Delta Operations for Salmonids and Sturgeon (DOSS) Group
Conference call: 2/26/13 at 9:00 a.m.

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.swr.noaa.gov/ocap/doss.htm.

DWR: Kevin Reece, Andy Chu, Edmund Yu, Mike Ford
FWS: Craig Anderson, Leigh Bartoo, Roger Guinee
NMFS: Barbara Rocco, Jeff Stuart, Bruce Oppenheim, Garwin Yip
Reclamation: Josh Israel, Elizabeth Kiteck
DFW: Bob Fujimura, Krystal Acierto, Jason Roberts, Robert Vincik, Alice Low
SWRCB: Scott Ligare
EPA, USGS: not present

Agenda
1. Fish monitoring
2. Current operations
3. Comments on the 2012 Mill and Deer Creek report

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	Chipps Is. Midwater Trawl	Sacramento Trawls	Mossdale Kodiak Trawl	Beach Seines
Sample Date	2/19, 21, 22	2/19, 20, 22	2/20–2/22	2/19–2/22
Total Catch	**24**	**13**	**8**	**476**
FR		13	8	452
WR				1 (Terminus Island)
SR				20
LFR				
Ad-Clipped Chinook				3 (77–121 mm)
DS	12 (69–83 mm)			
Splittail	3 (110–129 mm)			
Longfin	6 (3 with eggs)			
SH (ad-clip)	3 (202–222 mm)			
SH (wild)				
W. Temp. (avg. °F)	50.9	50.4	50.5	50.5

Flows (avg. cfs)				
Turbidity (avg. NTU)	24.7	10.5	14.4	14.7
WR/LFR Avg. CPUE				
FR/SR Avg. CPUE				

Key: FR = Fall run; LFR = Late-fall run; SR = Spring run; WR = Winter run; SH = Steelhead; DS = Delta smelt; LFS = Longfin smelt; CPUE = catch per unit of effort; ACT = acoustic tag; N/A = not available

Tisdale: Tisdale rotary screw traps (RSTs) could be back in the water and functional by later this week pending permit approval and securing the necessary equipment.

Fish Salvage: The fish salvage report covering 2/18–2/24/13 was provided by Geir Aasen (DFW) and emailed to DOSS participants. This report is posted at ftp://ftp.delta.dfg.ca.gov/salvage and you can locate the table under folder "DOSS salvage tables" (also try http://www.dfg.ca.gov/delta/apps/salvage/Default.aspx and click on "salvage FTP site").

Report from Bob Fujimura (DFW) for February 18–24

Young-of-year fall-run Chinook have been showing up at the facilities. Three non-ad-clipped juvenile Chinook salmon in the fall-run size range were salvaged during the reporting period. The number of ad-clipped Chinook salvaged last week (2) decreased compared to that of the previous week (8). These two fish were in the winter-run size range. A combined total of 6 non-ad-clipped steelhead were salvaged over 2 days of the reporting period. The estimated daily loss densities were 0.8 and 2.3 fish/TAF. Thirty-eight ad-clipped steelhead were salvaged during the same period. No sturgeon were observed last week.

Preliminary results for yesterday (2/25/13): the CVP salvaged 4 ad-clipped and 2.5 non-ad-clipped steelhead. The SWP salvaged 6 non-ad-clipped fall-run-sized Chinook and 2 ad-clipped steelhead. The final estimates will be posted on the DFW ftp site later today.

There were approximately 130,000 hatchery fall-run Chinook released on 2/20/13 as part of the Yolo Bypass experiment to test the bypass as a salmon "nursery" during the flooding season: 40,000 were released into the toe drain, 40,000 into the Sacramento River, and 50,000 into the study plot at Knaggs Ranch in the Yolo Bypass.

The following daily summary graphs and table were prepared by Bob Fujimura (DFW). Note that an error in the salvage information was identified during the conference call; the corrected salvage graph was provided immediately after the call and is included here.

