

**Delta Operations for Salmonids and Sturgeon (DOSS) Group**  
**3/25/14**

**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, Aaron Miller, James Gleim, Mike Ford  
**FWS:** Leigh Bartoo, Roger Guinee, Craig Anderson  
**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. Check-in items:
  - a. current and upcoming RPA actions
  - b. notes catch-up
5. SWG
6. Updates (if any) on drought contingency plan for April and beyond
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 <sup>1</sup>	Knights Landing RST <sup>2</sup>	Tisdale RST	Beach Seines	Jersey Point
Sample Date	3/17, 19, 21	3/17, 19, 21	3/17, 19, 21	3/18–24	3/18–23	3/18–24	3/18–20	3/16–18
Total Catch	47	37	1	495	438	791	771	38
FR	5	34		323	391	762	769	34
WR	8		1	17		1		
SR	10			138	45	28	1	
LFR								

<b>Ad-Clipped Chinook</b>	3 (112, 162, 198 mm)			17 (winter run)				
<b>DS</b>	2 (65 & 74 mm)	3 (64–68 mm)					1 (69 mm)	4 (61–70 mm)
<b>Splittail</b>	3							
<b>Longfin</b>	7 (69–126 mm)							
<b>SH (ad-clip)</b>	3				1			
<b>SH (wild)</b>	6				1	3		
<b>W. Temp. (avg. °F)</b>	59.7	59.7	62.5	62.4	60.0	57.9	59.74	59.7
<b>Flows (avg. cfs)</b>					5,322.9	5,612		
<b>Turbidity (avg. NTU)</b>	59.5	21.8	15.3	4.7	18.9	19.6	18.4	17.6
<b>WR/LFR Avg. CPUE</b>				2.94		0.0024		
<b>FR/SR Avg. CPUE</b>					3.11	2.8		

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 revolution counter was malfunctioning on arrival. The total hours fished is an estimate.

<sup>2</sup> Daylight hours only. Heavy debris. 3/21: Night sampling effort.

**Losses to Date for Water Year 2014 Losses to date for Water Year (WY) 2014 based on Genetic Race Classification:** Kevin Reece (DWR) reported that the WY 2014 loss of ~180 winter-run-sized fish (loss estimated based on salvaged fish assigned to race based on the length-at-date table) was determined to represent, when loss is estimated from salvaged fish assigned to race based on genetic analysis, a loss of ~26 genetic winter run, ~100 genetic spring-run, and ~29 genetic fall-run. Three samples could not be processed.

**Fish Salvage:** Fujimura (DFW) provided an update on fish salvage at the CVP’s Tracy Fish Collection Facility (TFCF) and the SWP’s Skinner Fish Collection Facility (SFCF) from 3/17 through 3/23. The number of salvaged wild steelhead last week increased compared to that of the previous week. Wild steelhead were salvaged in 6 out the 7 reporting days for a total of 29 steelhead salvaged for both fish facilities. The estimated daily combined steelhead loss density ranged from 0.3 to 5.1 fish/TAF and did not exceed the first-stage loss criterion (8 fish/TAF). The season total loss of salvaged wild steelhead is 170. Hatchery steelhead continue to be salvaged at both facilities at a rate similar to that of the previous week. Thirty-one hatchery steelhead were also salvaged during the reporting period.

Winter-run-sized non-clipped Chinook were salvaged at a higher rate than that of the previous reporting period and the first fall-run-sized Chinook were salvaged last week. Fifty-six winter-run-sized non-clipped juvenile Chinook were salvaged during the reporting period. The calculated daily loss densities for wild older juvenile Chinook ranged from 0.9 to 3.1 fish/TAF, none of which exceeded the first-stage loss criterion. Forty-nine spring-run-sized and 20 fall-run-sized non-clipped Chinook were also salvaged. Two adipose-clipped Chinook in the winter-run size range were salvaged last week. No sturgeon were observed last week.

Preliminary results for 3/24 indicate that no salmon were salvaged but that wild steelhead were salvaged at both facilities. No green sturgeon were salvaged at either facility.

TFCF had two construction-related outages up to 2 hours/day last week and other similar outages are planned for this week.

