

**Delta Operations for Salmonids and Sturgeon (DOSS) Group**  
**Conference call: 3/12/2019 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 the [NMFS Water Ops page: www.westcoast.fisheries.noaa.gov/central\\_valley/water\\_operations/doss.html](http://www.westcoast.fisheries.noaa.gov/central_valley/water_operations/doss.html).

**CDFW:** Ken Kundargi, Kyle Griffiths, Jason Julienne  
**DWR:** Bryant Giorgi, Farida Islam, Kevin Reece, Mike Ford  
**NMFS:** Kristin Begun  
**Reclamation:** Tom Patton, Mike Beakes  
**SWRCB:** Craig Williams  
**USFWS:** Felipe Carrillo, 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](http://www.baydeltalive.com/djfmj))
3. Current Operations
4. Smelt Working Group
5. Fish Monitoring: RSTs/trawls/seines
6. Fish Monitoring: Salvage
7. Hatchery Releases
8. DOSS Estimates of Fish Distribution
9. DOSS Feedback on Entrainment Risk
10. DOSS advice
11. Next DOSS meeting

**Agenda Item 2.**

**RPA Implementation Review**

**Delta RPA Actions affecting operations during March:**

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

- 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 gage at Los Molinos

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<sup>1</sup> 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](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.

(MLM). The First Alert was triggered every day this past week. See table below for details.

Mill Creek (MLM)			Deer Creek (DCV)	
Date	mean daily flow (cfs)	change in mean daily flow	mean daily flow (cfs)	change in mean daily flow
3/5/2019	934	-29%	1,263	-18%
3/6/2019	2,197	135%	2,607	106%
3/7/2019	1,529	-30%	2,280	-13%
3/8/2019	1,308	-14%	1,685	-26%
3/9/2019	992	-24%	1,281	-24%
3/10/2019	745	-25%	1,008	-21%
3/11/2019	593	-20%	822	-19%

- Second Alert (triggered only if both Knights Landing water temperatures are <56.3°F and Wilkins Slough flows are >7,500 cfs). The Second Alert was triggered every day this past week. See table below for details.

Wilkins Slough (WLK)		Knights Landing (KL)
Date	Mean Daily Flow (cfs)	Daily water temperature (°F)
3/5/2019	27,415	50.6
3/6/2019	27,365	50.9
3/7/2019	27,503	50.9
3/8/2019	27,889	51.5
3/9/2019	27,945	51.5
3/10/2019	27,837	50.1
3/11/2019	27,681	49.7

**Action IV.1.2<sup>2</sup> (DCC gate operations):**

- DCC gates will remain closed per operations described in RPA IV.1.2 starting 12/1/18.

**Action IV.2.3<sup>3</sup> (OMR Management):**

- Implementation of this action in WY 2019 began on 1/1/19, and requires that Old and Middle River (OMR) flow be no more negative than -5,000 cfs. OMR flows are reported weekly with the OMR index and the tidally filtered USGS gauges at the 5-day and 14-day running averages.
- No salvage-based triggers that would require OMR to be more positive than -5,000 cfs were exceeded this week.

<sup>2</sup> 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](http://www.westcoast.fisheries.noaa.gov/publications/Central_Valley/Water%20Operations/Operations,%20Criteria%20and%20Plan/040711_ocap_opinion_2011_amendments.pdf)

**Action IV.3<sup>3</sup> (Reduce likelihood of entrainment or salvage at the export facilities, including an alert that indicates that export operations may need to be altered):**

- The Third Alert [November 1-February 28 Knights Landing Catch Index (KLCI) or Sacramento Catch Index (SCI) >10] was not triggered this past week.
- Since the action went into effect on 11/1/18, no salvage-based triggers that would require export reduction have been exceeded.

**Agenda Item 3.**

**Current Operations (3/12/19)**

SWP		CVP	
<b>Exports (cfs)</b>			
Clifton Court Forebay	5,700	Jones Pumping Plant	1,000
<b>Reservoir Releases (cfs)</b>			
Feather - Oroville	7,000	American - Nimbus	13,000*
		Sacramento - Keswick	40,000
		Stanislaus – Goodwin	5,000
		Trinity - Lewiston	300
<b>Reservoir Storage (in TAF)</b>			
San Luis (SWP)	1,062 (full)	San Luis (CVP)	964 (full)
Oroville	2,593	Shasta	3,984
New Melones	2,051	Folsom	645
<b>Delta Operations</b>			
DCC	Closed	Sacramento River at Freeport (cfs)	77,100
Outflow Index (cfs)	~164,800	San Joaquin River at Vernalis (cfs)	16,600
E:I	5% (14-day avg.)	X2	<56 km

\* Nimbus releases are scheduled to decrease tonight (3/12) to 11,000 cfs.