Compiled by Bob Fujimura on February 25, 2013

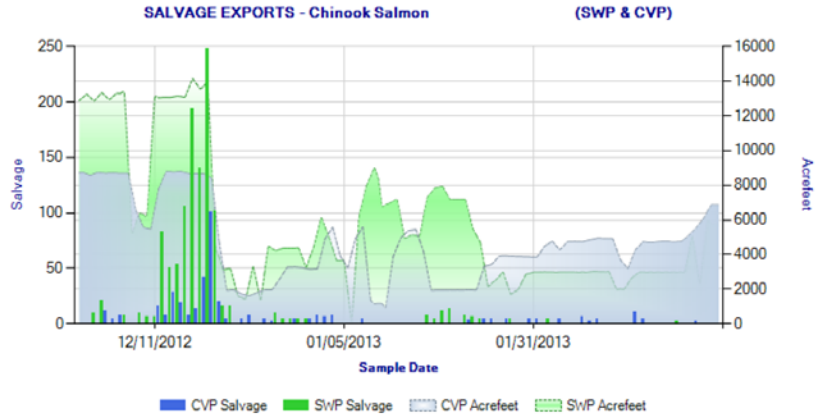


Figure 1. Daily salvage of Chinook salmon (all races) and water exports from the state and federal fish salvage facilities during December 1, 2012 through February 24, 2013. Graph obtained from the DFG salvage monitoring web-page: http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx.

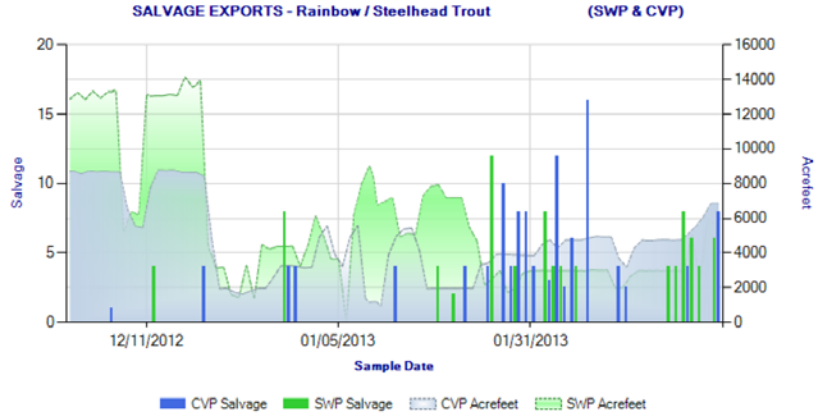


Figure 2. Daily salvage of steelhead and water exports from the state and federal fish salvage facilities during December 1, 2012 through February 24, 2013. Graph obtained from the DFG salvage monitoring web-page: http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx

DOSS Weekly Salvage Update

Reporting Period: February 18-24, 2013

Prepared by Bob Fujimura on February 25, 2013 CORRECTED VERSION 12:45

Preliminary Results - Subject to Revision

Criteria	18-Feb	19-Feb	20-Feb	21-Feb	22-Feb	23-Feb	24-Feb	Trend	
Loss Densities									
Wild older juvenile CS	0	0	0	0	0	0	0	→	0.0
Wild steelhead	2.3	0	0	0.8	0	0	0	↗	0.4
Exports									
SWP daily export	2,974	2,974	2,999	5,055	2,348	5,886	5,710	↗	3,992
CVP daily export	4,727	4,734	5,081	5,530	6,079	6,859	6,859	↗	5,696

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;

	Weekly Total			Season Total	
Category	Salvage	Loss	Trend	Salvage	Loss
Wild					
Winter Run	0	0	→	97	312
Spring Run	0	0	→	0	0
Late Fall Run	0	0	→	85	277
Fall Run	3	2	↘	29	58
Unclassified	0	0	→	8	5
Total	**3**	**2**		**219**	**652**
Hatchery					
Winter Run	2	9	↗	148	464
Spring Run	0	0	→	0	0
Late Fall Run	0	0	→	781	2,898
Fall Run	0	0	→	415	1,522
Unclassified	0	0	→	0	0
Total	**2**	**9**		**1,344**	**4,884**

