

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

Conference call: 4/16/13 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, Dan Yamanaka

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

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

**Reclamation:** Russ Yaworsky, Josh Israel

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

**SWRCB:** Scott Ligare

**EPA, USGS:** not present

### Agenda

1. Fish monitoring
2. Current operations
3. Check in: Steelhead loss trigger calculations
4. Check in: DOSS notes review schedule to allow posting on Fridays

**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	Tisdale RST	Beach Seines
Sample Date	4/8, 10, 12	4/8, 10, 12	4/9–4/13	4/9–4/12, 15	4/8–4/11
Total Catch	96	103	348	12	78
FR	6	25	347 Chinook <sup>1</sup>	3	65
WR	10				
SR	69	52		9	9
LFR					
Ad-Clipped Chinook	2 (84 & 91 mm)	23			
DS					1 (78 mm)
Splittail	8 (198–287 mm)	2 (200 & 270 mm)			
Longfin	1 (84 mm)				
SH (ad-clip)			1 (w/sutures)		3
SH (wild)		1			

<sup>1</sup> The Mossdale trawl data from CDFW does not include a classification of Chinook to race by length. Fall-run Chinook are dominant in the basin, with occasional reports of spring-running Chinook adults.

<b>W. Temp. (avg. °F)</b>	16.4	15.9		57.9	16.3
<b>Flows (avg. cfs)</b>				9,092	
<b>Turbidity (avg. NTU)</b>	61.1	16.0		15.6	25.7
<b>WR/LFR Avg. CPUE</b>					
<b>FR/SR Avg. CPUE</b>				0.157	

**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

**Coleman National Fish Hatchery:** Released >6 million fall-run in Battle Creek (4/10–4/11). Of this release, 25% were ad-clipped and coded-wire tagged (CWT'd). No ad-clipped Chinook have been reported recently at the Tisdale rotary screw trap, but fish from this release should be appearing at Tisdale soon.

**Fish Salvage:** Geir Aasen (DFW) provided the fish salvage report covering 4/8/13 through 4/14/13 and emailed it 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”).

Fujimura (DFW) reported on salvage for 4/8–4/14/13

The number of salvaged steelhead last week was roughly comparable to that of the previous week. There were 52 non-ad-clipped steelhead salvaged during the reporting period and, except for 4/14, they continued to be salvaged daily. The estimated daily loss densities ranged from 5.80 to 30.73 fish/TAF. The daily loss exceeded the first-stage loss criterion (8 fish/TAF multiplied by the volume exported) on 5 out of 7 days of the reporting period. The second-stage daily loss-density criterion (12 fish/TAF multiplied by the volume exported) was exceeded on 4/9. The season total of salvaged non-ad-clipped steelhead is 533. Eight-six hatchery steelhead were also salvaged during the reporting period.

No non-ad-clipped older juvenile Chinook salmon (based on size) were salvaged last week. The numbers of non-ad-clipped juvenile Chinook for both spring- and fall-run-sized fish increased from the previous week. There were 136 non-ad-clipped juvenile Chinook salvaged during the reporting period, of which 74 were spring-run size and 62 were fall-run size.

Two hatchery winter-run-sized Chinook were salvaged last week. These fish were determined later to be fall-run from the CWT information. No sturgeon were observed.

Preliminary results for Monday, 4/15/13: At the SWP, 4 non-ad-clipped Chinook in the young-of-year (YOY) spring-run size range, 16 additional Chinook of unknown origin and race (likely to be fall run), and 6 steelhead (no information on ad-clip status at the start of the call) were salvaged. At the CVP, 20 non-ad-clipped Chinook in the YOY spring-run size range, 28 in YOY fall-run size range, and 10 non-ad-clipped steelhead were salvaged. During the call DFW obtained the raw data from fish facilities and provided at the end of the call a preliminary non-ad-clipped steelhead loss density estimate of approximately 11 fish/TAF.

**Steelhead Exceedance of First-Stage Trigger under RPA Action IV.2.3:** The projects have been operating to and in compliance with the action response for the second stage trigger (12 fish/TAF multiplied by volume exported [in TAF]) in Action IV.2.3 (OMR flow management). The minimum 5-day action response (day 1 of the action response was on 4/10/13) requires a 5-

day running average OMR flow of no more negative than 25% more negative than -2,500 cfs (-3,125 cfs average over 5 days), and combined loss <12 fish/TAF multiplied by volume exported for the last 3 consecutive days before the OMR flow limit could be relaxed to no more negative than -3,500 cfs or -5,000 cfs.