**Factors controlling Delta exports:**

- 3/5/19-3/12/19: Available physical capacity

**Approximate OMR as of 3/9/19:**

	USGS gauges (cfs)	Index (cfs)
Daily	642	100
5-day	-200	-400
14-day	-1,300	-900

<sup>3</sup> 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](http://www.westcoast.fisheries.noaa.gov/publications/Central_Valley/Water%20Operations/Operations,%20Criteria%20and%20Plan/040711_ocap_opinion_2011_amendments.pdf)

Approximate OMR as of 3/11/19:

	Index (cfs)
Daily	1,800
5-day	400
14-day	-200

#### Weather Forecast

The Sacramento area is expecting mostly sunny conditions through the week with highs in the low 60s. Breezy north to east winds are expected later today into Wednesday. The next chance of precipitation is next Tuesday.

#### **Agenda Item 4.**

##### **Smelt Working Group**

The Smelt Working Group met on Monday, 3/11/19, at 10 am. The following meeting summary is preliminary and is subject to change.

The Smelt Working Group (SWG) reviewed current Delta conditions, survey data, expected exports, and forecasted weather. On 1/31, the 3-station average daily water temperature at Mossdale, the Rio Vista Bridge, and Antioch exceeded 12°C, which is the temperature indicative of Delta Smelt spawning as identified in the Biological Opinion and a potential trigger for the start of Action 3. With river flows scheduled to remain high this week and with OMR flow rates expected to stay in the positive territory, the SWG determined that the risk of entrainment for Delta Smelt would be very low for fish that are currently outside of the South Delta. The SWG did caution, however, that as the spawning season begins, the fish are going to be on the move and could still be at risk with the facilities still exporting water.

The Service determined on 2/6 that Action 3 had been implemented for the protection of larval and juvenile Delta Smelt. The implementation of Action 3 requires OMR flow rates to be no more negative than -5,000 cfs on a 14-day running average. The SWG will continue to monitor Delta Smelt survey and salvage data and Delta conditions, and the group plans to meet again next Monday, 3/18, at 10 am.

#### **Agenda Item 5.**

**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 <sup>A</sup>	Tisdale RST <sup>B</sup>	Knights Landing RST <sup>C</sup>	Beach Seines <sup>D</sup>	Sacramento Trawl <sup>D</sup>	Chippis Is. Midwater Trawl <sup>D</sup>	Mossdale Kodiak Trawl <sup>D</sup>
Sample Date	-	2/27-3/7	3/4-3/11	3/4-3/6	3/3-3/5. 3/7-3/8	3/3-3/5. 3/7-3/8	3/4, 3/6, 3/8
Chinook Adults						3	
FR Chinook		4	128	90	433	6	1
SR Chinook		1	1	3	24	2	
WR Chinook			1		3	1	
LFR Chinook							
Chinook (ad-clip)		2 SR 1 WR	2 SR 6 WR		1		
Steelhead (wild)							
Steelhead (ad-clip)					35	10	
Green Sturgeon							
Flows (avg. cfs)		47,718	27,661				
W. Temp. (avg. °F)		49	50.7				
Turbidity (avg. NTU)		111.6	102.44				

<sup>A</sup> The trap was raised on 2/22 due to predicted high flows.

<sup>B</sup> Tisdale RST sampling period was from 2/27 at 9:30 am to 3/7 at 9:30 am. RST trap fishing effort was at 50% from 2/28 to 3/5.

<sup>C</sup> Knights Landing RST sampling period was from 3/4 at 10:30 am to 3/11 at 10:45 am.

<sup>D</sup> Data reported in the 3/3 to 3/9 DJFMP sampling summary. 2 CHNE (spray dyed) were collected at Sacramento Trawl and 1 CHNE at Chippis Island Trawl.

### Enhanced Delta Smelt Monitoring (EDSM):

53 fall-run Chinook salmon, 5 spring-run Chinook salmon, 1 winter-run Chinook salmon, 2 tagged Chinook salmon, and 11 clipped steelhead were observed in the EDSM this past week.