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

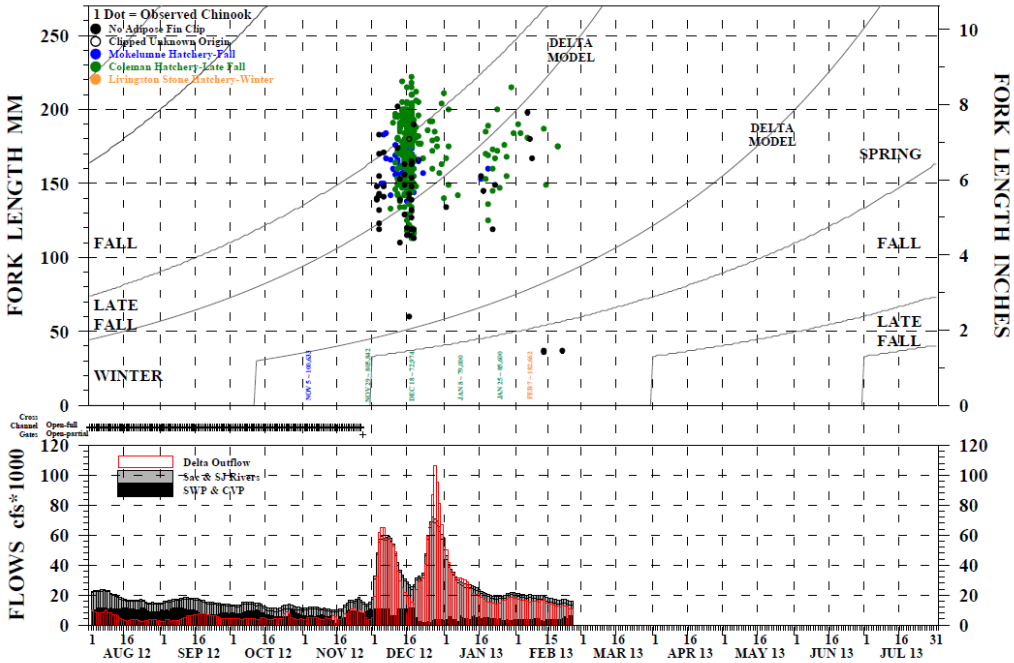
Combined salvage and loss for both CVP and SWP fish facilities

	Weekly Total			Season Total	
Category	Salvage	Loss	Trend	Salvage	Loss
Wild	6	26	↗	88	220
Hatchery	38	121	↗	120	249
Total	**44**	**147**		**208**	**469**

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

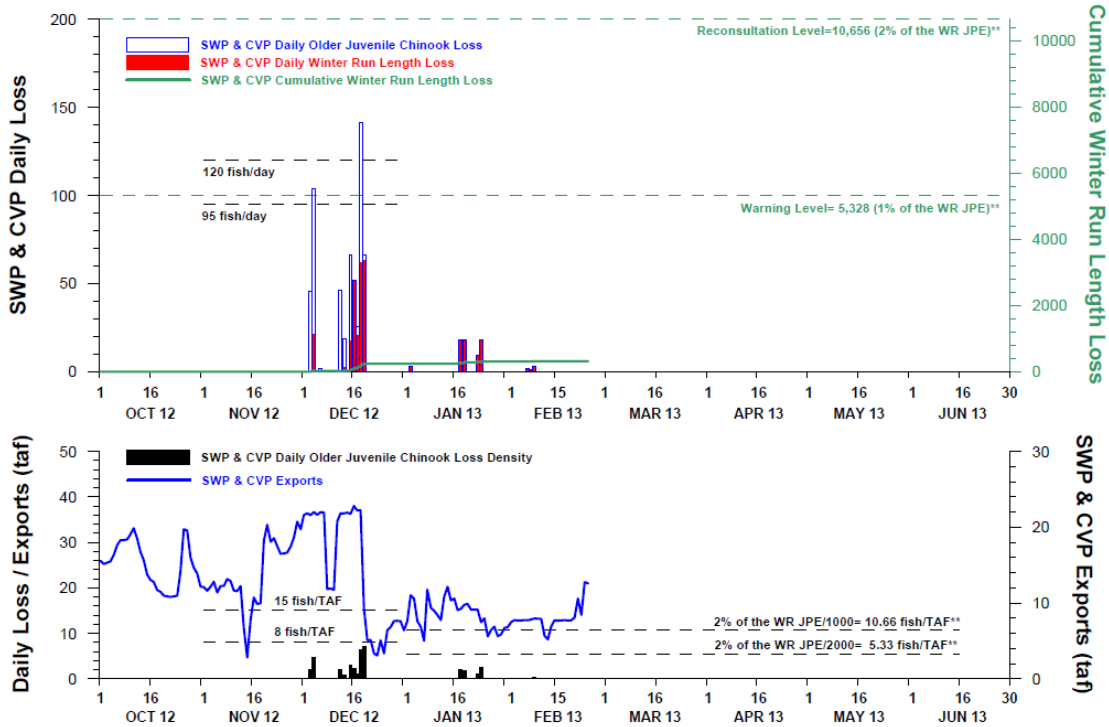
Below are graphs provided by DWR for Chinook salmon salvaged at the Delta fish facilities and for older juvenile Chinook salmon and steelhead observed in the Sacramento and San Joaquin rivers. For additional graphs, please visit the DWR website at: http://www.water.ca.gov/swp/operationscontrol/calfed/calfedmonitoring.cfm.