Data from DFW (<ftp://ftp.dfg.ca.gov/salvage/>) indicate that the combined daily loss for non-ad-clipped steelhead has been less than the second-stage trigger of 12 fish/TAF multiplied by the volume exported for the last 3 consecutive days:

Date	Loss Density (fish/TAF)	Combined Exports (TAF)	Daily Loss	Daily Loss for First Stage Trigger	Daily Loss for Second Stage Trigger
4/10/13	5.80	2.984	17.31	23.87	35.81
4/11/13	11.61	2.984	34.64	23.87	35.81
4/12/13	11.61	2.984	34.64	23.87	35.81
4/13/13	11.61	2.984	34.64	23.87	35.81
4/14/13	0	2.984	0	23.87	35.81

In addition, the 5-day running average OMR ending on 4/14/13 was -694 cfs (see <http://cdec.water.ca.gov/cgi-progs/queryDaily?OMR&d=08-Apr-2013+15:27&span=30days>); therefore, effective 4/15/13, the projects have satisfied the action response for the second-stage trigger. However, because the non-ad-clipped steelhead loss did not meet the last 3 consecutive days less than the first-stage trigger of 8 non-ad-clipped fish/TAF multiplied by the volume exported, the projects must continue to operate to the action response of the first-stage trigger; that is, an OMR no more negative than -3,500 cfs, until they satisfy the action response requirement of 3 consecutive days with a combined loss <8 fish/TAF multiplied by the volume exported.

Compiled by Bob Fujimura on April 15, 2013

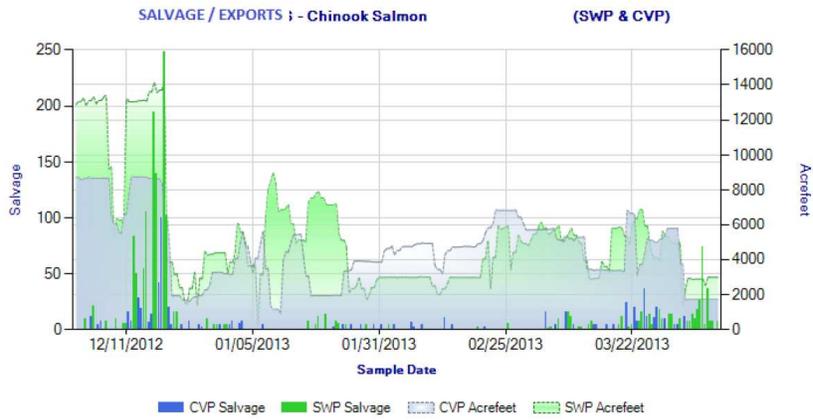


Figure 1. Daily salvage of Chinook salmon (all races) and water exports from the state and federal fish salvage facilities during December 1, 2012 through April 14, 2013. Graph obtained from the DFG salvage monitoring web-page: <http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx>.

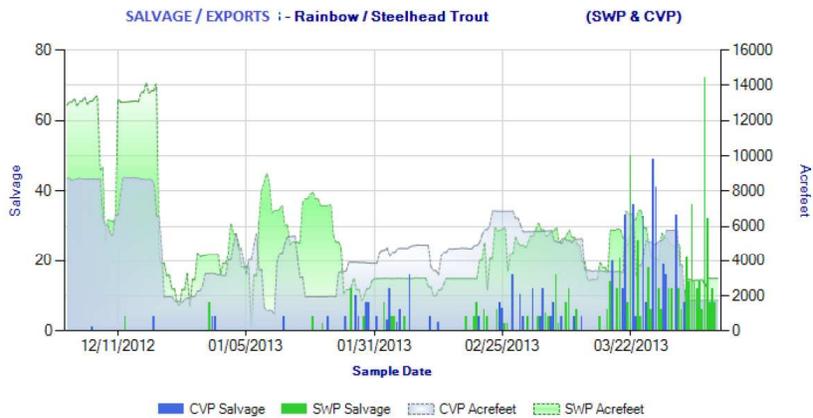


Figure 2. Daily salvage of steelhead and water exports from the state and federal fish salvage facilities during December 1, 2012 through April 14, 2013. Graph obtained from the DFG salvage monitoring web-page: <http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx>

**DOSS Weekly Salvage Update**  
 Reporting Period: April 8-14, 2013 - CORRECTED  
 Prepared by Bob Fujimura on April 16, 2013 0652  
 Preliminary Results - Subject to Revision

Criteria	8-Apr	9-Apr	10-Apr	11-Apr	12-Apr	13-Apr	14-Apr	Trend	
<b>Loss Densities</b>									
Wild older juvenile CS	0	0	0	0	0	0	0		0.0
Wild steelhead	8.99	30.73	5.80	11.61	11.61	11.61	0	↘	13.4
<b>Exports</b>									
SWP daily export	2,891	2,535	2,984	2,984	2,984	2,984	2,984	↘	2,907
CVP daily export	0	0	0	0	0	0	0	↘	0

Loss Density = fish lost/TAF; water export = AF; Trend = compared to previous week; wild = adposse for 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 = adposse for missing;

Category	Weekly Total			Season Total	
	Salvage	Loss	Trend	Salvage	Loss
<b>Wild</b>					
Winter Run	0	0		271	731
Spring Run	74	327	↗	282	921
Late Fall Run	0	0	→	85	277
Fall Run	62	263	↗	170	553
Unclassified	0	0	→	6	5
<b>Total</b>	<b>136</b>	<b>590</b>		<b>816</b>	<b>2,487</b>
<b>Hatchery</b>					
Winter Run	2	9	↗	183	575
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
<b>Total</b>	<b>2</b>	<b>9</b>		<b>1,379</b>	<b>4,995</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	52	225		533	1,495
Hatchery	86	372	↗	617	1,588
<b>Total</b>	<b>138</b>	<b>597</b>		<b>1,150</b>	<b>3,083</b>

