

Delta Operations for Salmonids and Sturgeon (DOSS) Group
Conference call: 11/6/2018 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: Jason Julienne, Bob Fujimura

DWR: Farida Islam, Kevin Reece, Ming-Yen Tu, Dan Yamanaka, Bryant Giorgi

NMFS: Jeff Stuart, Kristin McCleery

Reclamation: Tom Patton, Elissa Buttermore

SWRCB: Chris Carr, Craig Williams

USFWS: Craig Anderson

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. Smelt Working Group
5. Fish Monitoring: Salvage
6. Fish Monitoring: RSTs/trawls/seines
7. DOSS Estimates of Fish Distribution
8. DOSS advice
9. Next DOSS meeting

Agenda Item 2.

RPA Implementation Review

Delta RPA Actions affecting operations during October/November:

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

- Since October 2014, NMFS has used an environmental surrogate to indicate the tributary flow conditions that stimulate movement of yearling-sized spring-run Chinook salmon out of their natal tributaries. Tributary flow increases are used to signal conditions conducive to emigration. Starting on 10/1, the First Alert is triggered if either the first component (>95 cfs flow threshold) or second component (>50% change in mean daily flow) has been exceeded at either the Deer Creek gage at Vina (DCV), or the Mill Creek

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.

gage at Los Molinos (MLM). Over the past week (10/30/18 to 11/5/18), the First Alert was triggered every day based on Mill Creek flows greater than 95 cfs and Deer Creek flows 5 of 7 days. Summer baseline flows at Mill Creek have been greater than the first component trigger of 95 cfs all summer long, thus making this trigger less relevant this water year.

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
10/30/2018	103	0%	95.0	0%
10/31/2018	103	0%	94.9	0%
11/1/2018	103	0%	95.2	0%
11/2/2018	104	1%	95.2	0%
11/3/2018	103	-1%	95.2	0%
11/4/2018	104	1%	95.0	0%
11/5/2018	104	0%	95.4	0%

- Second Alert (triggered only if both Knights Landing water temperatures are less than 56.3°F and Wilkins Slough flows are >7,500 cfs). Recent conditions for:
 - Wilkins Slough flow: 3,855 cfs – 4,401 cfs (range of mean daily flow for the period 10/30/18 through 11/5/18)
 - Knights Landing water temperature: 57.9°F – 58.5°F (temperatures reported at the rotary screw traps for the period 10/30/18 through 11/5/18)
 - The second alert has not yet been triggered in WY 2019.

Action IV.1.2² (DCC gate operations):

- Since 10/1/18, none of the criteria requiring DCC gate closure have been met.

Agenda Item 3.

Current Operations (11/6/18)

SWP		CVP	
Exports (cfs)			
Clifton Court Forebay	1,700*	Jones Pumping Plant	3,500**
Reservoir Releases (cfs)			
Feather - Oroville	1,750	American - Nimbus	1,800
		Sacramento - Keswick	4,800***
		Stanislaus - Goodwin	400****
		Trinity - Lewiston	300
Reservoir Storage (in TAF)			
San Luis (SWP)	780	San Luis (CVP)	437
Oroville	1,144	Shasta	2,167

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

New Melones	1,749	Folsom	382
Delta Operations			
DCC	Closed*****	Sacramento River at Freeport (cfs)	8,733
Outflow Index (cfs)	~4,300	San Joaquin River at Vernalis (cfs)	2,482
E:I	48% (3-day avg.) 48 % (14-day avg.)	X2	>81 km

* SWP exports are scheduled to decrease tomorrow (11/7) to 1,500-1,300 cfs to meet Sacramento River flows at Rio Vista requirements.

** CVP exports are decreasing this weekend due to drying conditions and low Delta outflows.

*** Keswick releases will decrease to 4,600 cfs tomorrow (11/7) and to 4,500 cfs on 11/8.

**** Goodwin fall pulse flows have ceased. Releases will decrease down to 200 cfs on 11/14.

***** Starting on 11/5/18, Reclamation ordered the DCC gates to be closed from 10 am on Monday morning through 10 am on Friday morning. The gates will be opened for the weekend starting at 10 am on Friday and closing at 10 am on Monday. This partial closure is in response to concerns regarding the Sacramento River flow standard at Rio Vista. Reclamation indicated that the DCC gates will remain open for the observed Veterans Day Holiday on 11/12/18 and close at 10 am on Tuesday 11/13/18 for the benefit of recreational boaters. These operations will remain in effect until further notice.

