

**Delta Operations for Salmonids and Sturgeon (DOSS) Group**  
**Conference call: 1/3/2017 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](http://www.westcoast.fisheries.noaa.gov/central_valley/water_operations/doss.html).

**CDFW:** Bob Fujimura, Ken Kundargi, Duane Linander, Jerry Morinaka  
**DWR:** Bryant Giorgi, Dan Yamanaka, Kevin Reece, Tracy Pettit, Reza Shahcheraghi  
**NMFS:** Barb Byrne  
**Reclamation:** Tom Patton, Towns Burgess, Mike Hendrick  
**SWRCB:** Chris Kwan

**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. Smelt Working Group update
4. Current Operations
5. Hatchery Releases
6. Fish Monitoring: Salvage
7. Fish Monitoring: RSTs/trawls/seines (SacPAS (<http://www.cbr.washington.edu/sacramento/>) has some summaries of juvenile sampling)
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 December and January:**

**Action IV.1.2<sup>1</sup> (DCC gate operations):**

- From December 1 to January 31, the gates will remain closed, with limited exceptions.

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<sup>1</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>2</sup> (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 (KLCI) or Sacramento Catch Index (SCI) >10) was not triggered over the past week.

Date	KLCI	Seine SCI	Trawl SCI
12/27/16	2.1	<i>No sampling</i>	0.0
12/28/16	0.5	0.0	0.0
12/29/16	0.6	0.0	<i>No sampling</i>
12/30/16	0	0.0	0.0
12/31/16	<i>Data not yet available</i>	<i>No sampling</i>	<i>No sampling</i>

- Since the action went into effect on 11/1/16, no salvage-based triggers that would require export reduction have been exceeded.
- Implementation of this action in WY 2017 ended 12/31/16.

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

- Implementation of this action in WY 2017 began 1/1/17, and requires that Old and Middle River (OMR) flow be no more negative than -5,000 cfs.
- Since the action went into effect on 1/1/17, no salvage-based triggers that would require more positive OMR levels have been exceeded.

**Agenda Item 3.**

**Smelt Working Group update**

Because of the federal holiday on Monday, 12/26/16, the Smelt Working Group met on 12/27/16 just after the DOSS call and that meeting summary is provided below.

The Working Group reviewed current Delta conditions, survey data, and forecasted weather. The Working Group described the risk of entrainment under the Service-provided advice framework. Under this framework the relative risk of entrainment for OMR flow ranges is discussed and assessed. For the current week, the risk of entrainment for each of the flow ranges is characterized as follows.

- -1,250 to -2,000 cfs has a low risk of entrainment,
- -2,000 to -3,500 cfs has a low to moderate risk of entrainment,
- -3,500 to -5,000 cfs has a moderate to high risk of entrainment, and
- OMR flows more negative than -5,000 cfs present a level of risk to the species that the members find unacceptable.

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<sup>2</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)

<sup>3</sup> For details, see pages 74-79 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)

The Working Group is following guidance for entrainment protections from Action 2(adult Delta Smelt). The Working Group will continue to monitor Delta Smelt survey and salvage data and Delta conditions, and will meet again on Tuesday, January 3, 2016 at 10 am.

Because of the federal holiday on Monday, 1/2/17, the Smelt Working Group rescheduled this week’s call to 10 am on Tuesday, 1/3/17, after the DOSS meeting.

**Agenda Item 4.**

**Current Operations**

SWP		CVP	
<b>Exports (cfs)</b>			
Clifton Court Forebay	3,100	Jones Pumping Plant	2,500
<b>Reservoir Releases (cfs)</b>			
Feather - Oroville	1,750	American - Nimbus	3,500
		Sacramento - Keswick	5,500*
		Stanislaus - Goodwin	200
		Trinity - Lewiston	300
<b>Reservoir Storage (in TAF)</b>			
San Luis (SWP)	795	San Luis (CVP)	464
Oroville	1,991	Shasta	3,342
New Melones	633	Folsom	398
<b>Delta Operations</b>			
DCC	Closed	Sacramento River at Freeport (cfs)	~22,000
Outflow Index (cfs)	~20,000	San Joaquin River at Vernalis (cfs)	~1,000
E:I	11.6% (14-day avg.)	X2	<64 km

\*Keswick releases are expected to decrease to 5,000 cfs on Wednesday, 1/4/17.

OMR indices as of 1/2/16:

- Daily: ~ -5,000 cfs
- 5-day: ~ -6,000 cfs (*note that 5-day average includes days prior to 1/1/17, when -5,000 cfs OMR limit went into effect for WY 2017*)
- 14-day: ~6,200 cfs (*note that 14-day average includes days prior to 1/1/17, when -5,000 cfs OMR limit went into effect for WY 2017*)

Factors controlling Delta exports:

- 12/27/16: Voluntary export reductions to 3,500 cfs at each project (7,000 cfs combined exports) for OMR and turbidity management for the protection of Delta smelt
- 12/28-31/16: Voluntary OMR management to an OMR limit of -7,000 cfs for the protection of Delta smelt
- 1/1-3/17: -5,000 cfs OMR limit per Action IV.2.3 of the NMFS BiOp.