State Water Project loss = salvage x 4.33; Central Valley Project loss = salvage x 0.88

**Hatchery CWT Results (as of 4/14/13, see table below):** On 3/22/13, a Chinook Salmon/Steelhead Loss Estimate Whole Facility Efficiency study began. Four ad-clipped Chinook were observed: 2 were released, 2 were bagged for CWT reading. Of the two bagged Chinook, 1 was from the 11/29/12 Coleman late-fall-run production group and 1 was from the 1/8/13 spring-run surrogate group. These special-study ad-clipped Chinook were not previously documented in the hatchery Chinook loss table because salvage and loss from special-study fish = 0. In addition, this information was not reported to DOSS until now because Reclamation only just provided the CWT information. The observed Chinook salvage dot plot and the “date of last loss” field in the hatchery Chinook loss table now reflects the new CWT information from the special study.

Finally, all ad-clipped Chinook salmon observed at the Delta fish facilities from 4/8 through 4/14 were from the 11/5/12 fall-run Chinook salmon release from the Mokelumne River Hatchery. The cumulative loss for this group is now at 0.596% based on the number released.

CONFIRMED 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 <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	Date of Last Loss
11/5/2012	F	Mokelumne River Hatchery	Mokelumne River	**	59,45	100,833	n/a	0.59	n/a	n/a	n/a	12/5/2012	4/8/2013
11/29/2012	LF	Coleman NFH	Battle Creek	Production	4080.76	805,842	n/a	0.506	n/a	n/a	n/a	12/9/2012	3/22/2013
12/18/2012	LF	Coleman NFH	Battle Creek	Spring Surrogate	74.95	72,974	n/a	0.103	n/a	0.5%	1.0%	12/31/2012	3/23/2013
1/8/2013	LF	Coleman NFH	Battle Creek	Spring Surrogate	138.70	79,000	n/a	0.176	n/a	0.5%	1.0%	1/20/2013	3/27/2013
1/25/2013	LF	Coleman NFH	Battle Creek	Spring Surrogate	24.40	85,600	n/a	0.029	n/a	0.5%	1.0%	2/3/2013	3/31/2013
2/7/2013	W	Livingston Stone NFH	Caldwell Park	Production	8.59	182,662	96,525	0.005	0.009	0.5%	1.0%	3/25/2013	3/25/2013

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

Facility	Unknown CWT Loss <sup>4</sup>	Unread CWT Loss <sup>5</sup>	Unknown Hatchery Loss <sup>6</sup>	Acoustic Tag Loss <sup>7</sup>	Number of Unassigned CWTs <sup>8</sup>
SWP	45.16	0.00	0.00	17.93	1
CVP	5.20	0.00	0.00	0.00	0
TOTAL	50.36	0.00	0.00	17.93	1

SWP and CVP adipose fin clipped Chinook lost from 10/1/2012 through 4/14/2013.

<sup>1</sup>Number released with the adipose fin clipped and a 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>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>5</sup>Adipose fin clipped Chinook was collected during fish count and has not been processed yet.

<sup>6</sup>CWT has been read, but hatchery release information not yet available.

<sup>7</sup>Adipose fin clipped Chinook released due to presence of sutures.

<sup>8</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 4/15/2013

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

## Operations (4/16/13)

SWP		CVP	
<b>Exports (cfs)</b>			
Clifton Court Forebay	700	Jones Pumping Plant	800 (back online as of yesterday)
<b>Reservoir Releases (cfs)</b>			
Feather - Oroville	1,700	American - Nimbus	1,000 (down from 1,250 cfs today)
		Sacramento - Keswick	5,500
		Stanislaus - Goodwin	750 (increase to 1,500 cfs tomorrow; to 3,000 cfs on 4/22)
<b>Reservoir Storage (in TAF, % of capacity)</b>			
San Luis (SWP)	480 (45)	San Luis (CVP)	752 (78)
Oroville	3,083 (87)	Shasta	3,880 (85)
New Melones	1,534 (63)	Folsom	657 (68)
<b>Delta Operations</b>			
DCC	Closed	Sacramento River at Freeport (cfs)	12,970
Outflow Index (cfs)	12,000	San Joaquin River (cfs) at Vernalis	1,337
Total Delta Inflow (cfs)	15,399	OMR (daily) (cfs)	-1,300
Water Temperature (°F)		OMR 5-day avg (cfs)	-1,002
X2 (km)	72 (west of Chipps)	OMR 14-day avg (cfs)	-316
E/I (%)	6.7 (14-d avg)	Qwest (cfs)	2,472

**X2 Compliance at Chipps Island:** The projects have achieved 14 “Chipps days” days so far in April through either EC or outflow, which, along with 4 carryover days from March, equal 18 days of compliance. The requirement for this month is 19 days at Chipps; therefore, today will be the last day needed for compliance.

