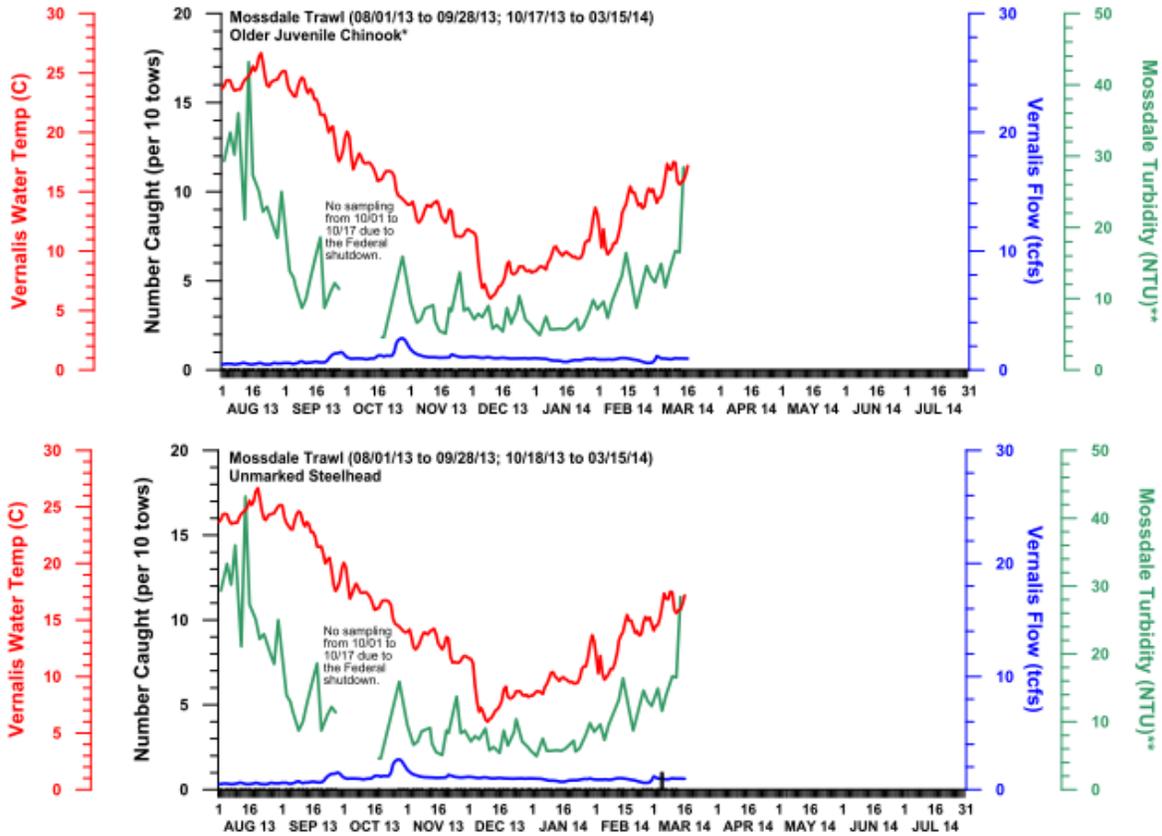
Preliminary data from DFW, FWS, and CDEC; subject to revision.

