

**Delta Operations for Salmonids and Sturgeon (DOSS) Group**  
**6/10/14**

**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:** Farida Islam, Aaron Miller, Kevin Reece, Dan Yamanaka, Mike Ford  
**FWS:** Craig Anderson, Roger Guinee, Leigh Bartoo  
**NMFS:** Barbara Rocco, Barb Byrne  
**Reclamation:** Josh Israel, Michelle Palmer, Russ Yaworsky, Jason Hassrick  
**DFW:** Krystal Acierito, Chris McKibbin, Bob Fujimura  
**SWRCB:** Scott Ligare  
**EPA, USGS:** not present

**Agenda**

1. Agenda Review and Introductions
2. Fish Monitoring
3. Current Ops
4. 2014 DOSS Annual Report—Draft TOC and Timeline
5. SWG
6. RPA Implementation Review and DOSS Advice
7. Final Check-In Re: Summer DOSS Schedule and End-Of-Season Lunch

**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 <sup>4</sup>	Sacramento Trawls <sup>1</sup>	Mossdale Kodiak Trawl <sup>2</sup>	GCID <sup>3</sup>	Knights Landing RST <sup>4</sup>	Tisdale RST	Beach Seines	Jersey Point
Sample Date	6/3, 5	6/3, 6	N/A	6/3–9	6/3–5	6/3–7	6/2–6	N/A
Total Catch	1	0		238	0	0	95	
FR	1			237			4	
WR								
SR				1				
LFR								
Ad-Clipped Chinook								
DS								
Splittail							91	
Longfin								
SH (ad-clip)								

<b>SH (wild)</b>								
<b>W. Temp. (avg. °F)</b>	68.5	71.6		63.1	72.3	69.2	72.5	
<b>Flows (avg. cfs)</b>					4,953	5,942		
<b>Turbidity (avg. NTU)</b>	24.5	8.1		2.98	4.7	10.8	19.1	
<b>WR/LFR Avg. CPUE</b>				1.56				
<b>FR/SR Avg. CPUE</b>								

Glenn-Colusa Irrigation District; RST = rotary screw trap

<sup>1</sup>Sacramento Trawls changed gear type from a Kodiak trawl arrangement to a midwater trawl arrangement on 4/3.

<sup>2</sup>Mossdale Trawls to be conducted by CDFW between 4/1 and 6/30; beginning 6/3, reducing sampling from 5 days to 3 days through the end of June.

<sup>3</sup>6/3: Heavy debris caused the trap cone to stop spinning overnight; 6/8: clicker not functioning on arrival. Total revolutions estimated from avg. RPM X 60 minutes X 24 hours.

<sup>4</sup>6/5: Last sampling day for 2013/14 season.

**Tisdale:** Monitoring at Tisdale will stop when temperatures reach ~74°F.

**Knights Landing:** Rotary screw trap (RST) sampling for the 2013/14 season concluded last Friday, 6/6. The 2014/15 sampling season will most likely commence in early October.

**Fish Salvage<sup>1</sup>:** DFW provided an update on fish salvage at CVP's Tracy Fish Collection Facility (TFCF) and SWP's Skinner Fish Collection Facility (SFCF) from 6/2–6/8. As in last week's report, no juvenile salmonids or sturgeon were salvaged at either facility during the reporting period. The preliminary report for 6/9 shows no salmonids or sturgeon were salvaged at either facility.

Summer monitoring/salmon and steelhead salvage tables: The facilities will continue to report monitoring and salvage activities throughout summer and update the salvage data files at <ftp://ftp.dfg.ca.gov/salvage/> whenever salvage occurs.

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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: June 2-8, 2014**  
 Prepared by Bob Fujimura on June 8, 2014 1348  
**Preliminary Results - Subject to Revision**

Criteria	2-Jun	3-Jun	4-Jun	5-Jun	6-Jun	7-Jun	8-Jun	Trend	
<b>Loss Densities</b>									
Wild older juvenile CS	0	0	0	0	0	0	0	⇒	0.00
Wild steelhead	0	0	0	0	0	0	0	⇒	0.00
<b>Exports</b>									
SWP daily export	341	621	611	496	341	918	1,290	↔	660
CVP daily export	1,608	1,604	1,600	1,659	1,752	1,175	0	↔	1,343