**Weather:** Windy today and warmer weather after that with no precipitation expected.

**Operations Accounting:** The group discussed whether and how mid-April to mid-May export restrictions would be accounted for, since during this period, the D-1641 export restriction is equivalent to the 1:1 I:E ratio in the NMFS BiOp.

**Oakdale Irrigation District-South San Joaquin Irrigation District Flows on the Stanislaus and Data Collection:** Goodwin releases will increase to 3,000 cfs on 4/22/13; that level of release is anticipated to last until 5/10. By Friday, 4/19, Vernalis is expected to increase to approximately 2,500 cfs.

It was noted that this high-flow release will provide a good opportunity to monitor seepage, although participants were uncertain whether seepage monitoring would be conducted. FWS reported that its staff is participating in a study that will release radio-tagged fish next week on the Stanislaus to monitor habitat use and survival under the high-flow conditions.

The rotary screw traps on the Stanislaus might continue to be operated in flows >1,500 cfs but the weir is not designed to operate in flows exceeding 1,500 cfs.

**Steelhead Loss-Density Calculation:** At the last DOSS meeting, DWR expressed interest in convening a subgroup to look into the loss-density calculations with regarding to “rounding” the decimals, specifically to review how rounding translated into either potential fish loss (through a trigger exceeded or not exceeded) or potential water cost. Chu (DWR) stated that the project agencies agreed use the daily loss trigger because that calculation is called for in the NMFS BiOp. The daily loss trigger calculation based on a loss density of 8 fish/TAF or 12 fish/TAF multiplied by the export volume (in TAF), which provides a different trigger for any given export volume. The group agreed that there is no need for a subgroup at this point, although the discussion should be captured in the 2013 DOSS Annual Report.

Both loss density and fish loss are important with regard to fish protection. Loss density is used to monitor the amount in terms of the “rate” of loss, but total daily loss trigger is based on both export volume and density. Although the difference between 12.1 and 12.4 fish/TAF is only a few fish lost, what really matters is whether a trigger is exceeded. If we round 12.4 to 12, then no trigger is exceeded; however, if we do not round down, and the trigger is exceeded, we have more protection to fish over the subsequent 5 days. Last week, Yip (NMFS) provided WOMT with an e-mail describing the issue and providing guidance for reporting of daily loss. He will forward the WOMT e-mail to DOSS for inclusion as an attachment to these notes

**Smelt Working Group (SWG):** SWG recommended that the current operations are sufficiently protective for both delta or longfin smelt. In response to a question about the SWG discussion, FWS reported that there was some concern about the current distribution of delta smelt, even though no take of juveniles has yet been reported. For a full description of the SWG discussion, see the April 15, 2013, SWG notes at: [http://www.fws.gov/sfbaydelta/cvp-swp/smelt\\_working\\_group.cfm](http://www.fws.gov/sfbaydelta/cvp-swp/smelt_working_group.cfm).

**Timing of Posting DOSS Notes:** NMFS management has asked that DOSS post its notes to the NMFS webpage no later than the Friday after the DOSS call. To meet this schedule, the draft notes will be distributed to DOSS by Wednesday evening or early Thursday, and DOSS will be given a ~24-hour turnaround to review and comment. This will enable NMFS to post the final DOSS notes to its webpage by Friday afternoon.

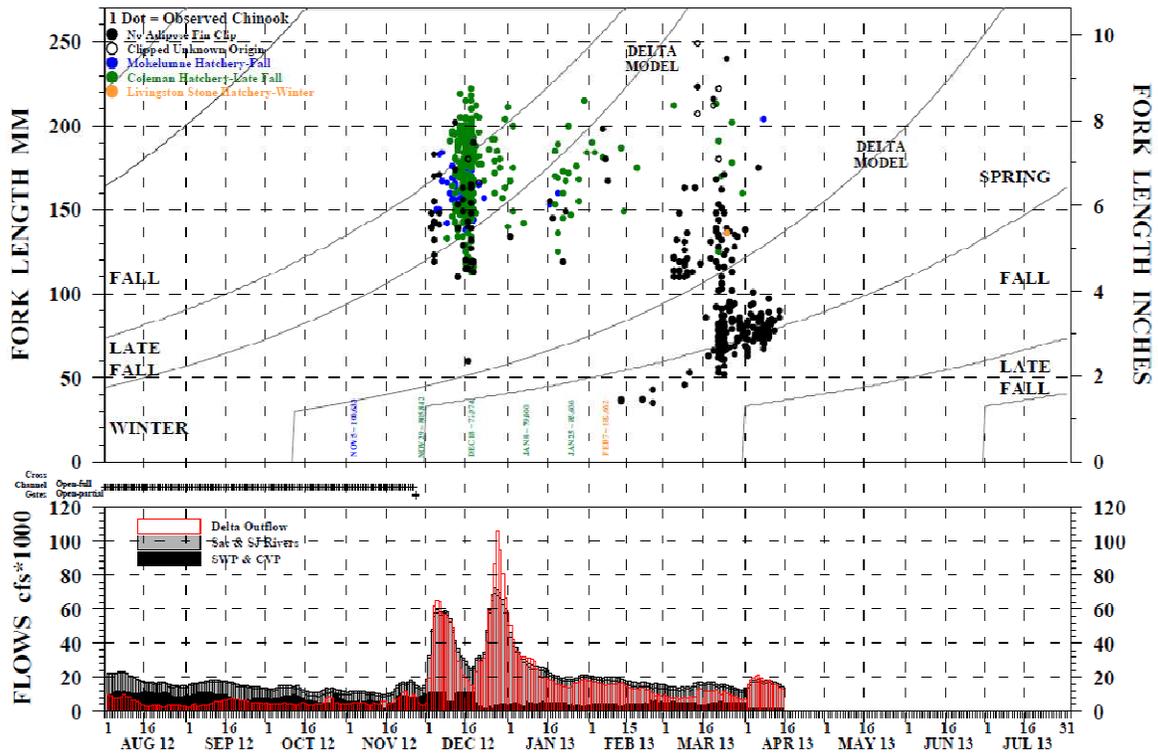
**DOSS Updates to WOMT:** The recent decline in steelhead loss (to less than the second-stage trigger, but more than the first-stage trigger) means that the action response for the second-stage OMR trigger requirement per Action IV.2.3 has been met; however, because daily non-ad-clipped steelhead loss is still greater than the first-stage trigger level, the projects need to operate to the first-stage action response of OMR no more negative than -3,500 cfs. Under current operations (minimum health & safety pumping of 1,500 cfs), OMR flow is approximately -1,000 cfs on a 5-day average.