**DOSS Weekly Salvage Update**  
**Reporting Period: March 17-23, 2014**  
*Prepared by Bob Fujimura on March 24, 2014 2300*  
**Preliminary Results -Subject to Revision**

Criteria	17-Mar	18-Mar	19-Mar	20-Mar	21-Mar	22-Mar	23-Mar	Trend	
<b>Loss Densities</b>									
Wild older juvenile CS	1.10	1.66*	0.90	3.16	1.76	0.93	0	→	1.2
Wild steelhead	1.62	2.34	0.50	0.32	0	0.65	5.12	↗	1.5
<b>Exports</b>									
SWP daily export	4,053	4,448	2,915	2,919	2,191	2,191	1,381	↘	2,871
CVP daily export	6,635	6,645	6,637	5,461	2,873	1,985	1,983	↘	4,603

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
<b>Wild</b>					
Winter Run	56	73	↘	157	299
Spring Run	49	56	↗	57	67
Late Fall Run	0	0	→	0	0
Fall Run	20	13	↗	20	13
Unclassified	0	0	→	0	0
<b>Total</b>	<b>125</b>	<b>142</b>		<b>234</b>	<b>379</b>
<b>Hatchery</b>					
Winter Run	2	9	↗	6	12
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>2</b>	<b>9</b>		<b>6</b>	<b>12</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	29	71	↘	84	170
Hatchery	31	50	↘	136	202
<b>Total</b>	<b>60</b>	<b>121</b>		<b>220</b>	<b>372</b>

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

Generated by Bob Fujimura on March 24, 2014

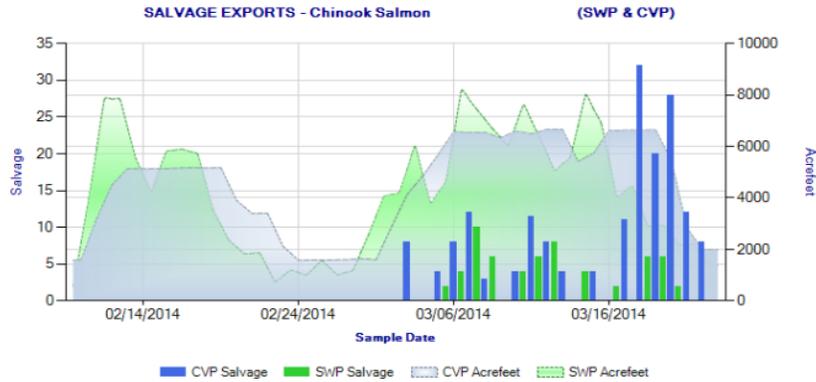


Figure 1. Daily salvage of Chinook salmon (all races) and water exports from the state and federal fish salvage facilities during February 10 through March 23, 2014. Graph obtained from the DFG salvage monitoring web-page: <http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx>.

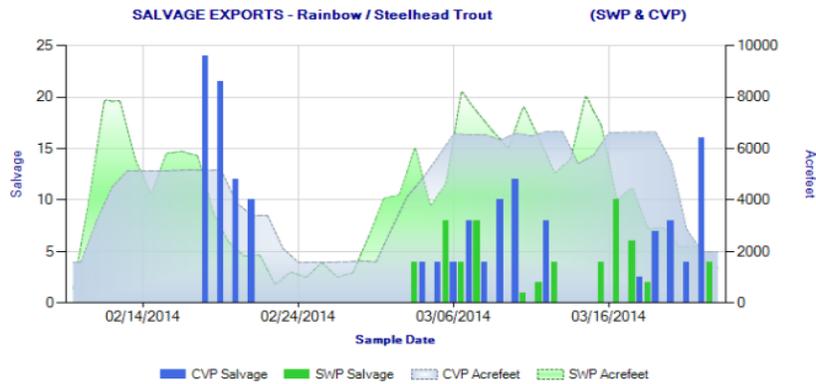


Figure 2. Daily salvage of steelhead and water exports from the state and federal fish salvage facilities during February 10 through March 23, 2014. Graph obtained from the DFG salvage monitoring web-page: <http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx>

**Lower American River Rotary Screw Trap (RST) at Watt Avenue:** From 3/18 to 3/23, 12,005 Chinook were caught as follows: 10,816 live and 746 dead fall run, 409 live and 33 dead spring run, and 1 live winter run. There were 135 unmarked steelhead, 235 marked Chinook, and 8 ad-clipped steelhead caught.