OBSERVED CHINOOK SALVAGE AT THE SWP & CVP DELTA FISH FACILITIES 08/01/2012 THROUGH 02/24/2013



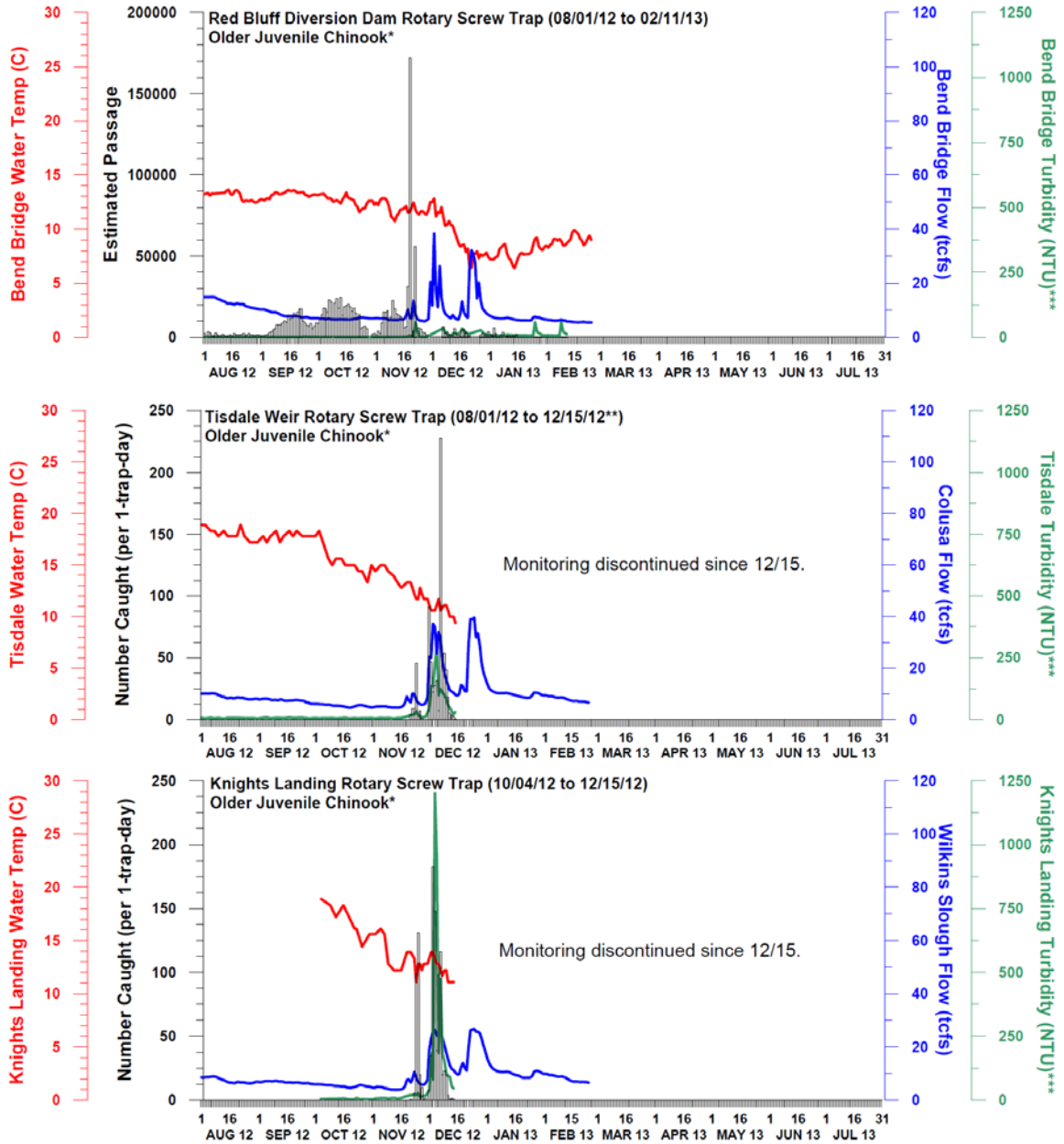
DWR-DES 25 FEB 2013
Preliminary data from DFW, DWR, FWS, Reclamation, and CDEC; subject to revision.
*Chinook outside of the length-at-date criteria (Delta model) are not reported.