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

**Next Meeting:** The next DOSS conference call is scheduled for 4/23/13, at 9:00 a.m.

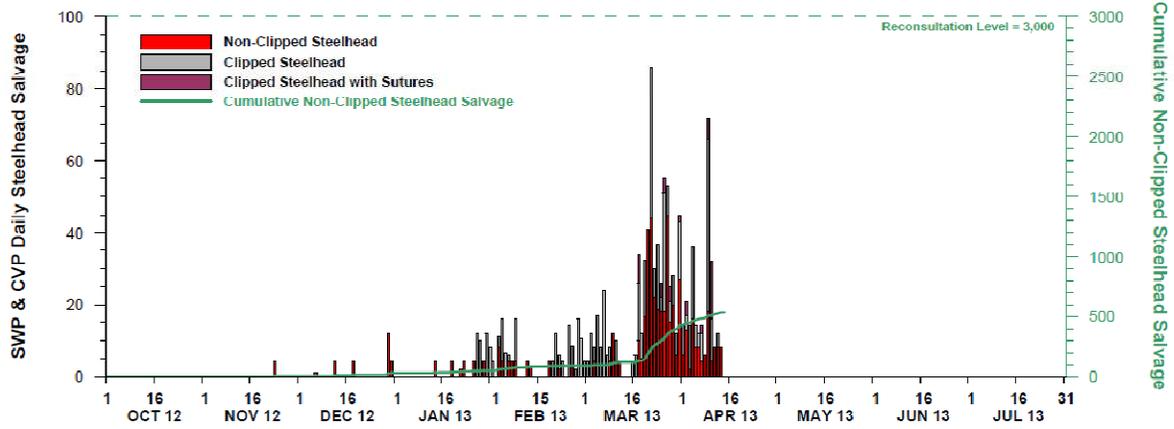
Below are graphs provided by DWR for Chinook salmon and steelhead salvaged or lost at the Delta fish facilities and observed in the Sacramento and San Joaquin rivers. For additional graphs, please visit the DWR website at: <http://www.water.ca.gov/swp/operationscontrol/calFed/calFedMonitoring.cfm>.

### OBSERVED CHINOOK SALVAGE AT THE SWP & CVP DELTA FISH FACILITIES 08/01/2012 THROUGH 04/14/2013



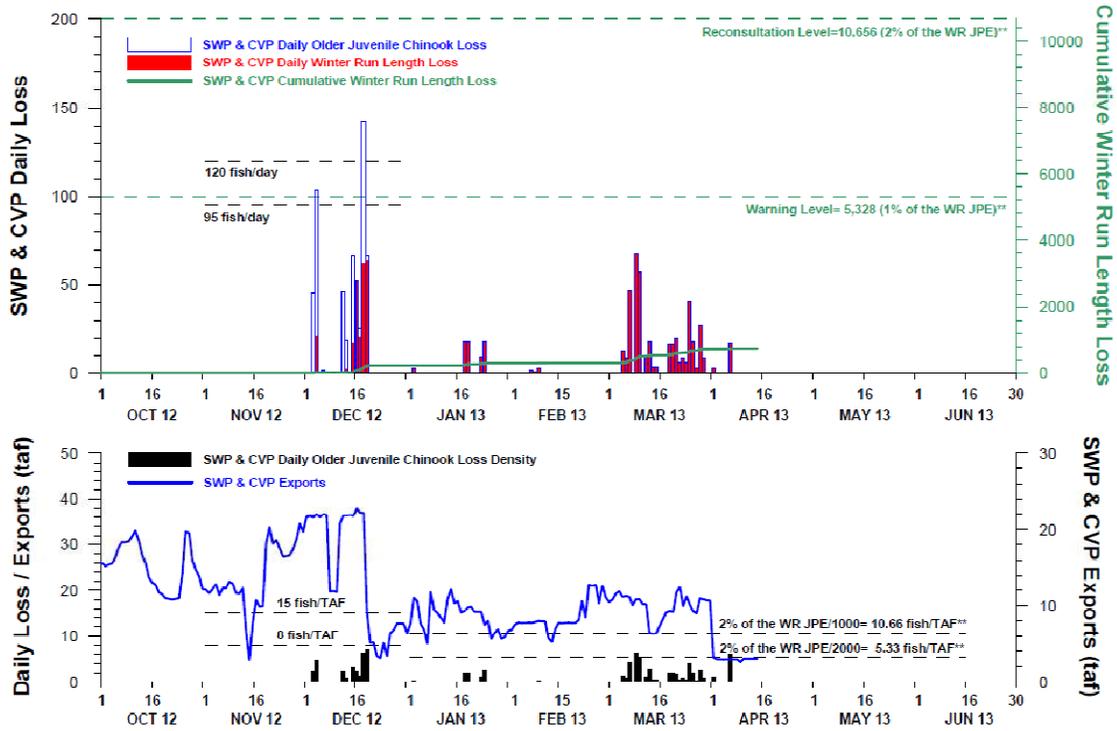
DWR-DES 15 APR 2013  
 Preliminary data from DFW, DWR, FWS, Reclamation, and CDEC; subject to revision.  
 \*Chinook outside of the length-at-date criteria (Delta model) are not reported.

