

Delta Operations for Salmonids and Sturgeon (DOSS) Group
Conference call: 11/29/2016 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.westcoast.fisheries.noaa.gov/central_valley/water_operations/doss.html.

CDFW: Ken Kundargi, Bob Fujimura, Jason Julienne
DWR: Bryant Giorgi, Dan Yamanaka, Farida Islam, Mike Ford
NMFS: Barb Byrne, Kristin McCleery
Reclamation: Tom Patton, Mike Hendrick, Towns Burgess, Josh Israel
SWRCB: Chris Kwan
USFWS: Craig Anderson, Bill Poytress

Agenda Items

1. Agenda review and introductions
2. RPA Implementation review (For the DOSS Dashboard, click on the "Triggers & Indices" tab at: www.baydeltalive.com/djfmj)
3. Current Operations
4. Fish Monitoring: Salvage
5. Fish Monitoring: RSTs/trawls/seines
6. DOSS Estimates of Fish Distribution
7. SPECIAL TOPIC: Rapid Genetic Analysis Update
8. SPECIAL TOPIC: Green Sturgeon Acoustic Tracking in the Sacramento River
9. DOSS Advice
10. Next DOSS Meeting

Agenda Item 2.

RPA Implementation Review

Delta RPA Actions affecting operations during November:

Action IV.1.1 (Alerts that indicate the Delta Cross Channel (DCC) gate operations may be triggered soon)¹:

- **First Alert**
 - Recent conditions for Mill Creek and Deer Creek flows [highlighted cells exceed the first component (>95 cfs flow threshold) or second component (>50% flow change)]:

¹ For details, see pages 60-61 in Enclosure 2 of the 2011 Amendments to the 2009 RPA document at: http://www.westcoast.fisheries.noaa.gov/publications/Central_Valley/Water%20Operations/Operations,%20Criteria%20and%20Plan/040711_ocap_opinion_2011_amendments.pdf. Note that in October 2014, NMFS approved a modification of the first component of the first alert to a 95 cfs mean daily flow threshold in either Mill Creek or Deer Creek in lieu of operating the Mill and Deer Creek rotary screw traps.

- The first alert was triggered based on Mill Creek and Deer Creek flows >95 cfs or a change in mean daily flow of over 50% (either or both creeks; see table for details) on 11/22-11/28.

Date	Mill Creek (MLM)		Deer Creek (DCV)	
	mean daily flow (cfs)	change in mean daily flow	mean daily flow (cfs)	change in mean daily flow
11/22/2016	287	-24%	269	-21%
11/23/2016	483	68%	302	12%
11/24/2016	347	-28%	268	-11%
11/25/2016	265	-24%	223	-17%
11/26/2016	330	25%	251	13%
11/27/2016	422	28%	347	38%
11/28/2016	353	-16%	300	-13%

- **Second Alert**

- Recent conditions for 11/22-11/28, unless otherwise noted:
 - Wilkins Slough flow: 8,955-14,763 cfs (range of mean daily flow)
 - Knights Landing water temperature: 54-58°F (range of temperatures reported at the rotary screw traps during trap checks during the 11/21-11/26 period)
- The second alert is triggered only if both components are met (Knights Landing temperatures <56.3°F and Wilkins Slough flows >7,500 cfs). The second alert was triggered on 11/23-27/16.

Action IV.1.2² (DCC gate operations):

- The Seine SCI of 6.4 on 11/23/16 exceeded the index threshold of 5 and triggered a DCC closure of at least three days, and until all catch indices are less than 3 for two consecutive days.
- The DCC was closed on the morning of 11/25/16.
- The DCC gates will be re-opened today (11/29/16) at 2 pm.
- Indices for 11/22-11/28:

Date	KLCI	Seine SCI	Trawl SCI	DCC position	Day of Action
11/22/16	0	No sampling	No sampling	Open	--
11/23/16	2.2	6.4	0	Open	--
11/24/16	3.1	No sampling	No sampling	Open	--
11/25/16	2.9	0	0	Closed in AM	1
11/26/16	3.6	No sampling	No sampling	Closed	2