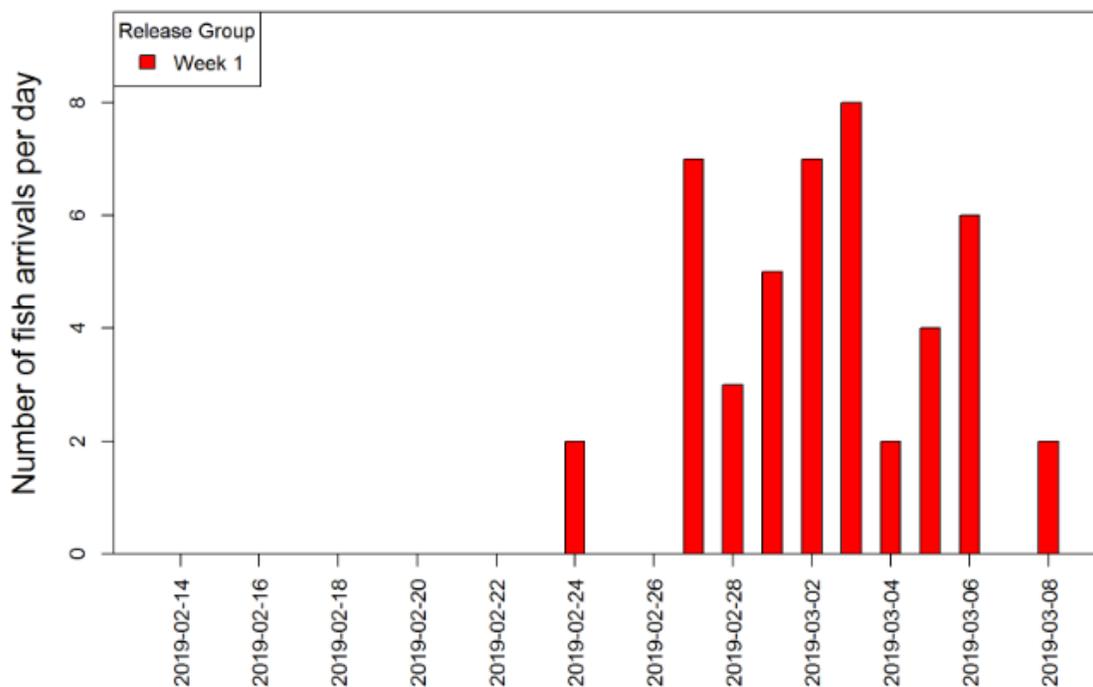
### Tracking of acoustic-tagged hatchery winter-run Chinook salmon

The Livingston Stone National Fish Hatchery released acoustic-tagged (JSATS) winter-run Chinook salmon from brood year 2018. The following table provides the detection frequencies downstream of the release site. Detections through 3/8/19 below.

<b>Date of release</b>	<b>2/14/19</b>
<b># acoustically tagged (JSATS)</b>	<b>649 fish</b>
Butte City Bridge	215 (33%)
Tower Bridge	50 (8%)
Minimum survival to Tower Bridge	22%
I-80/50 Bridge	49 (8%)
Georgiana Slough	7 (1%)
Detections at Benicia Bridge	46 (7%)

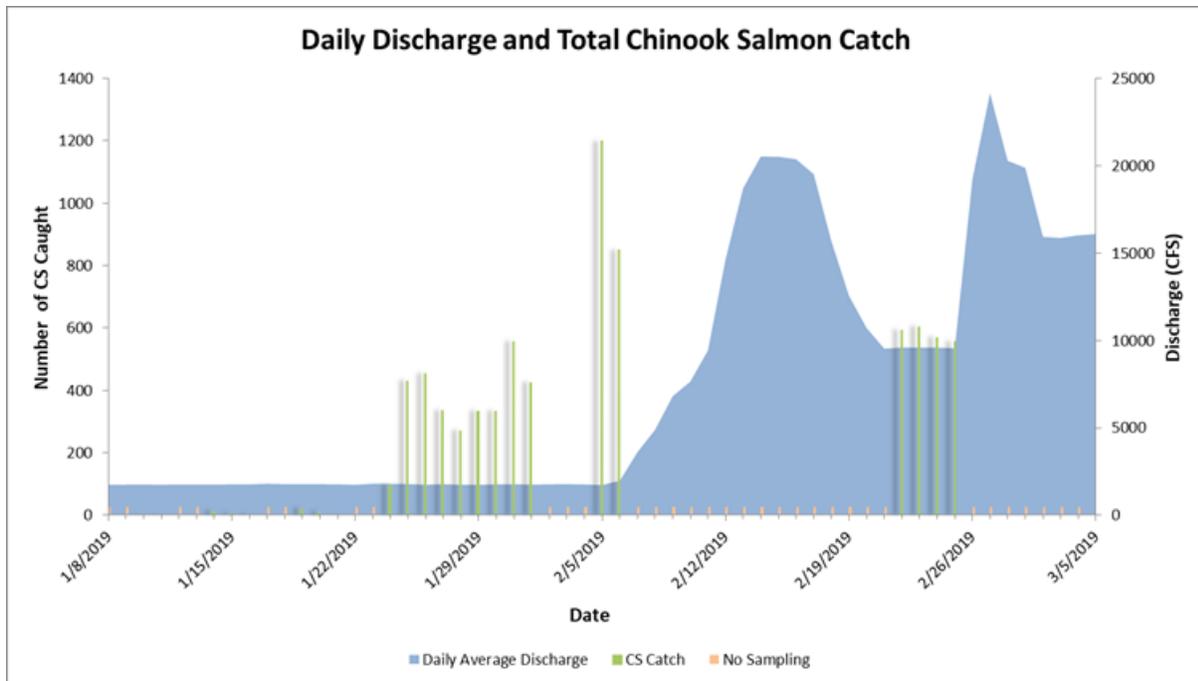
[https://calfishtrack.github.io/real-time/pageLSWR\\_2019.html](https://calfishtrack.github.io/real-time/pageLSWR_2019.html)