## STEELHEAD SALVAGE AT THE DELTA FISH FACILITIES 01 OCT 2012 THROUGH 14 APR 2013



DWR-DES 15 APR 2013  
Preliminary data from DFW; subject to revision.

# NON-CLIPPED WINTER RUN & OLDER JUVENILE CHINOOK LOSS AT THE DELTA FISH FACILITIES 01 OCT 2012 THROUGH 14 APR 2013



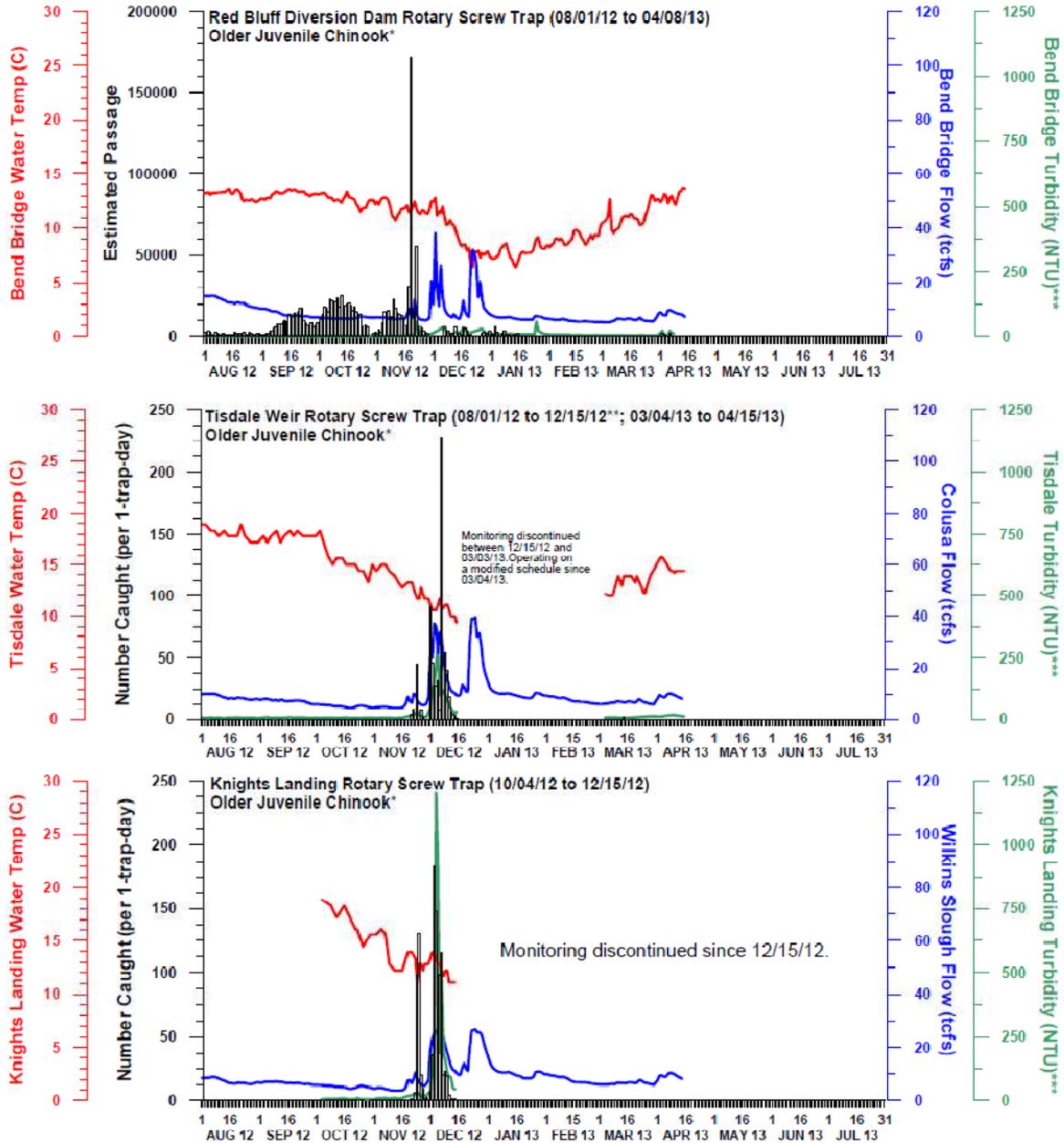
DWR-DES 15 APR 2013