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

Category	Weekly Total			Season Total	
	Salvage	Loss	Trend	Salvage	Loss
<b>Wild</b>					
Winter Run	0	0	⇒	192	338
Spring Run	0	0	⇒	484	346
Late Fall Run	0	0	⇒	0	0
Fall Run	0	0	⇒	544	401
Unclassified	0	0	⇒	4	NC
<b>Total</b>	<b>0</b>	<b>0</b>		<b>1,223</b>	<b>1,085</b>
<b>Hatchery</b>					
Winter Run	0	0	⇒	6	12
Spring Run	0	0	⇒	12	8
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>18</b>	<b>20</b>

Trend = weekly loss per race; Salvage = estimated number of fish collected by the CVP and SWP fish protective facilities per unit of time  
 Highlighted values include the latest interpretation of a NMFS/USBR interim procedure to estimate loss due to secondary channel construction outage.  
 NC = can not be calculated

**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	⇒	185	261
Hatchery	0	0	⇒	226	311
<b>Total</b>	<b>0</b>	<b>0</b>		<b>411</b>	<b>572</b>

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

Generated by Bob Fujimura on June 9, 2014



Figure 1. Daily salvage of Chinook salmon (all races) and water exports from the state and federal fish salvage facilities during April 13 through June 8, 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 April 13 through June 8, 2014. Graph obtained from the DFG salvage monitoring web-page: <http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx>

**Fish Distribution:** DOSS noted that neither the Chipps Island nor Sacramento trawls captured any spring-run-sized Chinook over the past week. GCID reported one spring run this past week. Spring-run Chinook are expected to be out of the Delta under current temperature conditions.

	Yet to Enter Delta	In the Delta	Exited the Delta Past Chipps Island
<i>Young-of-year (YOY) winter-run Chinook salmon</i>	Most YOY winter-run have most likely exited the Delta (last week: same)		
<i>Yearling spring-run Chinook salmon</i>	All yearling spring run have most likely exited the Delta. (last week: same)		
<i>YOY spring-run Chinook salmon</i>	Most YOY spring-run have most likely exited the Delta (last week: ~0% yet to enter Delta, <5% in the Delta, >95% exited the Delta)		

**Recent Release Information:** Last week's release numbers for the acoustically tagged juvenile Chinook released at Durham Ferry reported by Byrne per Brandes (FWS) were incorrect and have been updated. The actual releases were: 644 in mid-April, 646 in late April/early May, and 629 late in mid-May.

**Coded Wire Tags (CWTs):** The following table presents the CWT releases and losses from 10/1/13 through 6/8/14.

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	4/11/2014
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%	*	*
3/24 to 3/28/2014	F	Coleman NFH	Rio Vista net pens	Production	2.33	629,400	n/a	0.0004	n/a	n/a	n/a	4/4/2014	4/4/2014
2/28/14 to TBA	F	**	Hills Ferry Barrier/Fremont Ford Bridge	Experimental/SJRRP	2.33	**	n/a	**	n/a	n/a	n/a	4/13/2014	4/13/2014
4/17 to 4/18/14	S	Feather River Hatchery	Hills Ferry Barrier	Experimental/SJRRP	0	54,000	n/a	0	n/a	n/a	n/a	*	*

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	3.01	0.00	0.00	0.00	0
<b>TOTAL</b>	<b>3.01</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 6/8/2014.

<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 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 6/9/2014

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

## Operations (6/10/14)

SWP		CVP	
Exports (cfs)			
Clifton Court Forebay	750 (SWP is exporting 300 cfs of SWP water and 450 cfs of CVP water [being transferred to the DMC through the intertie])	Jones Pumping Plant	0 (outage began 6/8 for screen installation on the secondary louver; will continue for 3 weeks)

Reservoir Releases (cfs)			
Feather - Oroville	2,000 (will increase to 2,500 today or tomorrow for Delta water quality and outflow)	American - Nimbus	2,000
		Sacramento - Keswick	9,000 (will increase to 9,500 on 6/12 for Delta water quality and outflow)
		Stanislaus - Goodwin	300 (increased 6/9 from 250 cfs for Ripon water quality [dissolved oxygen])
Reservoir Storage (in TAF, % of capacity)			
San Luis (SWP)	315	San Luis (CVP)	480 (50)
Oroville	1,691	Shasta	2,092
New Melones		Folsom	528
Delta Operations			
DCC	Closed (could open on 6/13; will decide on 6/11)	Sacramento River at Freeport (cfs)	7,712
Outflow Index (cfs)	~4,100	San Joaquin River (cfs) at Vernalis	391
Total Delta Inflow (cfs)	~8,642	OMR (daily) (cfs)	-1,600
Water Temperature (°F)		OMR 5-day avg (cfs index method)	-1,700
X2 (km)	>81	OMR 14-day avg (cfs, index method)	-1,800
E/I (%)	7.5 (3-d avg)		