Detections at Benicia Bridge



### Lower American River

RST catch through 3/5/19 on the American River at Watt Avenue. From 1/10 to 2/6, 7,662 unmarked fall-run, 35 spring-run, 18 winter-run, and 4 steelhead have been observed. Due to increased river flows, the traps have been offline since 2/26.



**Acoustic-tagged green sturgeon**

CDFW has acoustic-tagged 46 juvenile sturgeon (41 green sturgeon and 5 white sturgeon) captured between 7/24/18 and 2/7/19 near Sherman Lake on the Sacramento River (western Delta). The mean fork length is 40.2 cm. Residency time at Sherman Lake is 2 to 135 days. Initial detections at Benicia Bridge have ranged from 1 to 31 days.

**Agenda Item 6.**

**Fish Monitoring: Salvage**

Griffiths (CDFW) provided a salvage summary for the period of 3/4-3/10.

Chinook salmon

Unclipped (wild origin) Chinook: Weekly salvage of wild origin Chinook salmon included 8 winter-run and 384 fall-run sized fish (estimated from subsample). Total WY19 salvage of wild-origin Chinook salmon is 3,734 fish.

Clipped (hatchery origin) Chinook: Weekly salvage of ad-clipped Chinook salmon included 40 spring-run and 4 late-fall-run sized fish. Total WY19 salvage of ad-clipped Chinook salmon is 562 fish. Clipped Chinook were identified with CWT codes to San Joaquin River Restoration Program SCARF (Salmon Conservation and Release Facility) and Coleman spring-run surrogate releases. The latter group was released in October/November 2018.

Steelhead

Unclipped steelhead: 20 fish salvaged for a season total to date of 233.

Clipped steelhead: 96 fish salvaged for a season total to date of 1,616.

Sturgeon

No sturgeon were salvaged this week.

## DOSS Weekly Salvage Update

Reporting Period: March 4-March 10, 2019

Prepared by Kyle Griffiths on March 11, 2019 15:45

Preliminary Results -Subject to Revision

Criteria	4-Mar	5-Mar	6-Mar	7-Mar	8-Mar	9-Mar	10-Mar	Trend
<b>Loss Densities</b>								
Wild older juvenile CS	0.50	0	0.99	0	0	0.55	0	↘
Wild steelhead	0	0.98	1.48	0.17	1.06	0.54	0	↘
<b>Exports</b>								
SWP daily export	9,154	9,128	9,139	8,091	10,183	10,529	10,375	↘
CVP daily export	8,616	8,608	8,443	8,113	6,233	5,468	2,771	↘
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
<b>Wild</b>					
Winter Run	8	35	↘	136	342
Spring Run	0	0	→	4	17
Late Fall Run	0	0	→	3	13
Fall Run	384	402	↘	3,591	3,891
Unclassified	0	0	→	0	0
<b>Total</b>	<b>392</b>	<b>437</b>		<b>3,734</b>	<b>4,263</b>
<b>Hatchery</b>					
Winter Run	0	0	↘	34	134
Spring Run	40	129	↘	170	317
Late Fall Run	4	18	↘	354	776
Fall Run	0	0	→	0	0
Unclassified	0	0	→	4	NC
<b>Total</b>	<b>44</b>	<b>147</b>		<b>562</b>	<b>1,227</b>

Trend = weekly loss per race; Salvage = estimated number of fish collected by the CVP and SWP fish protective facilities per unit of time