**Coded Wire Tag (CWT):** The following table provides information on CWT surrogate and production distribution and losses at the fish facilities.

CONFIRMED HATCHERY (ADIPOSE-FIN CLIPPED) CHINOOK SALMON LOSS AT THE SWP & CVP DELTA FISH FACILITIES, 2013/2014

Release Date	CWT Race	Hatchery	Release Site	Release Type	Confirmed Loss	Number Released <sup>1</sup>	Total Entering Delta	% Loss of Number Released <sup>2</sup>	% Loss of Total Entering Delta <sup>3</sup>	First Concern Level	Second Concern Level	Date of First Loss <sup>4</sup>	Date of Last Loss <sup>4</sup>
11/1/2013	F	Mokelumne River Hatchery	Mokelumne River Hatchery	Production	8.90	99,553	n/a	0.009	n/a	n/a	n/a	3/20/2014	3/20/2014
12/10/2013	LF	Coleman NFH	Battle Creek	Production	0.00	267,301	n/a	0.000	n/a	n/a	n/a	*	*
1/7/2014	LF	Coleman NFH	Battle Creek	Spring Surrogate	0.00	68,516	n/a	0.000	n/a	0.5%	1.0%	*	*
1/13/2014	LF	Coleman NFH	Battle Creek	Spring Surrogate	0.00	81,962	n/a	0.000	n/a	0.5%	1.0%	*	*
1/13 to 1/14/2014	LF	Coleman NFH	Battle Creek	Production	2.88	464,300	n/a	0.001	n/a	n/a	n/a	3/7/2014	3/7/2014
1/23/2014	LF	Coleman NFH	Battle Creek	Spring Surrogate	0.00	73,600	n/a	0.000	n/a	0.5%	1.0%	*	*
2/10/2014	W	Livingston Stone NFH	Caldwell Park	Production	0.00	193,224	30,880	0.000	0.000	0.5%	1.0%	*	*

UNCONFIRMED HATCHERY (ADIPOSE-FIN CLIPPED) CHINOOK SALMON LOSS AT THE SWP & CVP DELTA FISH FACILITIES, 2013/2014

Facility	Unknown CWT Loss <sup>5</sup>	Unread CWT Loss <sup>6</sup>	Unknown Hatchery Loss <sup>7</sup>	Acoustic Tag Loss <sup>8</sup>	Number of Unassigned CWTs <sup>9</sup>
SWP	0.00	0.00	0.00	0.00	0
CVP	0.00	0.00	0.00	0.00	0
<b>TOTAL</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0</b>

SWP and CVP adipose-fin clipped Chinook lost from 10/1/2013 through 3/23/2014.

<sup>1</sup>Number released with the adipose-fin clipped and a coded-wire tag (CWT).

<sup>2</sup>% Loss of Number Released = (Confirmed Loss/Number Released)\*100.

<sup>3</sup>% Loss of Total Entering Delta = (Confirmed Loss/Total Entering Delta)\*100.

<sup>4</sup>Date of first and last loss accounts for all CWT loss even those from special studies where salvage and loss=0.

<sup>5</sup>Adipose-fin clipped Chinook was observed during fish count, but tag code could not be determined (e.g., damaged tag, lost tag, no tag, or Chinook accidentally released).

<sup>6</sup>Adipose-fin clipped Chinook was collected during fish count and has not been processed yet.

<sup>7</sup>CWT has been read, but hatchery release information not yet available.

<sup>8</sup>Adipose-fin clipped Chinook released due to presence of sutures.

<sup>9</sup>CWT cannot currently be assigned to a salvage record with certainty since the CWT was lost and then found. CWT may be assigned to a salvage record if new information is available.

\*\* Information not yet available.

DWR-DES Revised 3/24/2014

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

**Fish Distribution:** No juvenile winter run were observed in the Chipps Island trawls this past week. It appears that there are still some larger winter run passing the Glenn–Colusa Irrigation District (GCID). Winter-run-sized fish were not observed at either Tisdale or Knights Landing this past week. Fish might be holding again in the river or might be passing Tisdale or Knights Landing in low numbers and not being captured in the rotary screw traps. It is still a bit early for the majority of young-of-year (YOY) spring run to come through the Delta, but with the coming storm, many are likely to move downstream. There is still some uncertainty of the mechanism by which fish are moving.