² For details, see pages 62-66 in Enclosure 2 of the 2011 Amendments to the 2009 RPA document at: http://www.westcoast.fisheries.noaa.gov/publications/Central_Valley/Water%20Operations/Operations,%20Criteria%20and%20Plan/040711_ocap_opinion_2011_amendments.pdf

11/27/16	0	No sampling	No sampling	Closed	3
11/28/16	0.9	2.3	0	Closed	4

Action IV.3³ (Reduce likelihood of entrainment or salvage at the export facilities, including alert that indicates that export operations may need to be altered)

- The third alert (November 1-February 23: Knights Landing Catch Index (KLICI) or Sacramento Catch Index (SCI) >10) was not triggered over the past week.
- Since the action went into effect on 11/1/16, no salvage-based triggers that would require export reduction have been exceeded.

Agenda Item 3.

Current Operations (11/29/16)

SWP		CVP	
Exports (cfs)			
Clifton Court Forebay	6,680	Jones Pumping Plant	3,800
Reservoir Releases (cfs)			
Feather - Oroville	2,450	American - Nimbus	1,250
		Sacramento - Keswick	5,000
		Stanislaus - Goodwin	200
		Trinity - Lewiston	300
Reservoir Storage (in TAF)			
San Luis (SWP)	585	San Luis (CVP)	248
Oroville	1,491	Shasta	2,904
New Melones	526	Folsom	438
Delta Operations			
DCC	Closed (will open at 2 pm today)	Sacramento River at Freeport (cfs)	17,800
Outflow Index (cfs)	9,600	San Joaquin River at Vernalis (cfs)	984
E:I	61% (14-day avg.)	X2	>81 km

Factors controlling Delta exports:

11/22/16-11/26/16: seasonal salinity management.

11/27/16-11/28/16: no regulatory factors controlling exports; exports at limit of operational capacity.

Agenda Item 4.

Fish Monitoring: Salvage

A 541 mm steelhead was salvaged at the SWP on 11/27/16, which is the first steelhead to be salvaged during WY 2017.

³ For details, see pages 79-80 in Enclosure 2 of the 2011 Amendments to the 2009 RPA document at: http://www.westcoast.fisheries.noaa.gov/publications/Central_Valley/Water%20Operations/Operations,%20Criteria%20and%20Plan/040711_ocap_opinion_2011_amendments.pdf

DOSS Weekly Salvage Update
 Reporting Period: November 21-November 27, 2016
 Prepared by Bob Fujimura on November 28, 2016 16:54
 Preliminary Results - Subject to Revision

Criteria	21-Nov	22-Nov	23-Nov	24-Nov	25-Nov	26-Nov	27-Nov	Trend	
Loss Densities									
Wild older juvenile CS	0	0	0	0	0	0	0	→	0
Wild steelhead	0	0	0	0	0	0	0.85	↗	0.12
Exports									
SWP daily export	5,578	10,033	12,948	13,066	13,057	13,048	13,035	↗	11,538
CVP daily export	1,935	3,620	5,114	5,114	5,112	5,134	7,257	↗	4,755
SWP reduced counts	0%	0%	0%	0%	0%	0%	0%	→	0%
CVP reduced counts	0%	0%	0%	0%	0%	0%	0%	→	0%

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)
 Reduced counts = percentage of time that routine salvage sample time were less than 30 min per 2 hours of salvage and export operations
 Yellow highlighted dates indicate salvage outages occurred

Chinook Salmon Weekly/Season Salvage and Loss
 Combined salvage and loss for both CVP and SWP fish facilities
 Race determined by size at date of capture; hatchery = adipose fin missing;

Category	Weekly Total			Season Total	
	Salvage	Loss	Trend	Salvage	Loss
Wild					
Winter Run	0	0	→	0	0
Spring Run	0	0	→	0	0
Late Fall Run	0	0	→	0	0
Fall Run	0	0	→	0	0
Unclassified	2	NC	↗	2	NC
Total	2	0		2	0
Hatchery					
Winter Run	0	0	→	0	0
Spring Run	0	0	→	0	0
Late Fall Run	0	0	→	0	0
Fall Run	0	0	→	0	0
Unclassified	0	0	→	6	NC
Total	0	0		6	0