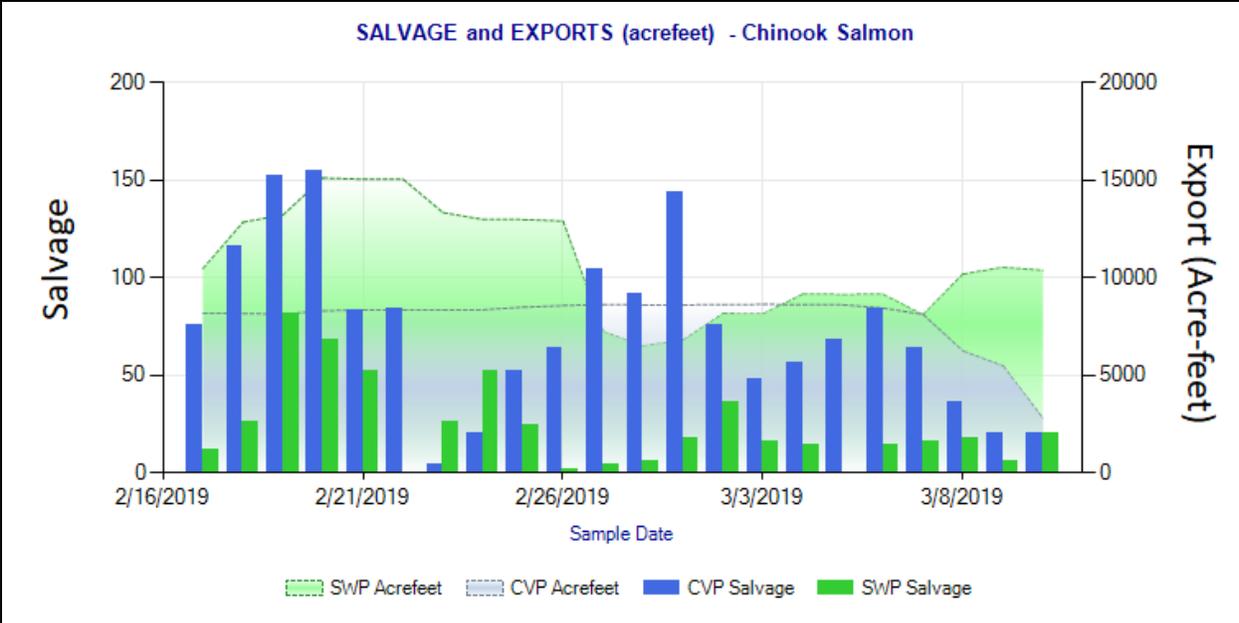
NC = cannot be calculated; hatchery salmon salvage and loss estimates have been corrected using CWT readings when available

## Steelhead Weekly/Season Salvage and Loss

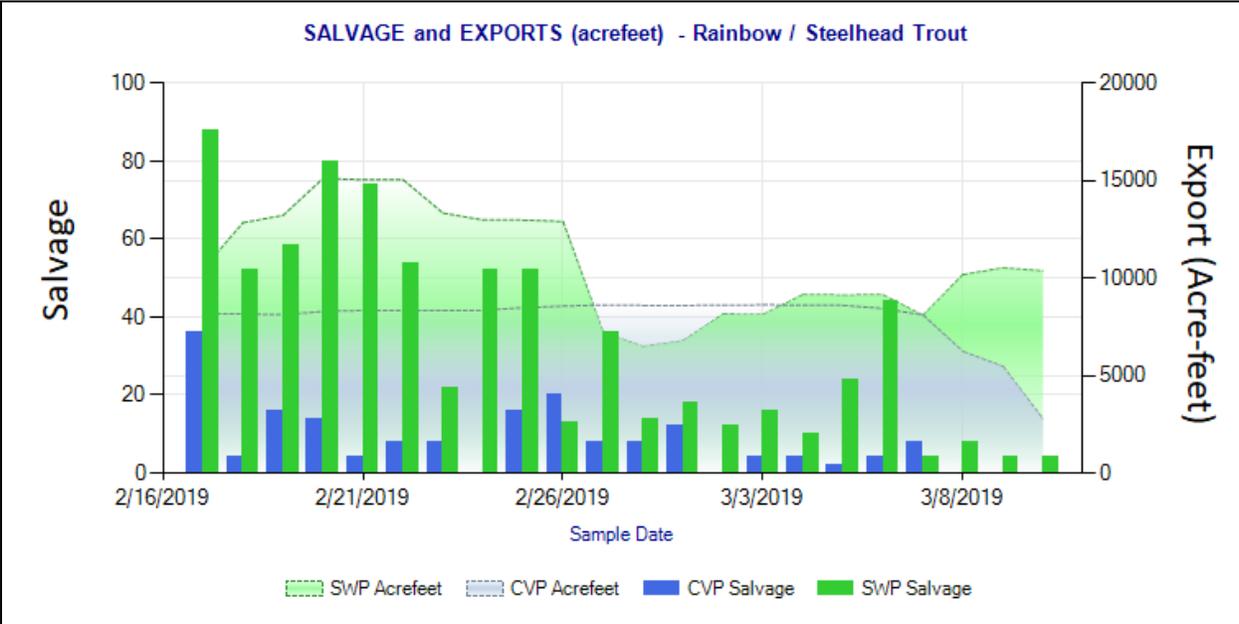
Combined salvage and loss for both CVP and SWP fish facilities

