

Delta Operations for Salmonids and Sturgeon (DOSS) Group
Conference call: 12/4/2018 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: Ken Kundargi, Jason Julienne, Kyle Griffiths
DWR: Kevin Reece, Bryant Giorgi, Farida Islam, Ming-Yen Tu
NMFS: Jeff Stuart, Kristin Begun
Reclamation: Tom Patton, Elissa Buttermore
SWRCB: Chris Carr, Craig Williams, Alessia Siclari
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. Late-fall Hatchery releases-yearling spring-run surrogates
8. DOSS Estimates of Fish Distribution
9. DOSS advice
10. Next DOSS meeting

Agenda Item 2.

RPA Implementation Review

Delta RPA Actions affecting operations during November/December:

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

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.

flow) has been exceeded at either the Deer Creek gage at Vina (DCV), or the Mill Creek gage at Los Molinos (MLM). Over the past week (11/27/18-12/3/18), the First Alert was triggered every day based on Mill Creek and Deer Creek flows greater than 95 cfs, and change in mean flow >50% at Deer Creek on 11/29. 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
11/27/2018	122	1%	104	-2%
11/28/2018	168	38%	139	34%
11/29/2018	224	33%	209	50.4%
11/30/2018	203	-9%	211	1%
12/1/2018	151	-26%	149	-29%
12/2/2018	141	-7%	136	-9%
12/3/2018	128	-9%	117	-14%

- 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:
 - The second alert was triggered on 12/1 and 12/2.

Date	Wilkins Slough (WLK)	Knights Landing (KL)
	Mean Daily Flow (cfs)	Daily water temperature (°F)
11/27/2018	6,048	54.1
11/28/2018	5,777	54
11/29/2018	6,077	54.3
11/30/2018	7,395	54
12/1/2018	11,027	53.8
12/2/2018	9,032	52.7
12/3/2018	7,240	51.6

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 (12/4/18)

SWP		CVP	
Exports (cfs)			
Clifton Court Forebay	6,000	Jones Pumping Plant	4,200 (5 units)

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

Reservoir Releases (cfs)			
Feather - Oroville	1,750	American - Nimbus	1,800
		Sacramento - Keswick	4,000
		Stanislaus - Goodwin	200
		Trinity - Lewiston	300
Reservoir Storage (in TAF)			
San Luis (SWP)	752	San Luis (CVP)	451
Oroville	1,021	Shasta	2,180
New Melones	1,770	Folsom	331
Delta Operations			
DCC	Closed	Sacramento River at Freeport (cfs)	17,500
Outflow Index (cfs)	~19,100	San Joaquin River at Vernalis (cfs)	1,777
E:I	53% (14-day avg.)	X2	>81 km

Factors controlling Delta exports:

- 11/26-12/4: salinity management

Approximate OMR as of 12/1/18:

	USGS gauges (cfs)	Index (cfs)
Daily	-4,500	-6,100
5-day	-2,800	-3,400
14-day	-2,600	-3,100

Approximate OMR as of 12/3/18:

	Index (cfs)
Daily	-7,100
5-day	-5,400
14-day	-3,700

Weather Forecast

Chances of light precipitation in the Sacramento area through Wednesday night with rain amounts less than a quarter of an inch in the valley and half an inch to three quarters of an inch in the mountains. 3-6 inches of snowfall is expected above 5,000 feet. A stronger system may impact the area early next week bringing heavier rain and mountain snowfall.

Agenda Item 4.

Smelt Working Group

The Smelt Working Group (SWG) met for the first time in WY2019 on Monday, 12/3/18.

The SWG reviewed current Delta conditions, survey data, expected exports, and forecasted weather. The SWG indicated that the precipitation forecasted for this week would be minor, and a “first flush” event is unlikely to occur this week. As the field

surveys have not detected any Delta Smelt and turbidity levels in the south and central Delta have been low, the SWG concluded that the risk for Delta Smelt entrainment is low.

The SWG does not believe that a recommendation under Action 1 (adult pre-spawning Delta Smelt) is necessary to protect Delta Smelt at this time. The SWG will continue to monitor Delta Smelt survey and salvage data and Delta conditions. The group will meet again on Monday, 12/10/18 at 10 am.

Agenda Item 5.

Fish Monitoring: Salvage

Griffiths (CDFW) provided a salvage summary. No salmonids or green sturgeon have been salvaged at the SWP and CVP fish facilities since the beginning of WY19 (10/1/18), and no salmonids or green sturgeon have been salvaged since last June. An outage occurred at the Banks Pumping Plant for maintenance from 11/27 to 11/29 causing the Skinner Fish Facility to go offline. Exports resumed at the Banks Pumping Plant on 11/30/18. There were no reduced counts as a result of the outage.