Trend = weekly loss per race; Salvage = estimated number of fish collected by the CVP and SWP fish protective facilities per unit of time
 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	4	17	↗	4	17
Hatchery	0	0	→	0	0
Total	4	17		4	17

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

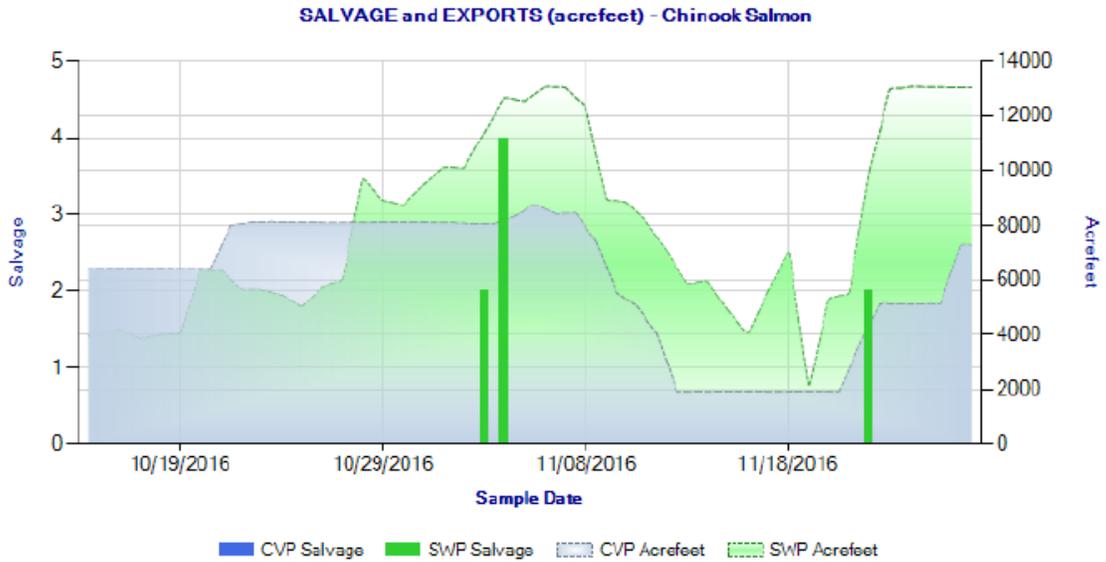


Figure 1. Daily salvage of Chinook Salmon (all races) and water exports from the state and federal fish salvage facilities during Oct 15 through Nov 27, 2016. Graph obtained from the DFG salvage monitoring web-page: <http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx>.