Factors controlling Delta exports:

- 10/31-11/6: Delta outflow requirements

Approximate OMRs as of 11/3/18:

	USGS gauges (cfs)	Index (cfs)
Daily	-5,800	-5,600
5-day	-5,500	-5,500
14-day	-6,600	-6,200

Weather Forecast

The outlook for the Sacramento region for the next week is a continuing dry and mild weather pattern with periods of breezy north to east wind through Friday morning. High temperatures of upwards of 10 degrees above average with 70s in the Central Valley and 50s to lower 70s for the mountains and foothills.

Agenda Item 4.

Smelt Working Group

The Smelt Working Group (SWG) has not yet started meeting for WY 2019. The SWG will likely start meeting in late November or early December. Stuart (NMFS) notified the DOSS group that CDFW issued a memorandum on the 2018 20 mm Survey - Delta smelt Index on 11/5/18, indicating that extremely low catches made calculating the index of relative Delta smelt abundance impossible.

Agenda Item 5.

Fish Monitoring: Salvage

Fujimura (CDFW) provided a salvage summary. No salmonids or sturgeon have been salvaged at the SWP and CVP fish facilities since the beginning of WY19 (10/1/18), and no salmonids or sturgeon have been salvaged since last June. Debris loading at the SWP fish facility is diminishing. One reduction in the length of required fish counts occurred last week at the SWP (11/4/18). One brief outage occurred at the SWP on 10/30/18.

DOSS Weekly Salvage Update

Reporting Period: October 29-November 4, 2018

Prepared by Bob Fujimura on November 5, 2018 17:19

Preliminary Results -Subject to Revision

Criteria	29-Oct	30-Oct	31-Oct	1-Nov	2-Nov	3-Nov	4-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	→	0
Exports									
SWP daily export	2,980	5,317	4,508	4,548	4,215	5,446	5,713	↘	4,675
CVP daily export	7,338	6,867	6,862	6,854	6,855	6,845	7,144	↘	6,966
SWP reduced counts	0%	0%	0%	0%	0%	0%	13%	↗	2%
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 date indicates a brief salvage facility interruption 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	0	0	→	0	0
Total	0	0		0	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	→	0	0
Total	0	0		0	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 = cannot be calculated; hatchery salmon salvage and loss estimates have been corrected using CWT readings when available

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	→	0	0
Hatchery	0	0	→	0	0
Total	0	0		0	0

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

Agenda Item 6.

Fish Monitoring: The following table presents fish monitoring data summarized over the past week. Unless otherwise noted, reported sizes are fork length. Empty cells indicate zero catches at those locations with sample dates shown.

Location	GCID RST ^A	Tisdale RST ^B	Knights Landing RST ^C	Beach Seines ^D	Sacramento Trawl ^D	Chippis Is. Midwater Trawl ^D	Mossdale Kodiak Trawl ^D
Sample Date	No sampling	10/29-11/5	10/28-11/5	10/29-10/30, 11/1-11/2	10/29-10/31, 11/2	10/29-10/31, 11/2	10/29-10/31, 11/2
FR Chinook							
SR Chinook							
WR Chinook							
LFR Chinook							
Chinook (ad-clip)							
Steelhead (wild)							
Steelhead (ad-clip)							
Green Sturgeon							
Flows (avg. cfs)		4,645	4,075				
W. Temp. (avg. °F)		54.3	58.5				
Turbidity (avg. NTU)		11.1	5.19				

^A The GCID RST was raised on 10/6/18, due to an unanticipated spike in turbidity and debris following sporadic rain events concurrent with a high level of mortality of winter-run juveniles in the live box. The additional mortalities exceeded the annual incidental take levels permitted by the State for juvenile winter-run for the GCID monitoring program. Alternative methods are being explored to improve trapping capabilities when there are large amounts of debris. CDFW is working with GCID on options (for example, half-cone operations) to resume sampling while limiting take for the remainder of the calendar year. To date, there has been no additional information as to when monitoring will resume this year.

^B Tisdale RST sampling period was from 10/29 at 7:30 am to 11/5 at 8:00 am.

^C Knights Landing RST sampling period was from 10/28 at 10:45 am to 11/5 at 10:45 am.

^D Data reported in the 10/28 to 11/3 DJFMP sampling summary.