DOSS Weekly Salvage Update

Reporting Period: November 26-December 2, 2018

Prepared by Kyle Griffiths on December 3, 2018 11:58

Preliminary Results -Subject to Revision

Criteria	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov	1-Dec	2-Dec	Trend	
Loss Densities									
Wild older juvenile CS	0	0	0	0	0	0	0	→	0.00
Wild steelhead	0	0	0	0	0	0	0	→	0.00
Exports									
SWP daily export	1,213	0	0	0	3,691	7532	6752	↘	averages 2,741
CVP daily export	3,590	3,594	3,617	6,860	6,887	6,953	8,360	↘	5,694
SWP reduced counts	0	0	0	0	0	0	0		
CVP reduced counts	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 TFCF salvage outage 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	Tisdale RST ^A	Knights Landing RST ^B	Beach Seines ^C	Sacramento Trawl ^C	Chippis Is. Midwater Trawl ^C	Mossdale Kodiak Trawl ^C
Sample Date	11/27	11/26-12/3	11/26-12/3	11/26-11/30	11/26, 11/28, 11/30	11/26, 11/28, 11/30	11/26, 11/28, 11/30
FR Chinook							
SR Chinook	1 juvenile	4					
WR Chinook	33 juveniles	161	35	1			
LFR Chinook	3 juveniles	4	2	2		1	
Chinook (ad-clip)		6 LFR	1 FR 3 LFR			1	
Steelhead (wild)							
Steelhead (ad-clip)							
Green Sturgeon							
Flows (avg. cfs)	832	7,140	7,975				
W. Temp. (avg. °F)	55.40	49.4	53.5				
Turbidity (avg. NTU)	6.90	17.5	17.83				

^A Tisdale RST sampling period was from 11/26 at 10:00 am to 12/3 at 10:30 am.

^B Knights Landing RST sampling period was from 11/26 at 10:45 am to 12/3 at 11:30 am.

^C Data reported in the 11/25 to 12/1 DJFMP sampling summary.

Red Bluff Diversion Dam (RBDD)

USFWS biweekly report (11/19/18-12/2/18) 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)	192,352	1,077,267 (760,830-1,393,704)
Spring-run Chinook (BY2018)	24,020	130,872 (81,992-179,752)

Enhanced Delta Smelt Monitoring (EDSM):

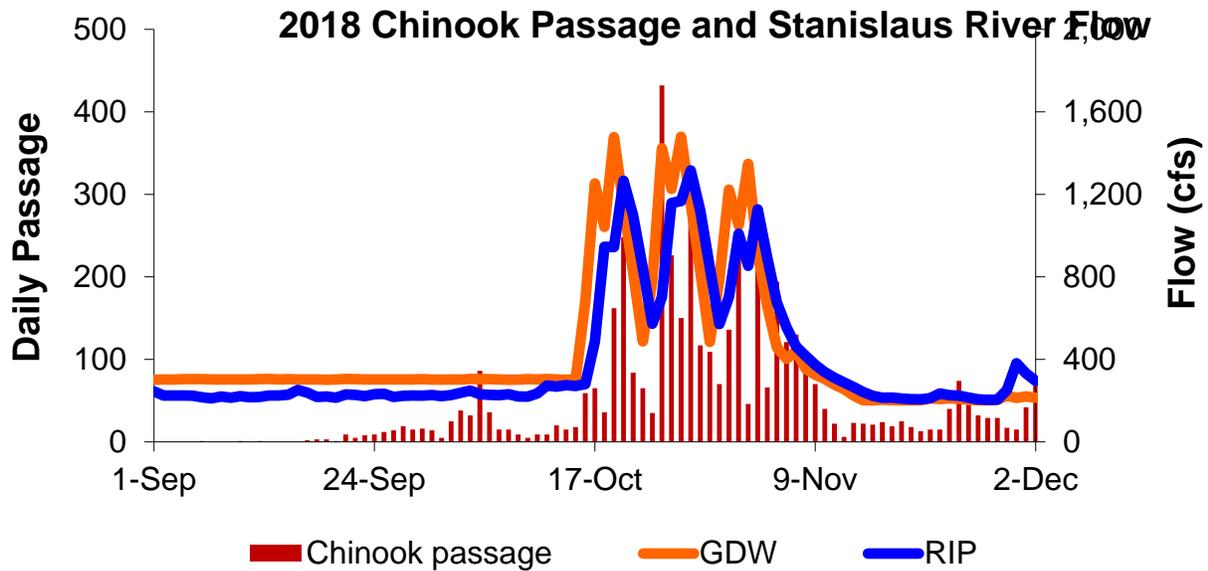
No salmonids were caught in any region of the EDSM sampling.