*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



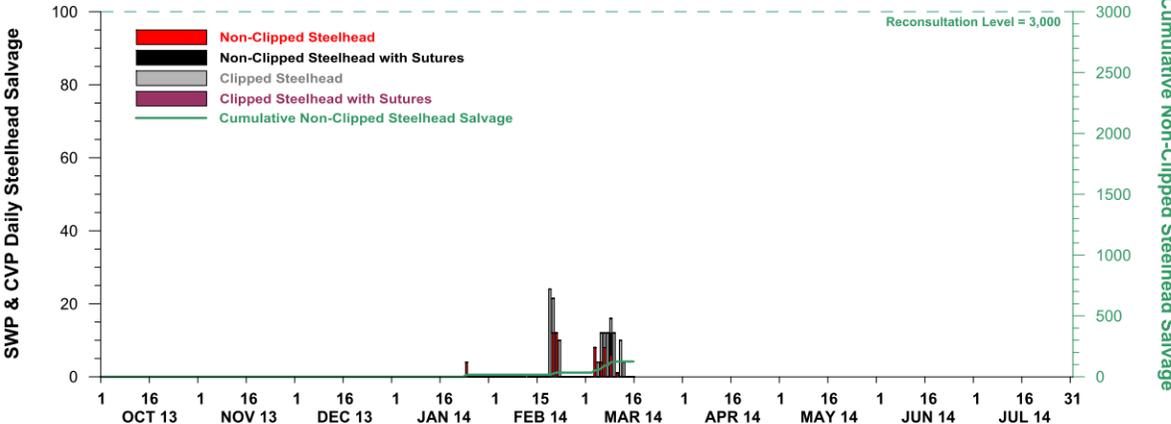
DWR-DES 17 MARCH 2014

Preliminary data from FWS and CDEC; subject to revision.

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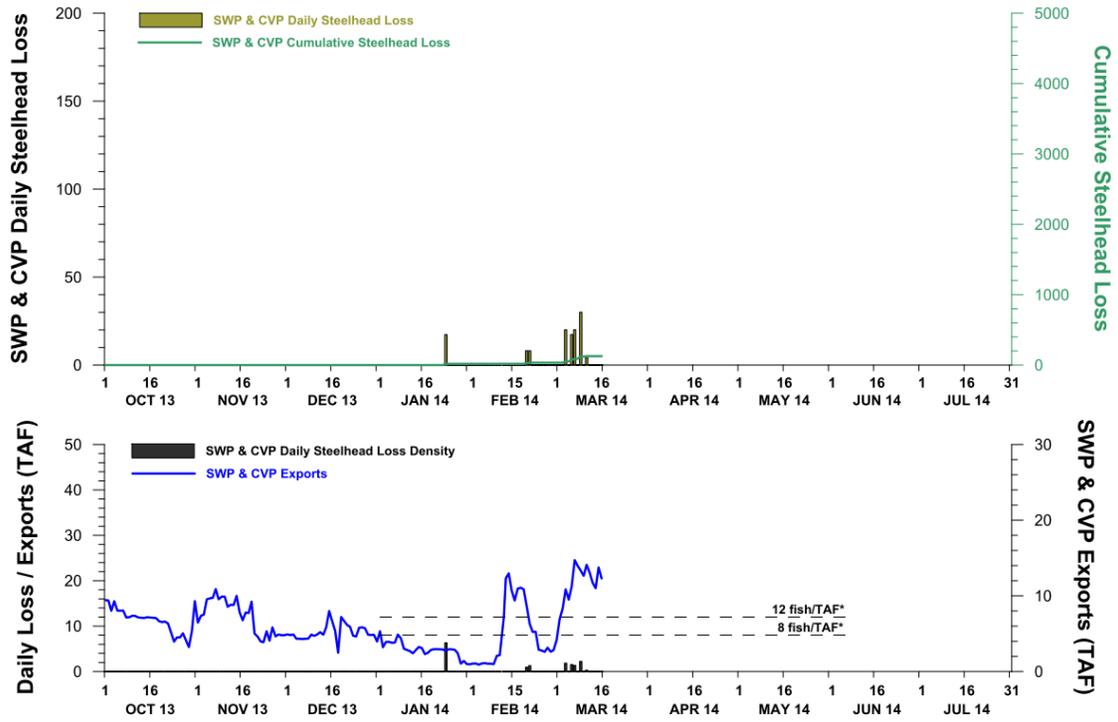
**Turbidity is a discrete measurement and is not measured continuously. Therefore, data are interpolated on days when turbidity was not measured.

STEELHEAD SALVAGE AT THE DELTA FISH FACILITIES 01 OCT 2013 THROUGH 16 MARCH 2014



DWR-DES 17 MARCH 2014
Preliminary data from DFW; subject to revision.

NON-CLIPPED STEELHEAD LOSS AT THE DELTA FISH FACILITIES 01 OCT 2013 THROUGH 16 MARCH 2014



DWR-DES 17 MARCH 2014

Preliminary data from DFW; subject to revision.

*Used to roughly estimate whether the daily loss is greater than 8 fish/TAF multiplied by the volume exported in TAF or 12 fish/TAF multiplied by the volume exported in TAF.