Red Bluff Diversion Dam (RBDD)

USFWS biweekly report (10/22/18-11/4/18) for preliminary estimates of passage by brood-year and run for unmarked juvenile Chinook salmon captured by rotary screw traps at RBDD included:

Run and Species	Biweekly Total	Brood Year Total (90% CI)
Winter-run Chinook (BY2018)	105,401	812,834 (639,964-985,703)
Spring-run Chinook (BY2018)	70,156	89,090 (69,601-108,579)

Enhanced Delta Smelt Monitoring (EDSM):

No salmonids were caught in any region of the EDSM sampling.

CDFW carcass surveys

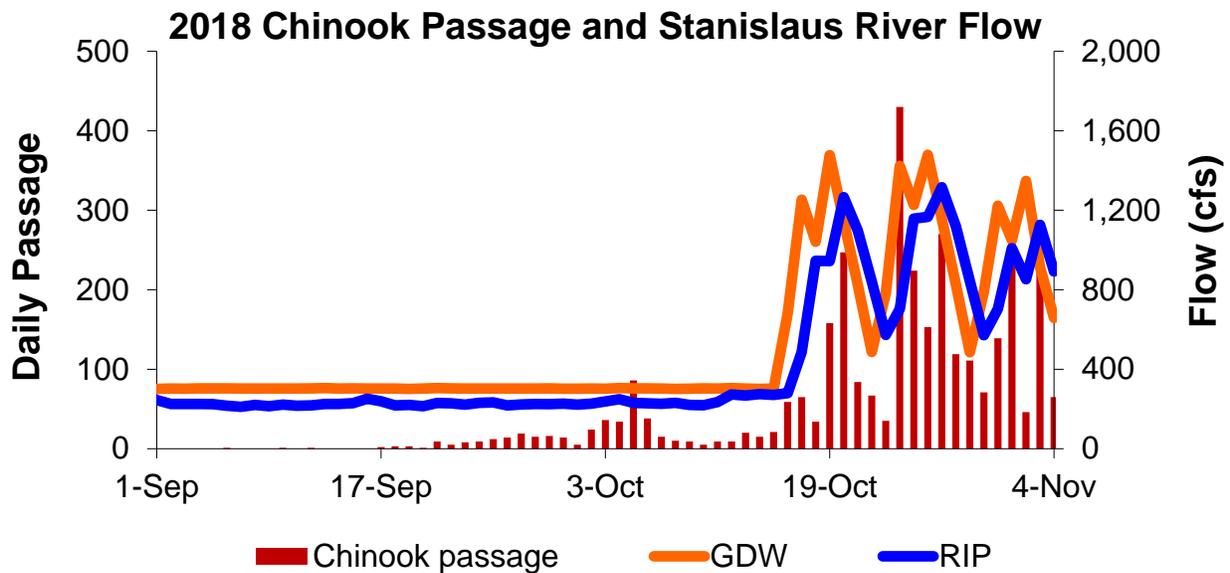
- **San Joaquin River tributaries:** (Information was received after the conclusion of the weekly DOSS call) Chinook salmon carcass surveys, with incidental redd counts, began the week of 10/1/18 on the Merced River, Tuolumne River, and Stanislaus River. CDFW has completed the fifth week of surveys. For the week of 10/23 to 10/29: 146 live Chinook salmon, 54 redds, and 1 tagged carcass were reported on the Merced River, 40 females were spawned at the Merced River Fish Hatchery; 169 live fish, 71 redds, and 1 tagged carcass were reported on the Stanislaus River, and 92 live fish and 32 redds were reported on the Tuolumne River.
- **American River:** Chinook salmon carcass surveys began on Monday, 10/15/18. The survey area includes Nimbus Dam to Watt Avenue. The Nimbus Basin is now closed to all fishing, and Chinook salmon spawning is monitored in this area. From 10/29 to 11/2, 74 total fish were observed between Nimbus Dam and the Fair Oaks Bridge (6 at Nimbus Basin and 64 at the weir). 12 of 20 female carcasses observed were unspawned, 2 were partially spawned, 2 were spawned, and 4 were unknown due to deteriorated condition. Water temperatures in the survey reaches are fairly warm at this time (mean 61.6°F at the farthest point upstream at the Hazel Avenue Bridge). New seasonal operations of Nimbus Dam began on 11/1 that typically reduce water temperatures in the downstream reaches below the Hazel Avenue Bridge. The Nimbus Fish Hatchery started spawning fish on 11/2.