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 UNMARKED OLDER JUVENILE CHINOOK MEASURED IN THE SACRAMENTO RIVER



DWR-DES 15 APR 2013

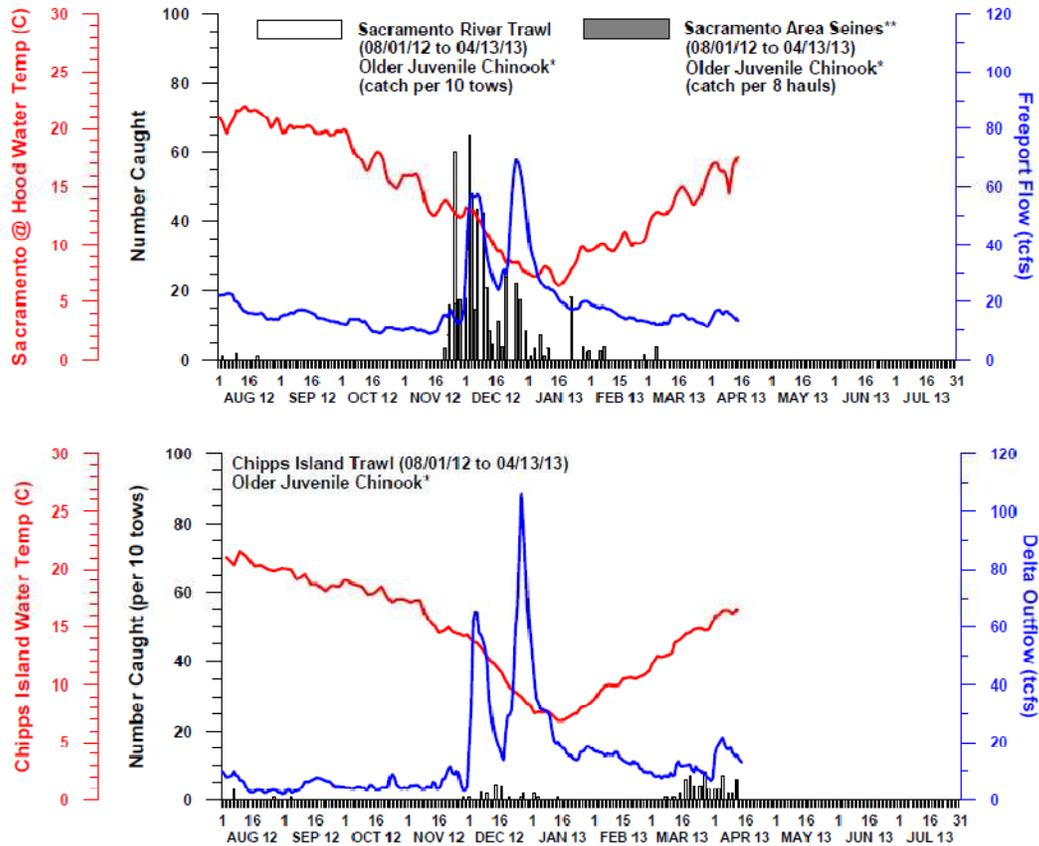
Preliminary data from DFW, FWS, and CDEC; subject to revision.

\*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 UNMARKED OLDER JUVENILE CHINOOK MEASURED IN THE LOWER SACRAMENTO RIVER & CHIPPS ISLAND