**Factors Controlling Operations:** Outflow and salinity are controlling operations.

**Water Quality and Depletions:** Vernalis daily salinity is 0.37 mS/cm and 30-day salinity is 0.25 mS/cm. In-Delta consumptive use (an “assumed” value<sup>2</sup>) increases from 6/1 through 6/30 by ~1,000 cfs. Depletions on the Sacramento River have stayed fairly level so far this month but it is difficult to say whether the recent curtailment notices have had any effect in reducing depletion. The project operators reminded the group that the net Delta Outflow Index (NDOI) is a calculated value<sup>3</sup>. The question was asked whether SWRCB has any plans to revise its assumptions and calculation methods based on current drought conditions or shifting to a direct measure of outflow. Ligare (SWRCB) did not know of any such effort. Byrne (NMFS) reported that she believed one of the recent reports from the Delta Stewardship Council Delta Independent Science Board discussed the potential for shifting to a measured instead of calculated outflow.

**Old & Middle River (OMR) Index vs USGS Gage Measurements:** A comparison of OMR computations was reported for the week ending 6/7. The OMR index was ~400 cfs more negative than the USGS gage measurements for daily, 5-day, and 14-day averages.

**DOSS Annual Report:** The Annual Review Planning Team (mis-reported on the call as the Implementation Management Team) has provided the schedule for this year’s annual report. Hassrick (Reclamation) has volunteered to join Rocco (NMFS) and Byrne on the DOSS annual report committee (DARC) to help compile the report. We are open to suggestions on any

<sup>2</sup> <http://www.water.ca.gov/dayflow/documentation/table3.cfm>

<sup>3</sup> See NDOI documentation at: <http://www.water.ca.gov/dayflow/documentation/>

changes the table of contents (distributed in advance of the call). Final annual reports from the tech teams are due in September for the annual review most likely in early November.

DOSS discussed some additions to the contents of the annual report as follows:

- Term & Condition 2a (review of equations for calculating loss)
- Installation of the traveling screens at the TFCF secondary louvers
- Summary of when sampling at the facilities from November through June deviated from the 25% sampling framework
- Sampling gaps (Delta Juvenile Fish Monitoring Program, Red Bluff Diversion Dam) as a result of the federal furlough in October

Byrne will revise the table of contents and timeline and send out to DOSS.

Some preliminary agenda topics for the review panel are:

- 1) general hydrologic water-year review that will include an overview of the Drought Operations Plan
- 2) the OMR index demonstration project
- 3) the 2014 Juvenile Production Estimate calculation
- 4) a followup to delta smelt turbidity information from last year's review.

#### **RPA Actions:**

- IV.1.2 (Delta Cross Channel [DCC] gate operations): From May 21-June 15, the “DCC gates [are] closed for 14 days during this period, per 2006 WQCP, if NMFS determines it is necessary.” DCC gates are currently closed; a decision on whether to open the gates this coming weekend will be made on 6/11.
- IV.2.3 (OMR flow management): OMR flow management for water-year 2014 was lifted effective 6/8 after the daily water temperature at Mossdale exceeded 72°F for 7 consecutive days from 6/1 to 6/7. OMR data are available on the Reclamation CVO website: <https://www.usbr.gov/mp/cvo/index.html>.