The following table is updated from last week for YOY winter run; the estimates for yearling and young-of-year spring run remain the same.

	Yet to Enter Delta	In the Delta	Exited the Delta Past Chipps Island
<i>Young-of-year winter-run Chinook salmon</i>	~10–15%	~60–70%	~20–25%
<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%

**Planned Production Releases:** Byrne (NMFS) forwarded the production release schedule from USFWS dated 3/24. From 3/24 through 3/28, USFWS will release approximately 2.5 million brood-year 2013 fall-run Chinook salmon from the Coleman National Fish Hatchery into the Sacramento River at Rio Vista. This release will include 25% marked (adipose-fin clipped and

CWT) and 75% unmarked fish. Additional fish from the fall-run production release may be trucked to Rio Vista, depending on conditions.

Spring run from Feather River hatchery: Typically, one-half of the spring-run production release is released in-river. Water conditions are still being evaluated to assess whether this is a viable option this year.

The specific triggers affecting the decision to truck might be different at the different hatcheries.

**Colusa Basin:** Fall run, spring run, and winter run (race assignments based on genetic analysis) have been seen at Colusa basin traps and weirs in February and March. The first spring run was seen on 3/4 and another on 3/18. There is one fyke trap at Wallace Weir in the Yolo Bypass, and upstream there is a weir at the Colusa Basin drain. The fish identified as fall-run had a high race-assignment probability, which suggests they are not spring-run with fall-run introgression.

**Operations (3/25/14)**

SWP		CVP	
<b>Exports (cfs)</b>			
Clifton Court Forebay	700 (evaluating increasing to 1,000 later today; salinity is stabilizing)	Jones Pumping Plant	1,000
<b>Reservoir Releases (cfs)</b>			
Feather - Oroville	800	American - Nimbus	500
		Sacramento - Keswick	3,750 (on 3/27, will be reduced by 100 cfs/day to target 3,450 by 3/29 to conserve storage)
		Stanislaus - Goodwin	425 (on 3/27, will be reduced to 325 cfs as Vernalis EC continues to improve)
<b>Reservoir Storage (in TAF, % of capacity)</b>			
San Luis (SWP)	384	San Luis (CVP)	468
Oroville	1,624	Shasta	2,086
New Melones		Folsom	408
<b>Delta Operations</b>			
DCC	Closed (expected to remain closed through end of March)	Sacramento River at Freeport (cfs)	7,812
Outflow Index (cfs)	~5,600	San Joaquin River (cfs) at Vernalis	676
Total Delta Inflow (cfs)	~8,928	OMR (daily) (cfs)	
Water Temperature (°F)		OMR 5-day avg (cfs index method)	-2,400
X2 (km)	>81	OMR 14-day avg (cfs, index method)	-4,400
E/I (%)	10.9 (14-d avg)		

**X2 Requirement:** The 14-day EC requirement at Collinsville is being met. Twenty-seven of the 29 “Chippis Island days” have been met (3/21 was the last day met). While outflow modifications were included in the most recent SWRCB order, operators are currently meeting D-1641 outflow requirements. Delta operations are currently being controlled by water quality at Collinsville.

**DCC:** The DCC gates will be closed at least through the end of March; it is not known whether and how far into April they will remain closed.

**Pulse Flows on the San Joaquin River:** A Tuolumne River pulse flow (~11 TAF) is expected after 4/15; the Stanislaus River Operations Group (SOG) is working on advice to implement the Stanislaus pulse flow (~30 TAF of pulse water in addition to the 150 to 200 cfs base flow). SOG’s current pulse schedule advises that the pulse flow be shifted entirely into April because of anticipated poor conditions by May. The Tuolumne River fish water year does not begin until mid-April, so the Tuolumne Irrigation District plans to release its pulse in mid-April and be done by the end of April because of the expected poor conditions in May. The D-1641 pulse is usually mid-April. It might make sense to move that forward to coincide with the Stanislaus and Tuolumne river pulses. A Merced River pulse is not yet confirmed.