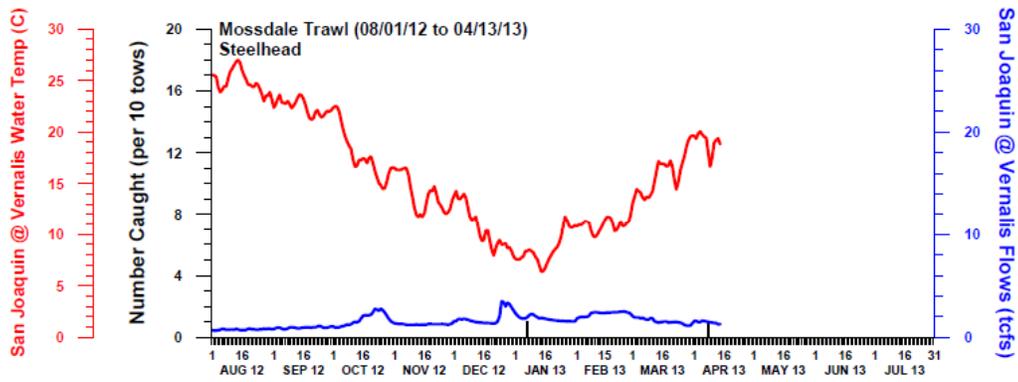
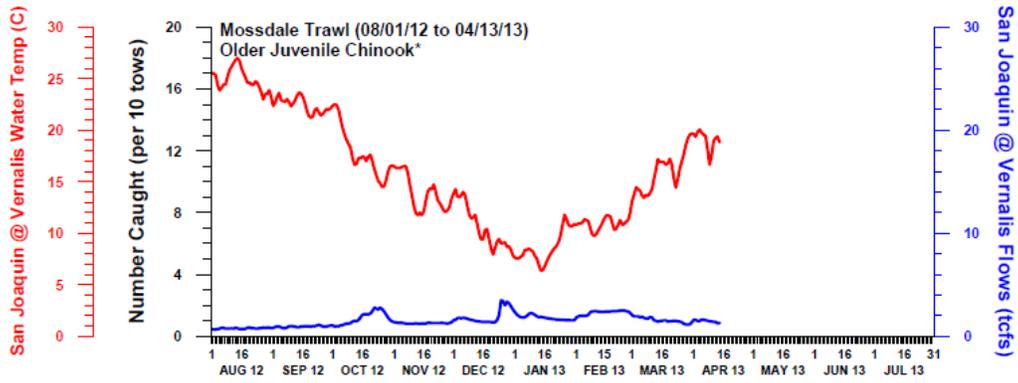
DWR-DES 15 APR 2013

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



DWR-DES 15 APR 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).



Garwin Yip - NOAA Federal <garwin.yip@noaa.gov>

## How to calculation action triggers in NMFS' RPA Action IV.2.3

1 message

Garwin Yip - NOAA Federal <garwin.yip@noaa.gov>

Tue, Apr 9, 2013 at 9:14 PM

To: womt@water.ca.gov

WOMT,

There were discussions during today's DOSS and WOMT meetings regarding the interpretation and implementation of the first and second stage triggers of NMFS' RPA Action IV.2.3 pertaining to wild steelhead (page 76 of the 2009 RPA with 2011 amendments, [http://swr.nmfs.noaa.gov/ocap/040711\\_OCAP\\_opinion\\_2011\\_amendments.pdf](http://swr.nmfs.noaa.gov/ocap/040711_OCAP_opinion_2011_amendments.pdf)). Specifically, did NMFS intend for the steelhead loss densities of 8 or 12 fish/TAF for the first and second stage triggers, respectively, to be rounded to the nearest integer?

The majority of DOSS suggested that the loss density should be characterized to one decimal place, but that was not a consensus view, because the triggers did not include one decimal. DOSS requested that DWR convene a DOSS subgroup to review the triggers, and propose clarification of those triggers for implementation, if necessary. In the meantime, WOMT requested that NMFS send out implementation and reporting procedures.

The action triggers for wild steelhead in Action IV.2.3 are characterized as steelhead daily loss [*i.e.*, 8 and 12 fish/TAF multiplied by the combined volume exported (in TAF)]. Unfortunately, the current issue of interpretation is the result of steelhead loss being reported as loss density (and comparing that loss density to the triggers of 8 or 12 fish/TAF) rather than daily loss. To resolve the issue, the California Department of Fish and Wildlife will continue to report and post their data as loss density to the hundredths of fish. However, when DWR sends notification to NMFS of a trigger being (potentially) exceeded, or an action response being satisfied, they need to include the combined export volume (in TAF). The 8 or 12 fish lost/TAF will be multiplied by the given day's combined export volume in order to determine the daily loss trigger. If the calculation of daily loss results in a fraction/decimal, that number will be rounded up to the nearest integer (*i.e.*, fish). The following portrays examples:

	"Old way"	DWR proposal from DOSS	"New (NMFS) way"
Steelhead loss	91.56 fish	91.56 fish	91.56 fish
Combined exports	7.36 TAF	7.36 TAF	7.36 TAF
Steelhead loss density	12.44 fish/TAF	12.44 fish/TAF	12.44 fish/TAF
Rounding, if applicable?	12.4 fish/TAF	12 fish/TAF	N/A
Action trigger	Loss density >12.0 fish/TAF	Loss density >12 fish/TAF	Greater than 88.32 fish (12 fish/TAF multiplied by 7.36 TAF), rounded to 89 fish
Exceed trigger?	Yes	No	Yes

How?	12.4 fish/TAF > trigger of 12 fish/TAF	12.44 fish/TAF rounded to nearest integer is 12 fish/TAF, is not > 12 fish/TAF	Daily loss of 91.56 fish > 89 fish
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Per NMFS RPA (page 9 of 2009 RPA with 2011 amendments), "The WOMT shall either concur with NMFS' (or the Services', as appropriate) recommendation or provide a written alternative to the recommendation, with biological justification, to NMFS (or the Services) within one calendar day. NMFS (or the Services) shall then make a determination as to whether the action proposed by the WOMT is consistent with this Opinion and ESA obligations.

-Garwin-

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