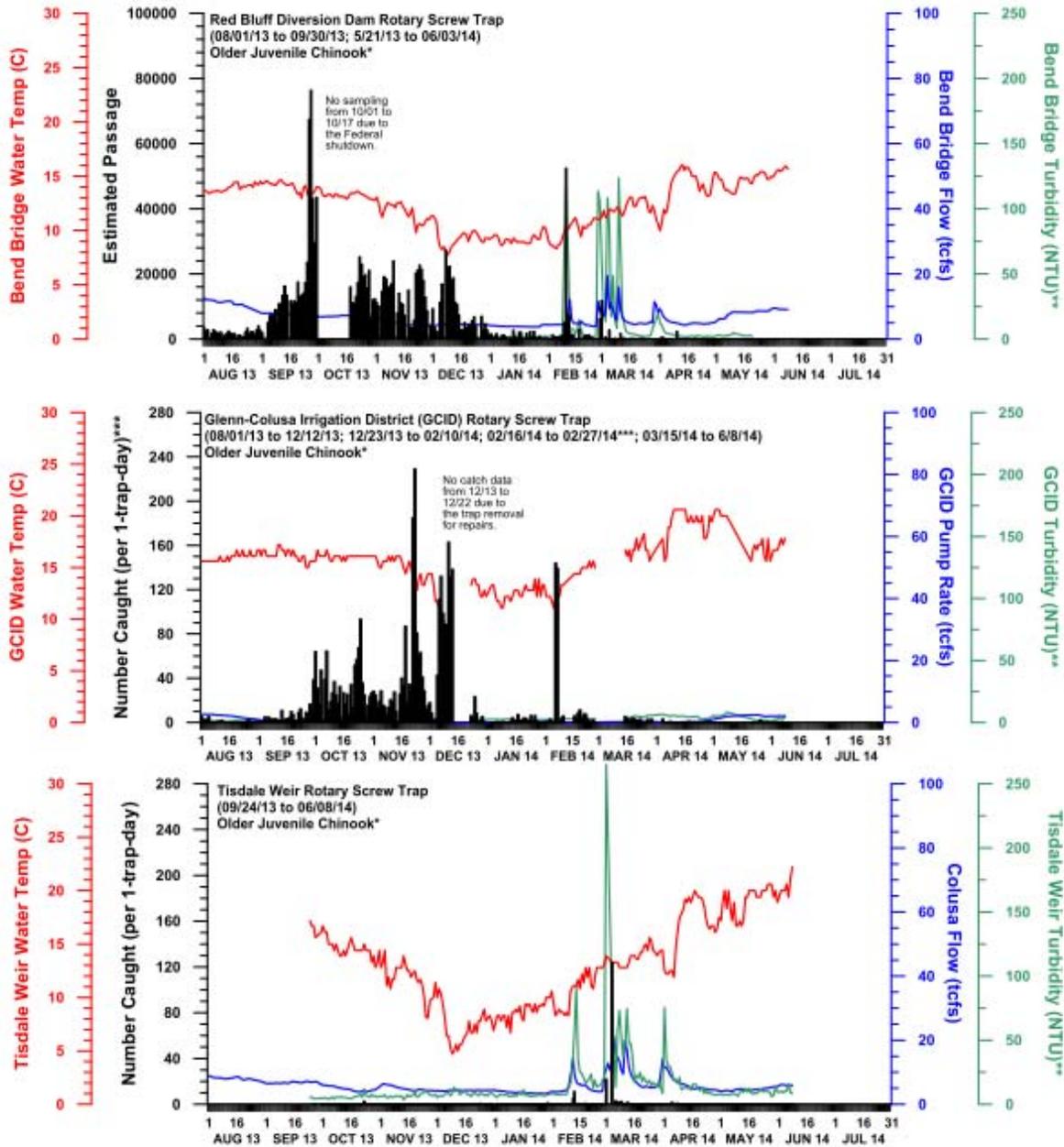
**Smelt Working Group (SWG):** SWG met on 6/9 and agreed that given current operations and conditions, there was no need to suggest any change in operations for delta smelt. FWS reported that the management season for larval and juvenile delta smelt (Action 3 of the USFWS BiOp) will end 6/30, or when the temperature offramp is met (*i.e.*, when 3 consecutive days at 25°C [77°F] are recorded at Clifton Court Forebay). The temperatures at Clifton Court Forebay reached 3 consecutive days of 25°C (77°F) as of 6/9; therefore, the offramp has been met. SWG will not meet again this water year, although the projects will continue to monitor take. For longfin smelt, the management season is also coming to a close. Previous SWG 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:** Given no RPA actions left to review and monitoring coming to an end, DOSS decided to forego any subsequent conference calls, but suggested that anyone is welcome to call a meeting if warranted for either general DOSS discussion or to discuss the annual report.