**Weather Outlook:** There is predicted to be a strong weather system coming in this week beginning tonight and continuing through early Thursday (3/27).

**DOSS Notes:** Last week’s notes were circulated to DOSS yesterday. Other previous notes are being reviewed.

**Drought Barriers:** DWR may, in spring 2014, install temporary rock barriers across several Delta channels to protect water quality in the Delta and preserve water supplies stored in upstream reservoirs. The barriers would be removed in fall, when water quality conditions are expected to improve. For more information, please visit the DWR website at: <http://www.water.ca.gov/waterconditions/emergencybarriers.cfm>

**Drought Planning Update:** No specifics are known about the plan for April operations at this point. The NMFS RPA action related to drought contingency planning is RPA Action I.2.3.C for actions in the event of projected end-of-September Shasta storage less than 1.9 MAF (p. 26–27 of the 2011 amendments)<sup>1</sup>.

**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.2.1 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.

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<sup>1</sup>[http://www.westcoast.fisheries.noaa.gov/publications/Central\\_Valley/Water%20Operations/Operations,%20Criteria%20and%20Plan/040711\\_ocap\\_opinion\\_2011\\_amendments.pdf](http://www.westcoast.fisheries.noaa.gov/publications/Central_Valley/Water%20Operations/Operations,%20Criteria%20and%20Plan/040711_ocap_opinion_2011_amendments.pdf)

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 3/24. Given the expectation of OMR flows for the week (-2,000 cfs), there was no indication that exports needed to be more restrictive for protection of smelt. Previous meeting notes are available at:

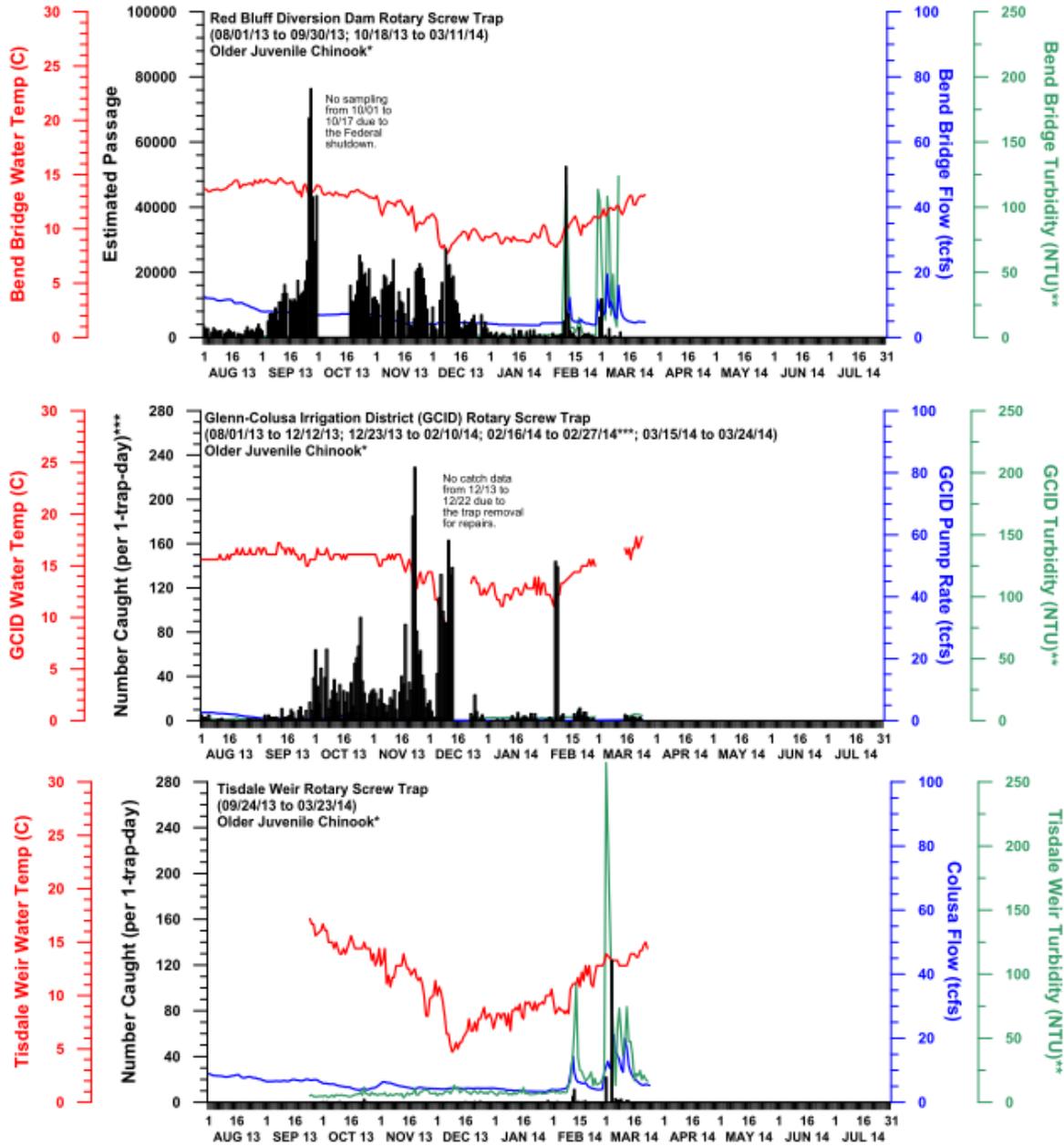
[http://www.fws.gov/sfbaydelta/cvp-swp/smelt\\_working\\_group.cfm](http://www.fws.gov/sfbaydelta/cvp-swp/smelt_working_group.cfm).