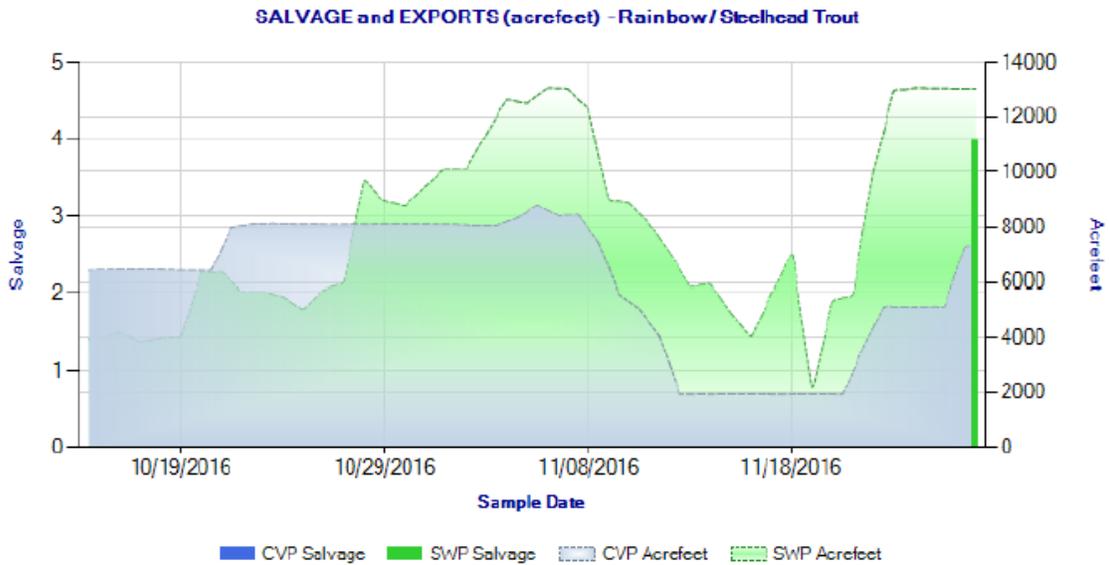


Figure 2. Daily salvage of Steelhead and water exports from the state and federal fish salvage facilities during Oct 15 through Nov 27, 2016. Graph obtained from the DFG salvage monitoring web-page: <http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx>.

Agenda Item 5.

Fish Monitoring: The following table presents fish monitoring data summarized over the identified sampling dates. Unless otherwise noted, any reported sizes are fork length.

Location	Chippis Is. Midwater Trawl ^A	Sacramento Trawl ^A	Beach Seines ^A	Knights Landing RST ^B	Tisdale RST ^C	GCID RST ^D	Mossdale Kodiak Trawl ^A
Sample Date	11/21, 11/23, 11/25	11/21, 11/23, 11/25	11/21-23, 11/25	11/21-11/27	11/18-11/25	11/22	11/21, 11/23, 11/25
Total Catch							
FR Chinook							
WR Chinook			9	16	18	33 juveniles and 1 smolt	
SR Chinook		1	2	5	5	5 juveniles	
LFR Chinook				1	4	1 juvenile and 5 smolts	
Ad-Clipped Chinook							
Delta Smelt							
Splittail			1				
Longfin Smelt							
Steelhead (ad-clip)							
Steelhead (wild)							
Green Sturgeon						1 juvenile	
Flows (avg. cfs)				11,151	9,691	1474	
W. Temp. (avg. °F)				55.6	50.4	54.9	
Turbidity (avg. NTU)				33.7	21.6	25.1	

^AData reported in the 11/20 to 11/26 DJFMP sampling summary.

^BKnights Landing RST Sampling period was from 11/21 at 10:30 am to 11/27 at 9:15 am.

^CTisdale RST sampling period was from 11/18 at 9:00 am to 11/25 at 9:00 am.

^DThe GCID RST was sampled on 11/22 at 8:00 am then pulled due to heavy debris.

Agenda Item 6.

DOSS Estimates of Fish Distribution

DOSS estimates of the current distribution of listed Chinook, as a percentage of the population, are based on recent monitoring data and historical migration timing patterns.

Location	Yet to Enter Delta (Upstream of Knights Landing)	In the Delta	Exited the Delta (Past Chipps Island)
<i>Wild young-of-year (YOY) winter-run Chinook salmon</i>	60% - 75% (Last week: 70% - 80%)	25% - 40% (Last week: 20% - 30%)	0% (Last week: same)
<i>Wild young-of-year (YOY) spring-run Chinook salmon</i>	95% (First estimate of the WY)	5% (First estimate of the WY)	0% (First estimate of the WY)

Rationale for changes in distribution

Wild winter-run Chinook: Over the past week, 33 juvenile winter-run were observed at the GCID, 18 at Tisdale, and 16 at Knights Landing, indicating continued winter-run migration downstream. 9 winter-run were observed at the beach seine monitoring locations and 1 at Sac Trawl, indicating winter-run presence in the Delta. These higher catch numbers coincide with the rain events we had last week. Because some DOSS members estimated an incremental shift of 5% while others estimated a 10% shift of winter-run from upstream into the Delta, DOSS decided to expand the range to include a shift of 5-10%. Young-of-year winter-run-sized fish have not yet been observed exiting the Delta at Chipps Island, so the DOSS estimates that 0% have exited the Delta.