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

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



DWR-DES 9 June 2014

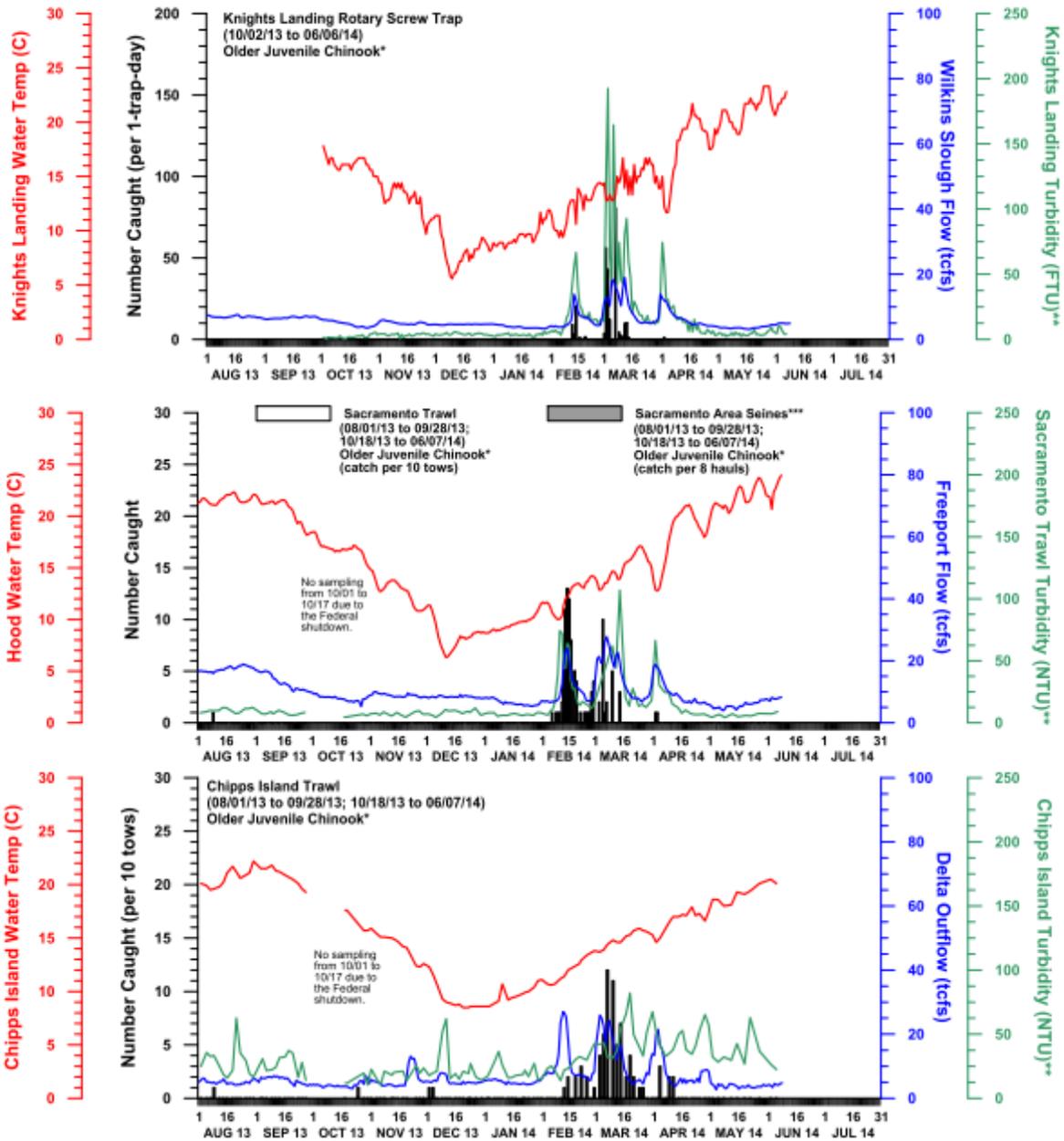
Preliminary data from DFW, FWS, GCID, and CDEC; subject to revision.