In light of the observation of a high percentage of the female fall-run Chinook salmon carcasses as unspawned during the carcass surveys, Linander (CDFW) provided DOSS with the tentative plan for fall and winter temperature management of Folsom Dam. Current temperature operations from Folsom Dam are well above the thermal optimum, having a potential to lose 50% of this year's current Chinook salmon in-river production when operating at >60 °F for ~12 days. Temperatures have been managed to approximately 62°F for the majority of time since the escapement surveys began on October 15. Currently, the escapement surveys have indicated a total prespawn mortality rate of 74.7% of this year's observed female carcasses. Reclamation has expressed a commitment to ensure temperatures remain below 60°F at Hazel Bridge and power bypass will be utilized if temperatures at Hazel Bridge exceed 60°F with consideration that seasonal cooling will decrease temperatures throughout the month. Until

temperatures are near or within the thermal optimum range for Chinook salmon spawning, minimal successful spawning is expected to happen in-river and at the hatchery due to the hatchery drawing in water near the Hazel Bridge location.

Stanislaus River weir

Monitoring at the weir near Riverbank (for upstream passage of adult salmonids) began on 9/5/18. Last week (10/29 – 11/4/18); 939 adult fall-run Chinook salmon and 3 *Oncorhynchus mykiss* were observed passing upstream of the weir. The cumulative net upstream passage through 11/5/18 is 3,353 Chinook salmon (22% were ad-clipped, indicating a hatchery origin), and 11 *O. mykiss* (data provided by FISHBIO in their 11/5/18 Stanislaus Weir Update). Six of the *O. mykiss* passing the weir were greater than 16 inches (5 unclipped, indicating that the individual was likely anadromous, i.e. a steelhead, rather than a resident adult rainbow trout). One of the *O. mykiss* passing the weir was clipped, indicating hatchery origin.



Acoustic-tagged green sturgeon

CDFW has acoustic-tagged 29 juvenile sturgeon (28 green sturgeon and 1 white sturgeon) captured between 7/24/18 and 10/31/18 near Sherman Lake on the Sacramento River (western Delta). Fork lengths of these fish range between 42 cm and 94 cm. 19 individuals have been detected (near the Sherman Lake tagging location) between 10/9/18 and 10/31/18. Several of the previously tagged sturgeon have moved away from the area surrounding Sherman Lake. CDFW plans to conduct mobile boat monitoring to improve detection rates.

Other Surveys

The following fish hatchery spawning data are provided to inform DOSS members of potential hatchery influence on catch numbers at monitoring locations. Data from additional hatchery spawning programs and other carcass surveys may be provided in the future as they become available to DOSS.

- **Feather River Fish Hatchery Spawning** (as of 11/1/18)
 - Spring-run, jacks, and unripe fall-run are returned to the river
 - Fall-run Chinook salmon
 - Ad-clip rate 24.0%
 - Total number fall-run: 405
 - Ad-clipped fish: 97
 - Adult ad-clipped males: 27
 - Adult ad-clipped females: 35
 - Jacks: 35
 - Jills: 0
 - Spring-run Chinook salmon (Hallprint)
 - Ad-clip rate 0%
 - Total number of spring-run: 1
 - Ad-clipped fish: 0
 - Adult ad-clipped males: 0
 - Adult ad-clipped females: 0
 - Jacks: 0
 - Jills: 0

- **Mokelumne River Fish Hatchery** (seasonal totals through 11/1/18)
 - 840 Chinook salmon 10/25/18 – 11/1/18 (1,489 total to date)
 - 167 male
 - 408 female
 - 240 Jacks
 - 25 Jills
 - 62 steelhead 10/25/18 – 11/1/18 (236 total to date)
 - 8 males
 - 13 females
 - 16 male half-pounders
 - 25 female half-pounders

Agenda Item 7.

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>Young-of-year (YOY) winter-run Chinook salmon</i>	97-99% (last week: same)	1-3% (last week: same)	0% (last week: same)

Rationale for distribution

Wild winter-run Chinook:

No additional wild winter-run Chinook salmon were observed at monitoring locations this past week and there have been no precipitation events that would increase river flows inducing fish

movement. Therefore, DOSS estimates that there has been no further movement of the population since last week.

Agenda Item 8.

DOSS Advice to WOMT and NMFS:

None.

Agenda Item 9.

Next Meeting: The next DOSS conference call will be on **11/13/18 at 9am.**