Wild spring-run Chinook: Juvenile spring-run are being reported at monitoring locations upstream and in the Delta so DOSS initiated distribution estimates for this population this week. Because just a few spring-run sized Chinook have been reported in the Delta monitoring and at Knights Landing, DOSS estimates that most wild spring-run Chinook are still upstream of the Delta. No spring-run are expected to have exited the Delta this early in the season.

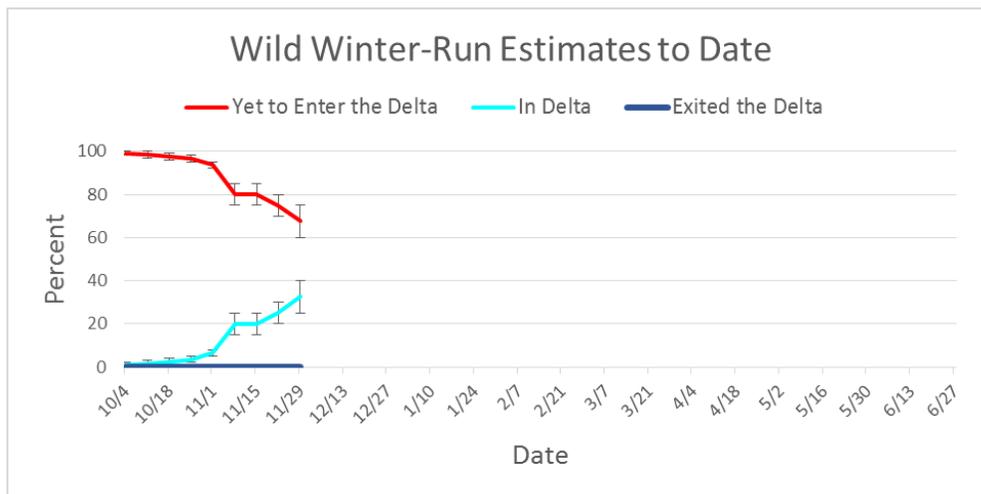


Figure 3. WY 2017 wild winter-run distribution estimates to date.

Agenda Item 7.

SPECIAL TOPIC: Rapid Genetic Analysis update (Reclamation)

Israel (Reclamation) discussed the Rapid Genetic Analysis process with the group and reported that Cramer Fish Sciences will be put on call by Thursday, December 1. Rapid genetic analysis

will be initiated only if an older juvenile loss density trigger (under Action IV.3 or IV.2.3) is exceeded.

Fujimura (CDFW) voiced support for starting the genetic testing in December, noting that in a review of salvage data from WY 1994 to WY 2016, the first salvage of winter-run sized Chinook salmon with adipose fin present never occurred earlier than December but often occurred during December.

Byrne (NMFS) provided a brief overview of RPA implementation when genetic information is available; details are provided in the NMFS response letter at:

http://www.westcoast.fisheries.noaa.gov/central_valley/water_operations/. Byrne clarified that the trigger threshold for the second trigger in the “Action Triggers Applying Rapid Genetic Analysis” column in the table on page 2 of the NMFS response should include loss of both genetic winter-run and genetic spring-run in the older juvenile size category, as specified in the text. That is, it should read “...daily SWP/CVP genetic winter-run **and spring-run** loss is greater than 8 fish/taf multiplied by volume exported (in taf)...” No Chinook smaller than the “older juvenile” size category, regardless of genetic race assignment, will be included in a loss density for implementation of Action IV.3 or IV.2.3.

Agenda Item 8.

SPECIAL TOPIC: Green Sturgeon acoustic tracking in the Sacramento River (USFWS)

Bill Poytress (FWS) reported on some preliminary results on movements of acoustic-tagged juvenile green sturgeon (presentation provided at end of notes). During the current season of tagging, 19 juvenile green sturgeon have been captured and tagged.

Agenda Item 9.

DOSS Advice to WOMT and NMFS: None

Agenda Item 10.

Next Meeting: The next DOSS conference call will be on **12/6/16 at 9am.**