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

**Next Meeting:** The next scheduled conference call will be on 4/1 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 24 MAR 2014

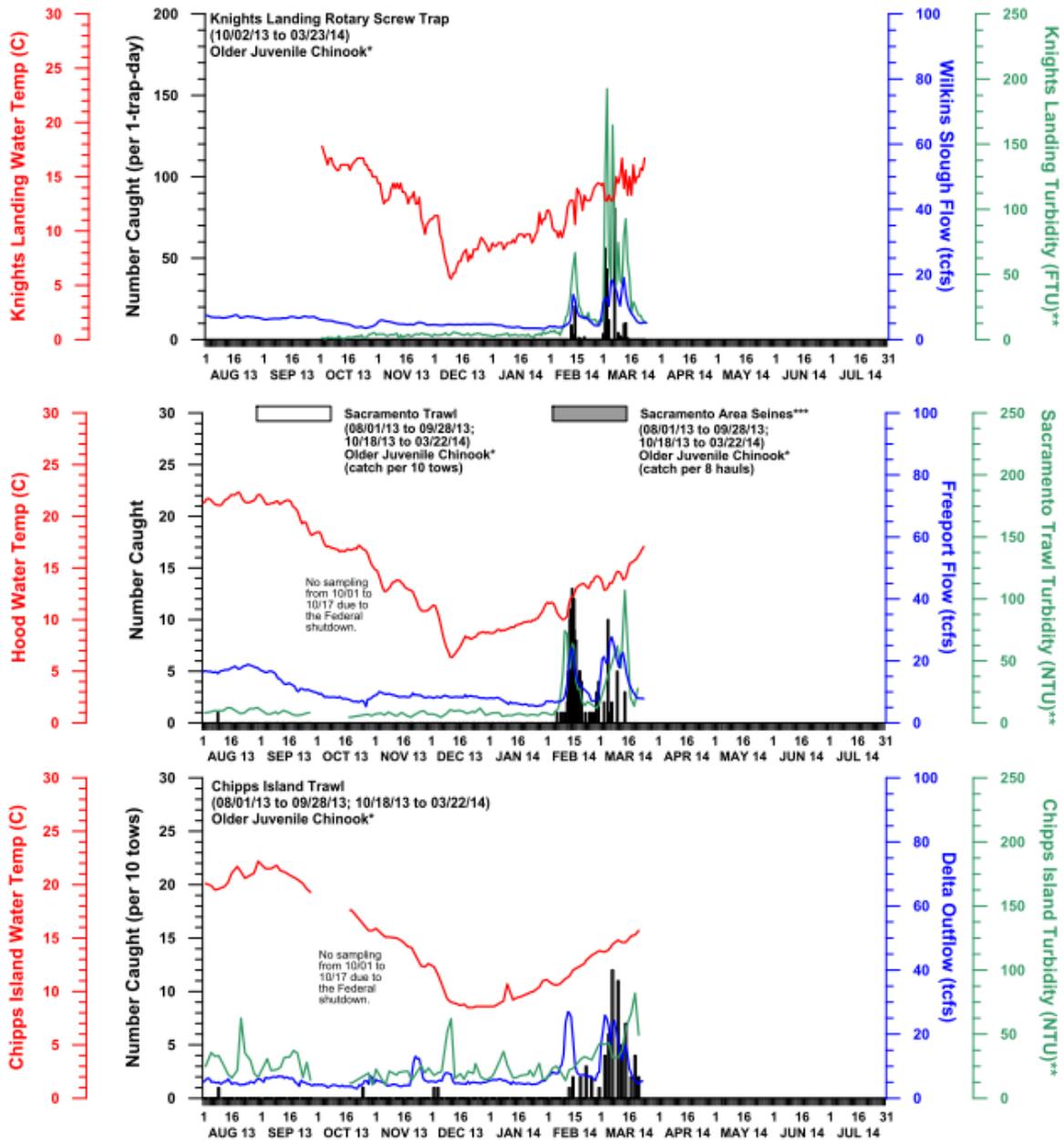
Preliminary data from DFW, FWS, GCID, and CDEC; subject to revision.