**Agenda Item 5.**

**Hatchery Releases**

The production release of steelhead (~577,000 fish) will be released into the Sacramento River at Bend Bridge (River Mile 258, about 14 miles downstream of Battle Creek) from Coleman National Fish Hatchery (CNFH) on January 3-7, 2017. All fish are marked with a clipped adipose fin only (no CWT).

**Agenda Item 6.**

**Fish Monitoring: Salvage**

For the period of 12/26/16 to 1/1/17, juvenile Chinook salmon continued to be salvaged although at a lower rate (~202 fish) compared to the previous week. Almost all lacked adipose fins and, based on the CWT codes, were hatchery late-fall run salmon from the recent CNFH releases. Four were in the winter-run size range and had intact adipose fins.

Four wild steelhead were salvaged at the CVP on 12/31.

### DOSS Weekly Salvage Update

Reporting Period: December 26-January 1, 2017  
 Prepared by Bob Fujimura on January 2, 2017 17:15  
 Preliminary Results -Subject to Revision

Criteria	26-Dec	27-Dec	28-Dec	29-Dec	30-Dec	31-Dec	1-Jan	Trend	
<b>Loss Densities</b>									
Wild older juvenile CS	0	0.19	0	0	0	0	0	↘	0.03
Wild steelhead	0	0	0	0	0	0.18	0	↘	0.03
<b>Exports</b>									
SWP daily export	7,352	6,230	7,296	6,570	6,624	7,352	5,896	→	6,760
CVP daily export	6,935	7,326	8,179	8,034	7,984	8,005	5,004	↘	7,352
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 brief salvage outage occurred  
 Tan shaded date indicate preliminary salvage results used

### 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	4	3	↘	12	23
Spring Run	0	0	→	0	0
Late Fall Run	0	0	↘	4	3
Fall Run	0	0	↘	4	3
Unclassified	0	0	→	70	NC
<b>Total</b>	<b>4</b>	<b>3</b>		<b>90</b>	<b>29</b>
<b>Hatchery</b>					
Winter Run	33	22	↘	65	120
Spring Run	0	0	→	0	0
Late Fall Run	131	225	↘	441	858
Fall Run	34	38	↘	90	153
Unclassified	0	0	→	6	NC
<b>Total</b>	<b>198</b>	<b>285</b>		<b>602</b>	<b>1,131</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 = 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	3	↘	8	20
Hatchery	0	0	→	0	0
<b>Total</b>	<b>0</b>	<b>0</b>		<b>8</b>	<b>20</b>

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

Generated by Bob Fujimura on December 30, 2016

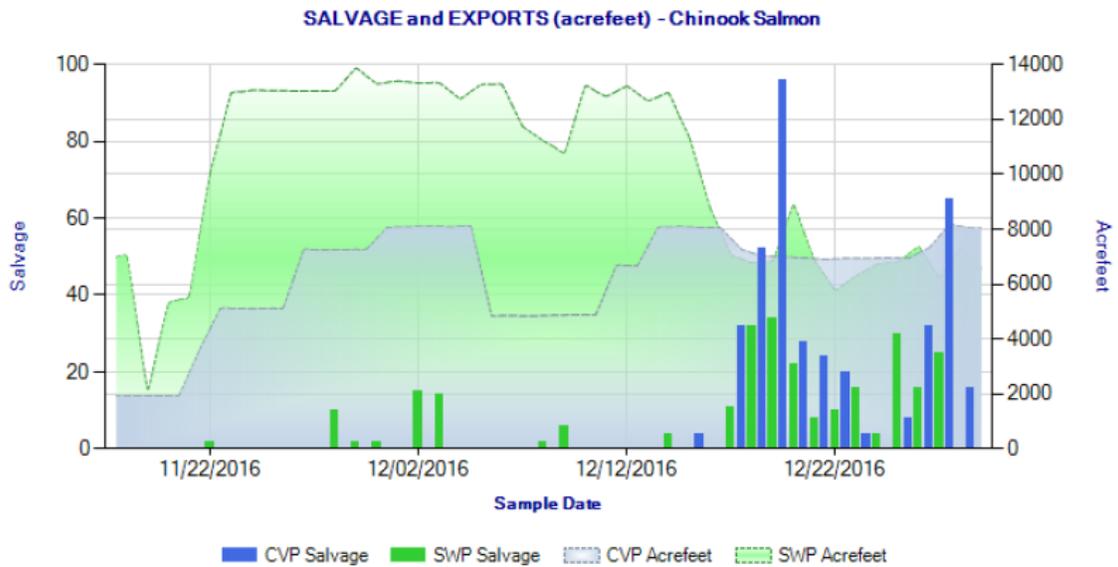


Figure 1. Daily salvage of Chinook Salmon (all races) and water exports from the state and federal fish salvage facilities during Nov 18 through Dec 29, 2016. Graph obtained from the DFG salvage monitoring web-page: <http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx>.