\*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 9 JUNE 2014

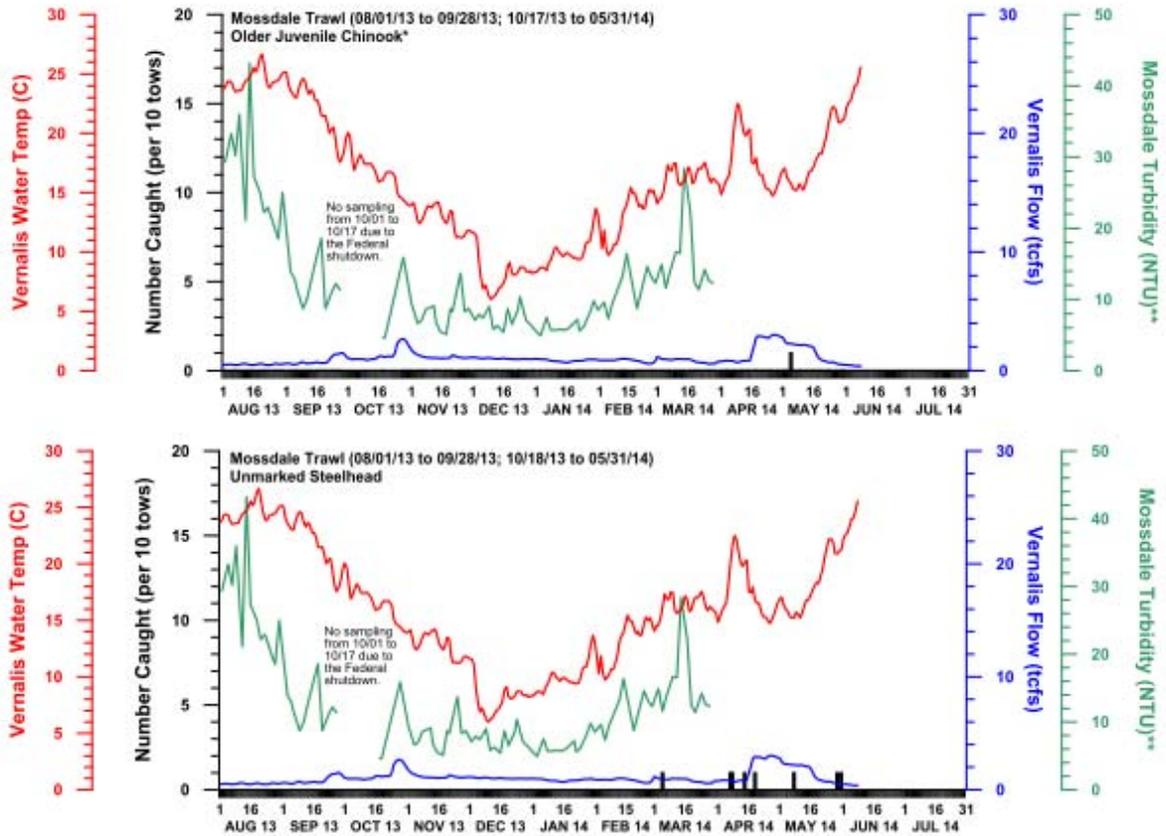
Preliminary data from DFW, FWS, and CDEC; subject to revision.

\*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



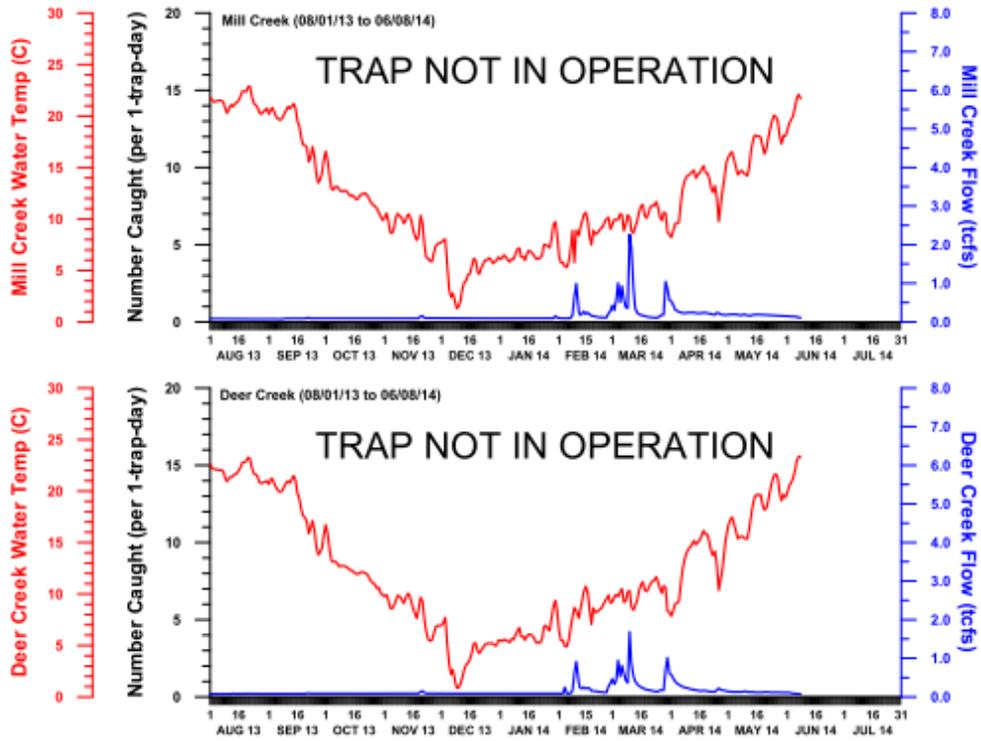
DWR-DES 9 JUNE 2014

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.