\*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 unless data are missing for more than five days.

\*\*\*No catch data at GCID from 2/28 to 3/14 since trap cone was raised due to high flow and debris.

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



DWR-DES 24 MAR 2014

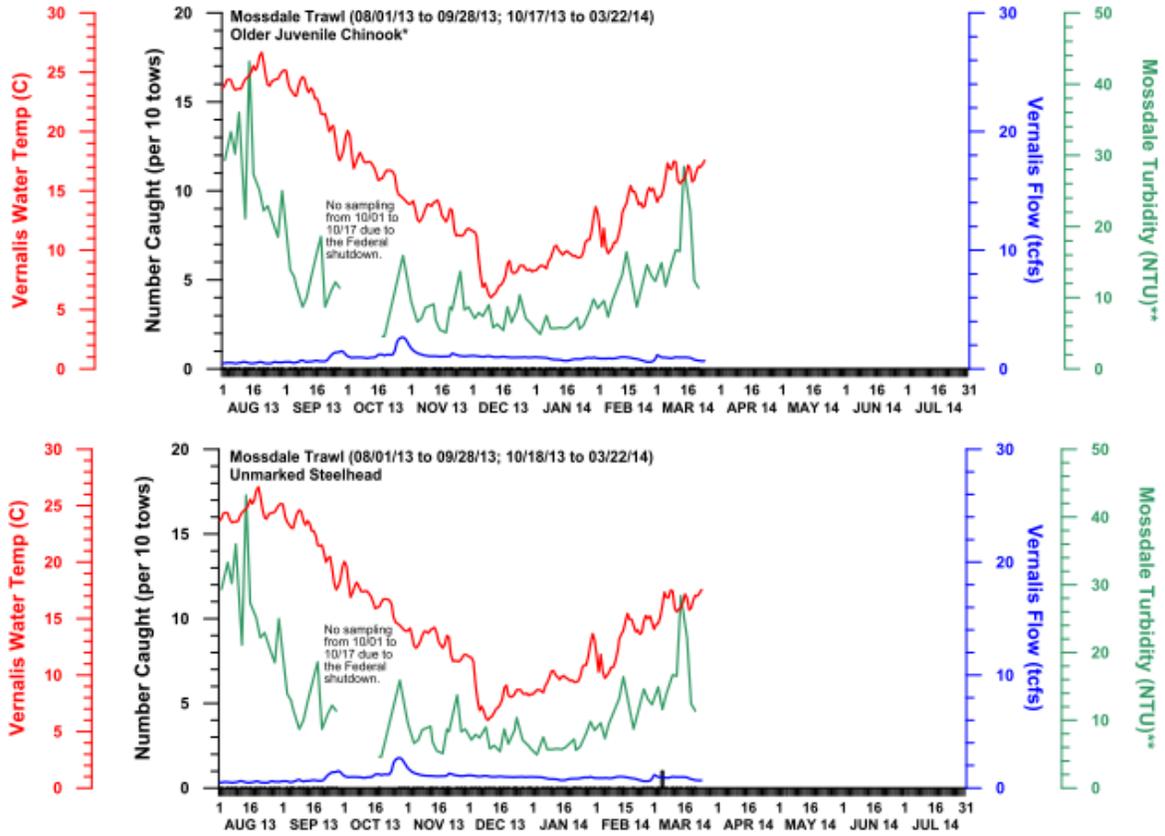
Preliminary data from DFW, FWS, and CDEC; subject to revision.