NON-CLIPPED WINTER RUN & OLDER JUVENILE CHINOOK LOSS AT THE DELTA FISH FACILITIES 01 OCT 2012 THROUGH 24 FEB 2013



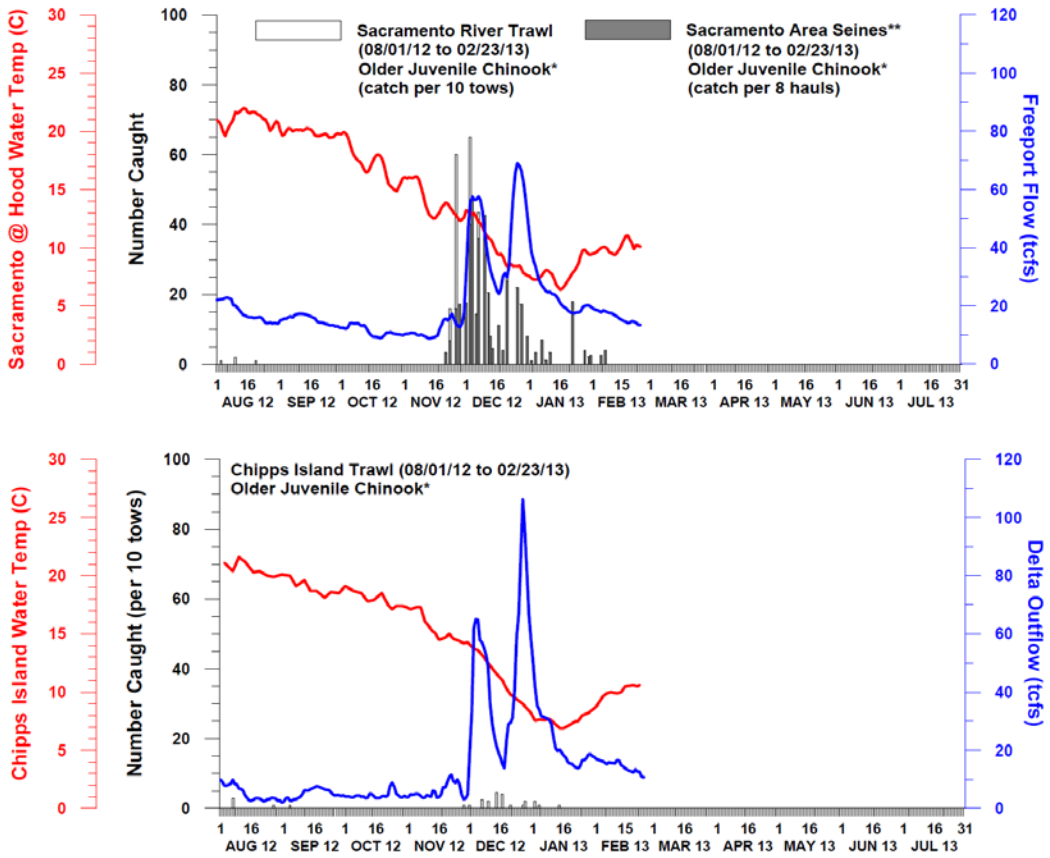
DWR-DES 25 FEB 2013
Preliminary data from DFW; subject to revision.
*Older juvenile Chinook defined as all Chinook above the minimum winter run length-at-date criteria and below the maximum size included in the length-at-date criteria (Delta model).
**Based on the final juvenile production estimate (JPE), which comes out to be about 532,809 non-clipped winter run (WR) Chinook entering the Delta during water year 2013.