Category	Weekly Total			Season Total	
	Salvage	Loss	Trend	Salvage	Loss
Wild	20	72	↘	233	699
Hatchery	96	365	↘	1,616	4,845
<b>Total</b>	<b>116</b>	<b>437</b>		<b>1,849</b>	<b>5,543</b>

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



**Fig 1.** Salvage (values = number of fish salvaged) and export (acre-feet) at state/federal salvage facilities 2/17/2019 – 3/10/2019. All CS races/origins combined.



**Figure 2.** Salvage of clipped & unclipped Steelhead for state & federal salvage facilities. 2/17/2019 –3/10/2019.

CONFIRMED HATCHERY (ADIPOSE-FIN CLIPPED) CHINOOK SALMON LOSS AT THE SWP & CVP DELTA FISH FACILITIES as of 2/25/19

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 Stage Trigg	Date of First Loss <sup>4</sup>	Date of Last Loss <sup>4</sup>
12/3/2018	LF	Coleman NFH	Battle Creek	Spring Surrogate	67.33	61,277	n/a	0.110	n/a	0.5%	12/27/2018	2/16/2019
12/14/2018	LF	Coleman NFH	Battle Creek	Spring Surrogate	24.57	66,266	n/a	0.037	n/a	0.5%	12/27/2018	2/10/2019
1/4/2019	LF	Coleman NFH	Battle Creek	Spring Surrogate	457.26	73,952	n/a	0.618	n/a	0.5%	1/16/2019	2/20/2019

SWP and CVP adipose-fin clipped Chinook lost from 10/1/2018 through 2/25/2019.

<sup>1</sup>Number released with the adipose-fin clipped and a coded-wire tag (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>Date of first and last loss accounts for all CWT loss even those from special studies where salvage and loss=0.

**Agenda Item 7.**

**Hatchery Releases**

On 3/13/19, the California Department of Fish and Wildlife (CDFW) will release approximately 670,000 brood year 2018 spring-run Chinook salmon from Feather River Fish Hatchery into the Feather River at Boyd’s pump and Live Oak boat launch facility as part of an experimental study. This release will include 100% marked (adipose fin clip) and Coded Wire Tagged (CWT) fish.

**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.

<b>Location</b>	<b>Yet to Enter Delta (Upstream of Knights Landing)</b>	<b>In the Delta</b>	<b>Exited the Delta (Past Chippis Island)</b>
<i>Young-of-year (YOY) winter-run Chinook salmon</i>	0-1% (Last week: 0-1%)	44-50% (Last week: 54-60%)	50-55% (Last week: 40-45%)
<i>Young-of-year (YOY) spring-run Chinook salmon</i>	5% (Last week: 10%)	85-90% (Last week: 90%)	5-10% (Last week: 0%)
<i>Hatchery winter-run Chinook salmon</i>	5% (Last week: 10%)	40-50% (Last week: 75%)	45-55% (Last week: 15%)

**Rationale for distribution**

**Wild winter-run Chinook:**

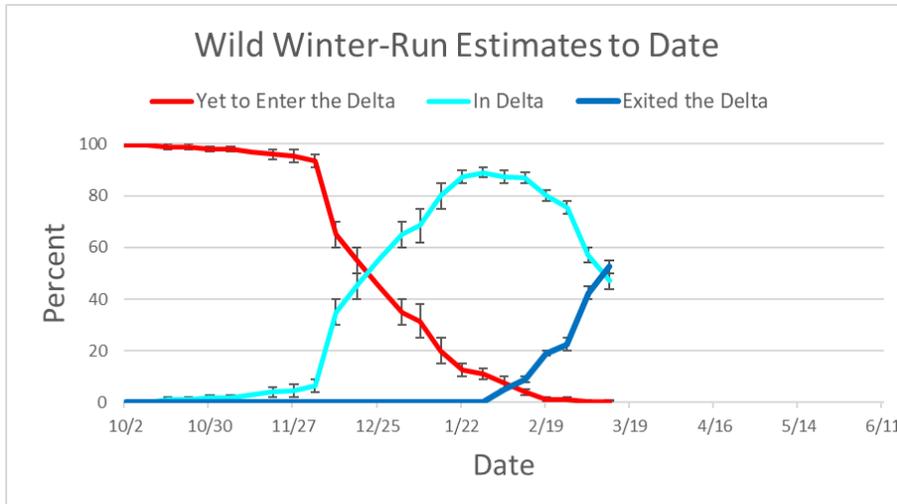
One wild winter-run Chinook salmon was observed at Knights Landing, 3 at Sacramento trawl, and 1 at Chippis Island trawl. Since fish were observed at monitoring locations, and assuming efficiencies were low since outflows were high this past week, DOSS estimates that an additional 10 percent of wild winter-run Chinook salmon population has exited the Delta past Chippis Island and few fish remain upstream of Knights Landing.