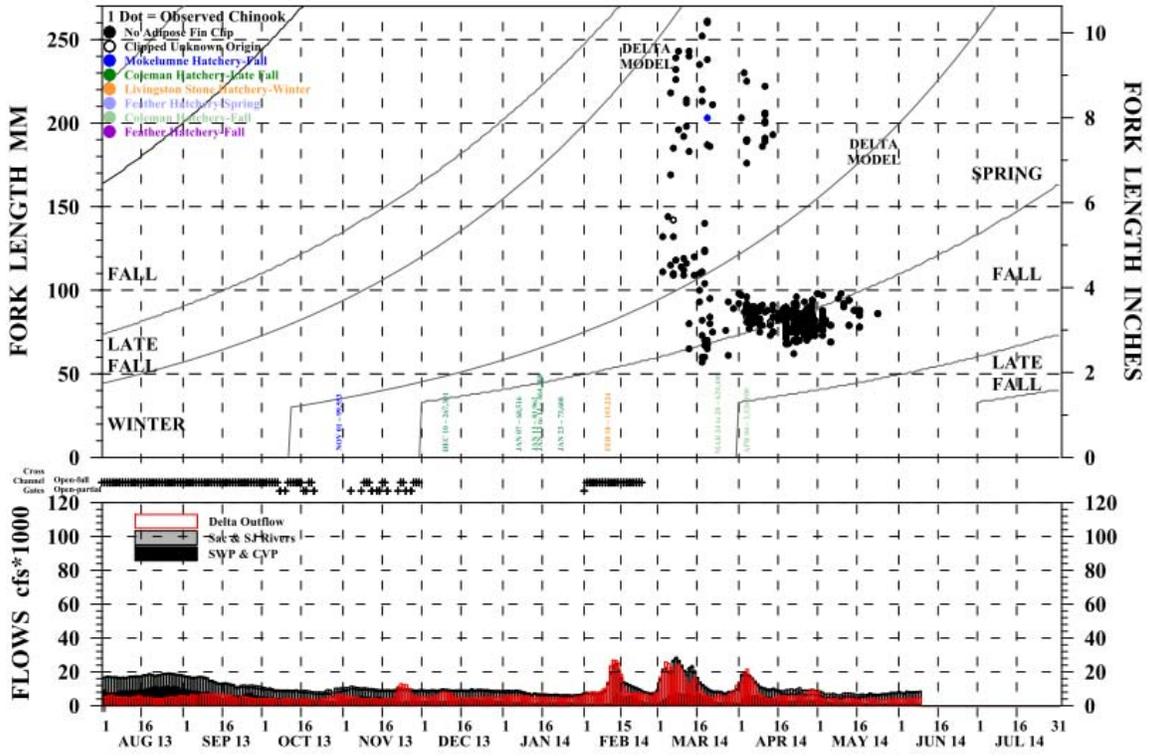
\*\*Turbidity is a discrete measurement and is not measured continuously. Therefore, data are interpolated on days when turbidity was not measured unless data are missing for more than five days.