NUMBER OF OLDER JUVENILE CHINOOK MEASURED IN THE SACRAMENTO RIVER



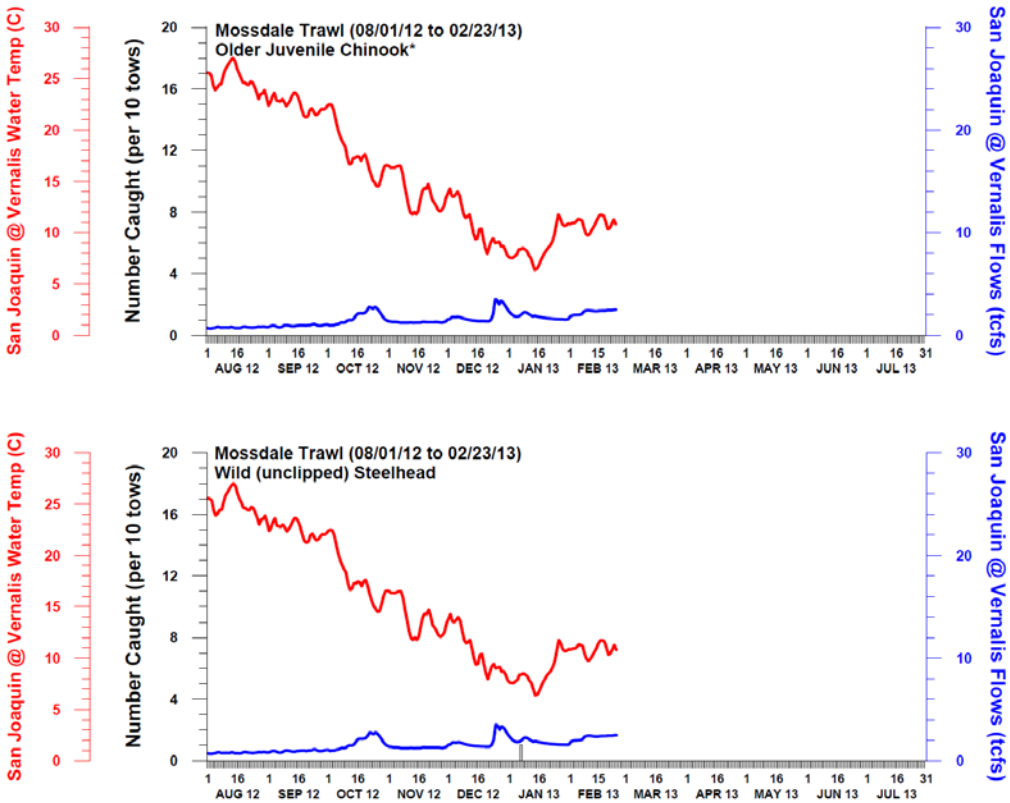
DWR-DES 25 FEB 2013
Preliminary data from DFW, FWS, and CDEC; subject to revision.
*Older juvenile Chinook defined as all Chinook above the minimum winter run length-at-date criteria and below the maximum size included in the length-at-date criteria (Frank Fisher model).
** Tisdale Weir: One older juvenile caught on 9/14 and 43 older juveniles caught on 11/25. However, CPUE was not calculated due to problems with the cone clickers. As a result, data are not presented on the graph.
***Turbidity is a discrete measurement and is not measured continuously. Therefore, data are interpolated on days when turbidity was not measured.

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



DWR-DES 25 FEB 2013
Preliminary data from FWS and CDEC; subject to revision.
*Older juvenile Chinook defined as all Chinook above the minimum winter run length-at-date criteria and below the maximum size included in the length-at-date criteria (Frank Fisher model).
**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 OLDER JUVENILE CHINOOK AND STEELHEAD MEASURED IN THE SAN JOAQUIN RIVER



DWR-DES 25 FEB 2013
Preliminary data from FWS and CDEC; subject to revision.
*Older juvenile Chinook defined as all Chinook above the minimum winter run length-at-date criteria and below the maximum size included in the length-at-date criteria (Frank Fisher model).