CDFW carcass surveys

- ***San Joaquin River tributaries:*** 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 ninth week of surveys. For the week of 11/26 to 11/30 the following were observed during the surveys: 148 live Chinook salmon, 209 redds, 54 skeletons, and 18 tagged carcasses were reported on the Merced River, 11 females were spawned at the Merced River Fish Hatchery; 182 live fish, 197 redds, 131 skeletons, 87 carcasses tagged, and 42 ad-clipped carcasses were reported on the Tuolumne River, and 560 live fish, 590 redds, 161 skeletons, 154 carcasses tagged, and 40 ad-clipped carcasses were reported on the Stanislaus 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 11/26 to 11/30, 2,612 total fish were observed between Nimbus Dam and the Fair Oaks Bridge (402 at Nimbus Basin and 1,970 at the weir). 137 of 1,102 female carcasses observed were unspawned, 162 were partially spawned, 730 were spawned, and 73 were unknown due to deteriorated condition. Water temperatures in the survey reaches were a mean of 55.7°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.

Stanislaus River weir

Monitoring at the weir near Riverbank (for upstream passage of adult salmonids) began on 9/5/18. Last week (11/26/18 – 12/2/18); 236 adult fall-run Chinook salmon (*Oncorhynchus tshawytscha*) and 0 steelhead (*O. mykiss*) were observed passing upstream of the weir. The cumulative net upstream passage through 12/2/18 is 4,613 Chinook salmon (25% were ad-clipped, indicating a verifiable hatchery origin; hatcheries ad-clip 25% of their production fall-run Chinook salmon), and 21 *O. mykiss* (data provided by FISHBIO in their 12/3/18 Stanislaus Weir Update). Twelve of the *O. mykiss* passing the weir were greater than 16 inches. Of these 12 fish, 4 were ad-clipped, indicating a hatchery origin and 8 were unclipped, indicating a natural 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. No updated data were available this week.

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**

- Met egg taking goals for both spring run and fall-run Chinook salmon this year.
- Collected approximately 3.0 million spring-run Chinook salmon eggs to date
- Collected approximately 12 million fall-run Chinook salmon eggs to date
- Last few lots of eggs were over-ripe due to delays in collecting eggs caused by the Camp Fire related shut down of the Feather River Fish Hatchery.

- **Nimbus Fish Hatchery**

- The hatchery is still working towards meeting its egg collection goal, however this year is the lowest egg collection recorded for the Lower American River.
- Currently the Nimbus Hatchery has collected only 5.6 million fall-run CS eggs.
- Strays from Mokelumne River are making up about 60% of the fish in this year's spawning run on the Lower American River.

- Reclamation wants to remove fish weir at the Nimbus Fish Hatchery early next week. The Nimbus Fish Hatchery would like it to stay in longer to facilitate trapping more fish to meet its egg collection goals.
- **Mokelumne River Fish Hatchery**
 - Egg collection is doing well this year at the hatchery. The hatchery should meet its egg collection goals.

Agenda Item 7.

Late-fall Hatchery releases-yearling spring-run surrogates

The U.S. Fish and Wildlife Service provided the following hatchery release notifications:

On 11/29/18, a notification for the planned release of 61,277 brood year 2018 late-fall-run Chinook salmon from Coleman National Fish Hatchery (CNFH) on 12/3/18 into Battle Creek. This group is 100% marked (with an adipose-fin clip and coded-wire tag) and has an estimated average fork length of 145 mm.

Agenda Item 8.

DOSS Estimates of Fish Distribution

DOSS estimates of the current distribution of listed Chinook salmon 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>	91-96% (last week: 93-98%)	4-9% (last week: 2-7%)	0% (last week: same)

Rationale for distribution

Wild winter-run Chinook:

33 wild winter-run Chinook salmon were observed at the GCID RST, 161 at Tisdale, 35 at Knights Landing, and 1 at the beach seines this past week. Since winter-run were observed at monitoring locations upstream and within the Delta, DOSS estimates that an additional 2 percent of wild winter-run Chinook salmon population has migrated into the Delta over the past week. Since no winter-run were observed at Chipps Island, no wild winter-run Chinook salmon are estimated to have exited the Delta.

Agenda Item 9.

DOSS Advice to WOMT and NMFS:

Although DOSS does not have explicit water operations advice, it is taking this opportunity to alert WOMT and NMFS that there have been observations of fish entering the Delta from upriver at Knights Landing and Tisdale. DCC gates are closed, which are protective, but exports are high (10,200 cfs; ~57% of inflow) and this will increase risk of entrainment into the central and southern Delta via Georgianna Slough and Threemile Slough and potentially the export facilities. Exports are expected to decrease over the course of the next week on the descending limb of the hydrograph.

Agenda Item 10.

Next Meeting: The next DOSS conference call will be on **12/11/18 at 9am.**