# WATER TEMPERATURE AND FLOW MEASURED AT MILL AND DEER CREEK



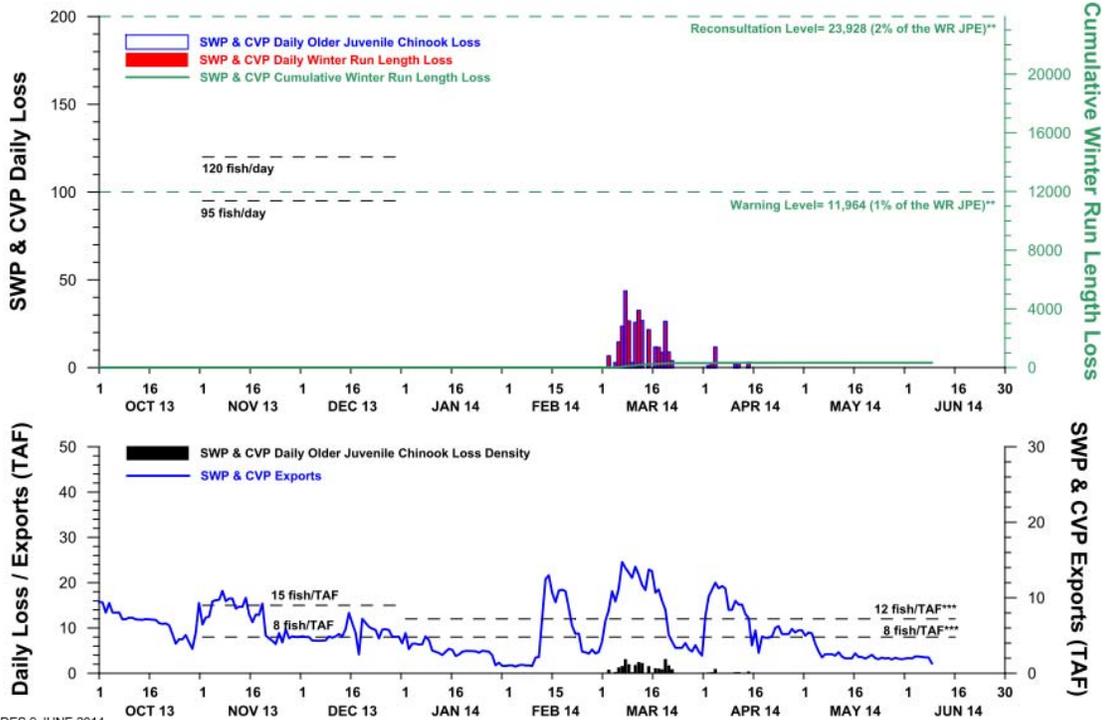
DWR-DES 9 JUNE 2014  
Preliminary data from CDEC; subject to revision.

# OBSERVED CHINOOK SALVAGE AT THE SWP & CVP DELTA FISH FACILITIES 08/01/2013 THROUGH 06/08/2014



DWR-DES 9 JUNE 2014  
 Preliminary data from DFW, DWR, FWS, Reclamation, and CDEC; subject to revision.  
 \*Chinook not measured for length and Chinook outside of the length-at-date criteria (Delta model) are not reported.

# NON-CLIPPED WINTER RUN & OLDER JUVENILE CHINOOK LOSS AT THE DELTA FISH FACILITIES 01 OCT 2013 THROUGH 08 JUNE 2014



DWR-DES 9 JUNE 2014

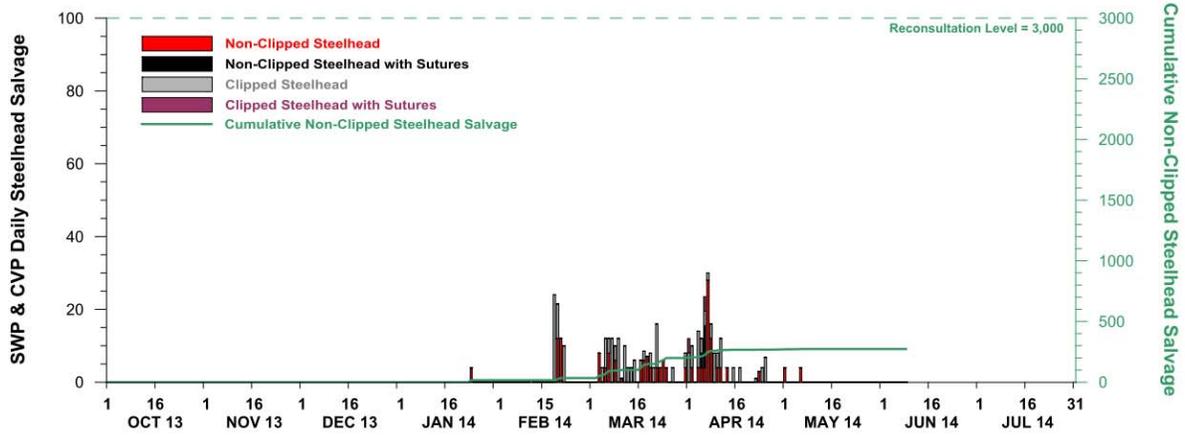
Preliminary data from DFW; subject to revision.

\*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.

## STEELHEAD SALVAGE AT THE DELTA FISH FACILITIES 01 OCT 2013 THROUGH 08 JUNE 2014



DWR-DES 9 JUNE 2014  
Preliminary data from DFW; subject to revision.