Hatchery Coded Wire Tag (CWT) Results (see table below): From 2/18 to 2/24, the 2 ad-clipped winter-run Chinook that were reported salvaged above were from second spring-run surrogate group released on 1/8/13, bringing the loss rate for that group to 0.163%. The trigger for RPA Action IV.2.3 of a loss >0.5% was not met. No other CWTs were reported and all tags have been read.

HATCHERY (ADIPOSE FIN CLIPPED) CHINOOK SALMON LOSS AT THE SWP & CVP DELTA FISH FACILITIES, 2012/2013

Release Date	CWT Race	Hatchery	Release Site	Release Type	Confirmed Loss	Number Released[1]	Total Entering Delta	% Loss[2]	First Concern Level	Second Concern Level	Date of First Loss	Date of Last Loss
11/5/2012	F	Mokelumne River Hatchery	Mokelumne River	**	590.68	100,633	n/a	0.587	n/a	n/a	12/5/2012	1/20/2013
11/29/2012	LF	Coleman NFH	Battle Creek	Production	4080.76	805,842	n/a	0.506	n/a	n/a	12/9/2012	1/20/2013
12/18/2012	LF	Coleman NFH	Battle Creek	Spring Surrogate	58.20	72,974	n/a	0.080	0.5%	1.0%	12/31/2012	1/28/2013
1/8/2013	LF	Coleman NFH	Battle Creek	Spring Surrogate	128.58	79,000	n/a	0.163	0.5%	1.0%	1/20/2013	2/19/2013
1/25/2013	LF	Coleman NFH	Battle Creek	Spring Surrogate	12.14	85,600	n/a	0.014	0.5%	1.0%	2/3/2013	2/14/2013
2/7/2013	W	Livingston Stone NFH	Caldwell Park	Production	0.00	182,662	96,525	0.000	0.5%	1.0%	-	-

Facility	Unknown CWT Loss[3]	Unread CWT Loss[4]	Unknown Hatchery Loss[5]
SWP	9.03	0.00	0.00
CVP	5.20	0.00	0.00
TOTAL	**14.23**	**0.00**	**0.00**

SWP and CVP adipose fin clipped Chinook lost from 10/1/2012 through 2/24/2013.
[1]Number released with the adipose fin clipped and a CWT.
[2]LF & F % Loss = (Confirmed Loss/Number Released)*100; W % Loss = (Confirmed Loss/Total Entering Delta)*100.
[3]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).
[4]Adipose fin clipped Chinook was collected during fish count and has not been processed yet.
[5]CWT has been read, but hatchery release information not yet available.
** Information not yet available.

DWR-DES Revised 2/25/2013
Preliminary data from DFW, DWR, FWS, and Reclamation; subject to revision.

Operations (2/26/13)

SWP		CVP	
Exports (cfs)			
Clifton Court Forebay	2,500	Jones Pumping Plant	3,500 (dropping to three units [2,600–2,700] on Thursday to meet the 35% E/I limit)
Reservoir Releases (cfs)			
Feather - Oroville	1,750	American - Nimbus	2,250
		Sacramento - Keswick	3,800
		Stanislaus - Goodwin	1,500 (reducing Wednesday to 1,000 and down from there)
Reservoir Storage (in TAF, % of capacity)			
San Luis (SWP)	449	San Luis (CVP)	758
Oroville	2,836	Shasta	3,595
New Melones	1,600	Folsom	558
Delta Operations			
DCC	Closed	Sacramento River at Freeport (cfs)	13,354
Outflow Index (cfs)	9,700	San Joaquin River (cfs) at Vernalis	2,501
Total Delta Inflow (cfs)	16,524	OMR (daily) (cfs)	-3,700
Water Temperature (°F)		OMR 5-day avg (cfs)	-2,500
X2 (km)	71 (west of Chipps)	OMR 14-day avg (cfs)	-2,163
E/I (%)	33.5 (14-d avg.)		