**Wild spring-run Chinook:**

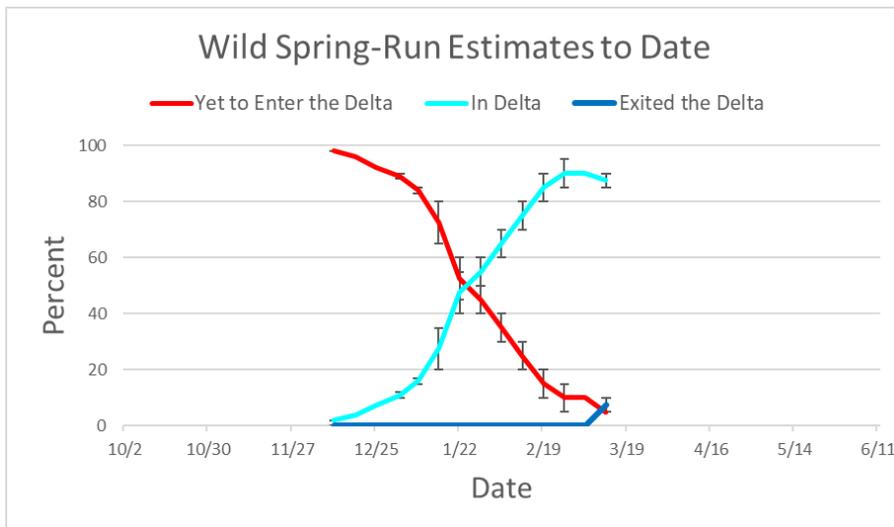
One wild spring-run Chinook salmon was observed at Tisdale, 1 at Knights Landing, 3 at the beach seines, 24 at Sacramento trawl, and 2 at Chippis Island trawl. Since fish were observed at monitoring locations, and assuming efficiencies were low since outflows were high this past week, DOSS estimates that 5 to 10 percent of the population has migrated through the Delta.

**Hatchery winter-run Chinook:**

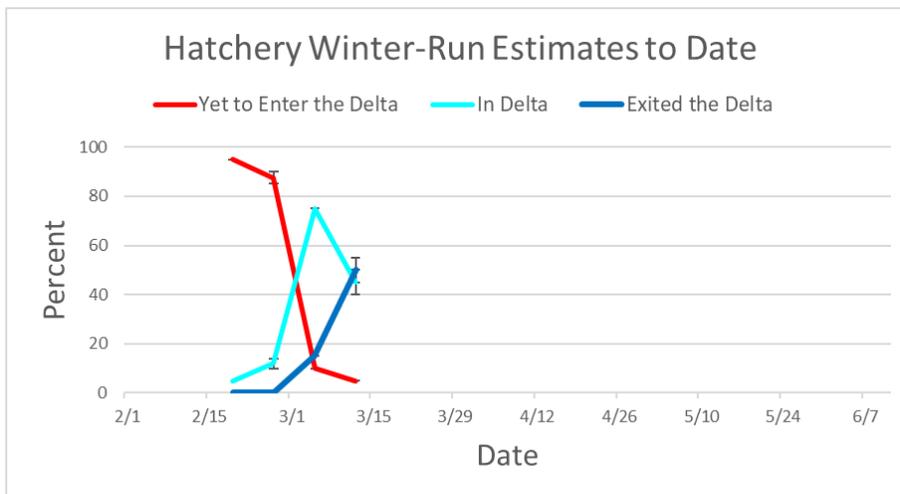
215 acoustically-tagged (AT) hatchery winter-run have been detected at Butte City Bridge, 50 at Tower Bridge, and 46 at Benicia Bridge. DOSS assumes that some AT hatchery winter-run Chinook were routed into the Yolo Bypass and did not pass receivers in the Sacramento River. Based on real-time monitoring and the assumption that some AT hatchery winter-run may have bypassed receivers, DOSS estimates that 45 to 55 percent of the group has exited past Chippis Island. This estimate assumes a high in-river survival rate and does not account for predation or other sources of mortality.