\*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 unless data are missing for more than five days. 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 24 MAR 2014

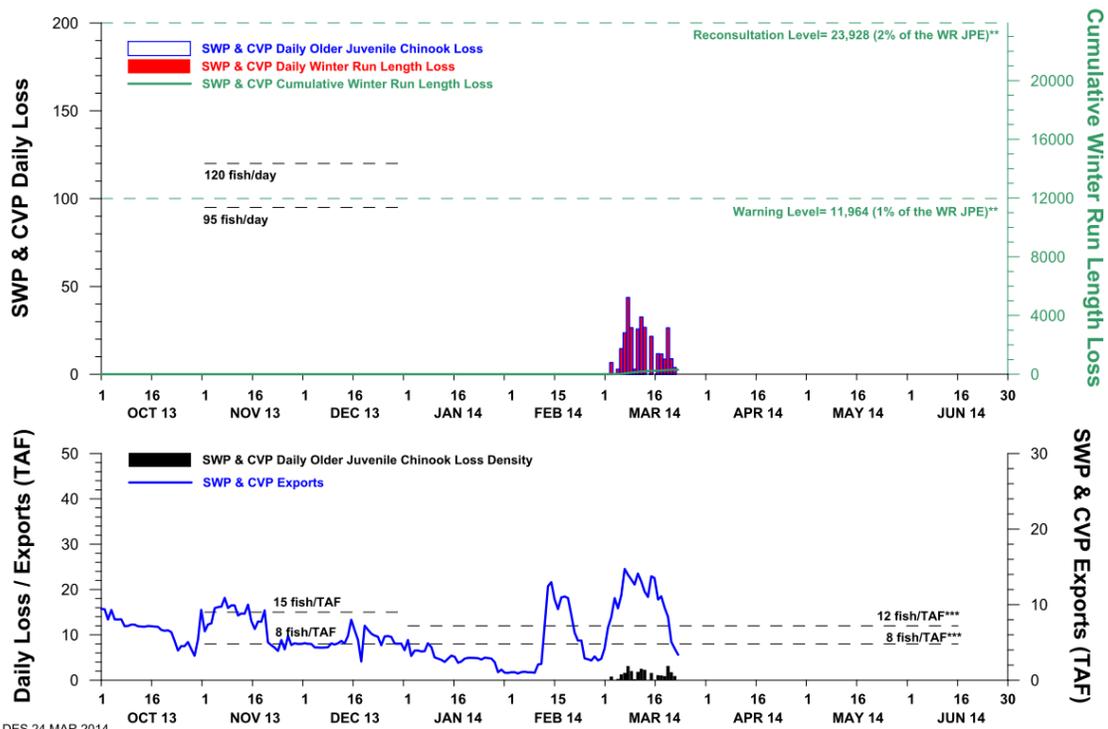
Preliminary data from FWS and CDEC; subject to revision.

\*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 unless data are missing for more than five days.



## NON-CLIPPED WINTER RUN & OLDER JUVENILE CHINOOK LOSS AT THE DELTA FISH FACILITIES 01 OCT 2013 THROUGH 23 MAR 2014



DWR-DES 24 MAR 2014

Preliminary data from DFW; 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 (Delta model) for which a race is assigned on a given sampling date.

\*\*Based on the final juvenile production estimate (JPE), which comes out to 1,196,387 non-clipped winter run (WR) Chinook entering the Delta during water year 2014.

\*\*\*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. The daily JPE based older juvenile Chinook loss density triggers of 11.96 fish/TAF (first stage) and 23.93 fish/TAF (second stage) are not controlling this water year.