Water Quality: Exports will be controlled by the E/I ratio later this week, but still not in balanced conditions. There is still plenty of water in the system; however, the E/I ratio is close to the limit in D-1641 (35%). The 14-day E/I average is applied under excess conditions. Conditions in the Delta are rapidly changing because of the dry January and February. What is

expected to control exports is an expected 15 days of X2 required at Chipps Island in March to meet the monthly average.

Weather: Dry and warm for the next 10 days. The long-range (90-day) forecast from the National Oceanic and Atmospheric Administration predicts below-normal precipitation.

Smelt Working Group (SWG): SWG recommended to USFWS that OMR flows remain at the previous level of no more negative than -3,500 cfs for the 14-day average, with a corresponding 5-day average of no more negative than -4,375 cfs. SWG is scheduled to reconvene on Friday, 3/1/13, to conduct an updated risk assessment of delta smelt. The SWG also recommended OMR flows of no more negative than -4,000 cfs to protect longfin smelt. New data from the smelt larval surveys will be available and reviewed on Friday. Depending on that distribution, the longfin smelt recommendation of OMR no more negative than -4,000 cfs could be changed.

2012 Deer and Mill Creek Report Recommendation: The Implementation Management Team (IMT) asked that DOSS review the recommendations on monitoring that were recently compiled by DFW and provided to DOSS. Normally, DFW uses RST data to assess when spring-run Chinook move out of the tributaries; however, there are several problems with this method that occur during storms, such as the RSTs being damaged and access to them becoming dangerous. Monitoring was consequently halted in 2010 although it is still required under the 2009 BiOp. DFW provided a summary of 15 years of RST data from 1994 through 2009 with recommended flows to be used as a first alert.

On Mill Creek, some spring-run yearlings move out at flows above 110 cfs and there are some increases in fish with flow spikes from storms; however, this is not always the case. Below flows of 110 cfs, as in October, there is not enough flow to turn the cones in the RSTs; therefore, 110 cfs was used at the "cut off" rate for this analysis. Trapping begins October 1 if flows are sufficient to turn the cones in the RSTs; however, the 15 years of data are not consistent overall. Fish larger than a specific size can actually avoid the traps and sampling is difficult in a "flashy" stream. DFW concluded that there is a definite emigration pattern at a >50% increase in flows and the rate >110 cfs that presented a more consistent movement of fish; therefore, DFW recommended that mean daily flow levels of 110 cfs in Deer and Mill creeks or that flow increases of >50% be used as an indicator instead of continuing to use the RSTs.

The following comments were received from DOSS members before or during the call:

1) change recommended flows from >110 to >125 cfs as a first alert
2) assess temperature or turbidity as an indicator of movement
3) provide access to all the data (temperature, turbidity, flows, fish numbers, *etc*.) for further analysis
4) clarify whether the "flows are greater than 110 cfs" criterion is a reference to mean daily flow

The rationale for changing from 110 to 125 cfs is from looking at actual CDEC data for both creeks. From those data, it appeared that in most years, the baseline flows were >110 cfs (mean daily flow) and all pulse flows were generally >125 cfs; therefore, 125 cfs would capture the pulses better than 110 cfs. It was suggested that there could be cues (*e.g.*, temperature and turbidity) other than the flow that cause fish movement that could be assessed.

DFW did not analyze temperature and turbidity but the data are available for anyone who wants them. Israel (Reclamation) suggested that data in the final report be included as an appendix. There are some turbidity data but they are patchy. It would be nice to be able to access all of the data.

Krystal Acierto (DFW) will compile DOSS' comments and provide them to Low (DFW), who is on the IMT, for consideration. The compiled comments will be provided as an attachment to next week's DOSS notes. Reclamation will write an official letter to NMFS requesting that the first alert of RPA Action IV.1.1 be changed to a flow indicator in lieu of monitoring with RSTs in Mill and Deer creeks, and NMFS will provide a response.

Action Item: Acierto (DFW) will send the compiled comments to Low (DFW); she will provide them to DOSS.

DOSS Advice to WOMT and NMFS: None.

Next Meeting: The next DOSS meeting will be Tuesday, 3/5/13, at 9:00 a.m.