**WY 2019 wild winter-run distribution estimates to date.**



**WY 2019 wild spring-run distribution estimates to date.**



**WY 2019 hatchery winter-run distribution estimates to date.**

## **Agenda Item 9.**

### **DOSS Feedback on Entrainment Risk**

DOSS provides weekly entrainment risk outlooks by considering (a) two different categories of entrainment risk based on listed fish distribution and (b) factors that influence their potential for entrainment. The two entrainment risk categories considered include:

- **Interior Delta Entrainment Risk**- fish in the Sacramento River that have the potential to be entrained into the Interior Delta through the Delta Cross Channel (when open) and/or Georgiana Slough; and
- **CVP/SWP Facilities Entrainment Risk**- fish in the Interior Delta that have the potential to be entrained into the CVP/SWP facilities.

Influencing factors considered include:

- **Exposure Risk** (both categories)- estimated scale (low, medium, high) of fish anticipated to be in vicinity of an entrainment risk,
- **Routing Risk** (Interior Delta Entrainment Risk)- estimated scale (low, medium, high) that flow split conditions could result in fish migrating into the interior delta instead of remaining in main channel, and
- **OMR/Export Risk** (CVP/SWP Facilities Entrainment Risk)- for fish in the Interior Delta, estimated scale (low, medium, high) that OMR and/or Export levels could result in entrainment into the CVP/SWP facilities.

To provide an overall assessment of entrainment risk, the estimated current status of these influencing factors are described below for each of the entrainment risk categories.

### **Interior Delta Entrainment Risk for listed salmonids in the Sacramento River over the next week:**

- **Exposure Risk: HIGH**
  - Approximately 44-50% of winter run juveniles estimated to be in the Delta.
  - Approximately 85-90% of spring run juveniles estimated to be in the Delta.
  - Central Valley steelhead are in the system, including the Delta.
- **Routing Risk: LOW**
  - DCC is closed.
  - Flows are elevated on the Sacramento River (~164,800 cfs) which increases the muting of tidal effects around Georgiana Slough and Threemile Slough. Flows are expected to remain above 30,000 cfs for the duration of the week.
  - Fremont Weir is expected to overflow this week, so some fish are expected to bypass export facilities.
- **Overall Entrainment Risk: LOW**
  - Inflows from the Sacramento River are expected to remain high over the next week which balances exports to remain in the Low to Medium entrainment risk.
  - Due to high flows some salmonids may use the Fremont weir route and bypass interior Delta entrainment routes this week.

**CVP/SWP Facilities Entrainment Risk for listed salmonids in the Interior Delta over the next week:**

- **Exposure Risk: LOW-MEDIUM**
  - Listed Chinook salmon and steelhead have been salvaged and observed in monitoring sites in the Delta.
  - Exports are expected to remain steady of the week with the exception of a couple of maintenance days.
  - Flows at San Joaquin River are expected to remain high over the next week increasing exports and the risk of entrainment, especially for steelhead.
  - OMR is expected to be positive over the next week.
  - Exposure risk is medium for San Joaquin steelhead and low for Sacramento listed fish.
  
- **OMR/Export Risk:**
  - OMR -2,500 cfs: LOW
  - OMR -3,500 cfs: LOW
  - OMR -5,000 cfs: MEDIUM
  - OMR -6,250 cfs<sup>4</sup>: MEDIUM-HIGH
  - OMR -7,500 cfs<sup>4</sup>: HIGH
  - OMR -9,000 cfs<sup>4</sup>: HIGH
  
- **Overall Entrainment Risk:**
  - OMR -2,500 cfs: LOW-MEDIUM
  - OMR -3,500 cfs: LOW-MEDIUM
  - OMR -5,000 cfs: MEDIUM
  - OMR -6,250 cfs<sup>4</sup>: MEDIUM-HIGH
  - OMR -7,500 cfs<sup>4</sup>: HIGH
  - OMR -9,000 cfs<sup>4</sup>: HIGH

These assessments are based on anticipated and current hydrology and fish distributions for the next week.

**Agenda Item 10.**

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

**Agenda Item 11.**

**Next Meeting:** The next DOSS conference call will be on **3/19/19 at 9am.**

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<sup>4</sup>By request of management, DOSS also assessed risks at an OMR flow more negative than -5,000 cfs.