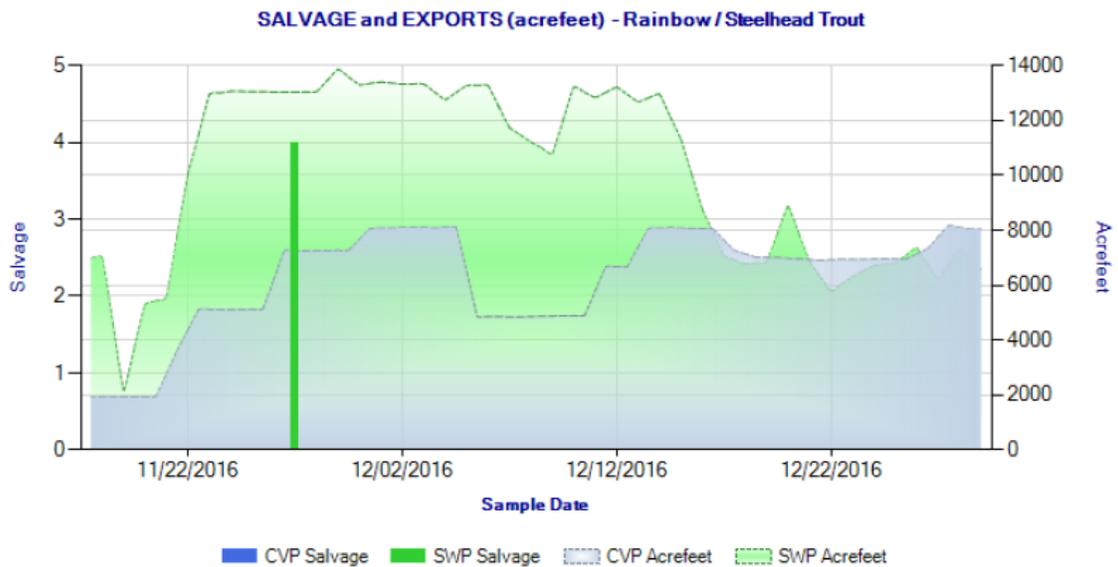


Figure 2. Daily salvage of Steelhead and water exports from the state and federal fish salvage facilities during Nov 18 through Dec 29, 2016. Graph obtained from the DFG salvage monitoring web-page: <http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx>.

**Agenda Item 7.**

**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 <sup>A, E</sup>	Sacramento Trawl <sup>A</sup>	Beach Seines <sup>A</sup>	Knights Landing RST <sup>B</sup>	Tisdale RST <sup>C</sup>	GCID RST <sup>D</sup>	Mossdale Kodiak Trawl <sup>A</sup>
Sample Date	12/27, 12/28, 12/30	12/27, 12/28, 12/30	12/28, 12/29, 12/30	12/18-12/26	12/26-12/30	12/27-1/2	12/27, 12/28, 12/30
FR Chinook		2	51	74	6	84 juveniles	
SR Chinook		1	9	13	7	5 juveniles	
WR Chinook				5	0	3 juveniles	
LFR Chinook	7 (6)			0		4 smolts	
Ad-Clipped Chinook	44 (29)	1		3	1	4 LFR smolts 2 WR juveniles 5 WR smolts	
Delta Smelt	6 (6)						
Longfin Smelt	7 (3)						
Steelhead (ad-clip)							
Steelhead (wild)	2 (0)						
Green Sturgeon							
Flows (avg. cfs)				17,300	15,825	1,840	
W. Temp. (avg. °F)				44.5	44.8	49.3	
Turbidity (avg. NTU)				23.1	19.4	11.8	

<sup>A</sup>Data reported on [www.baydeltalive.com](http://www.baydeltalive.com) for the period 12/26-12/30.

<sup>B</sup>Knights Landing RST sampling period was from 12/26 at 12:45 pm to 12/30 at 9:00 am.

<sup>C</sup>Tisdale RST sampling period was from 12/26 at 9:00 am to 12/30 at 10:00 am.

<sup>D</sup>GCID sampling period was from 12/27 at 8:00 am to 1/2 at 8:00 am. On 12/31 a log was found jammed in the RST cone.

<sup>E</sup>Incomplete Chippis Island catch data (listed in parentheses) were reported out during the DOSS call

### Enhanced Delta Smelt Monitoring (EDSM) Catch

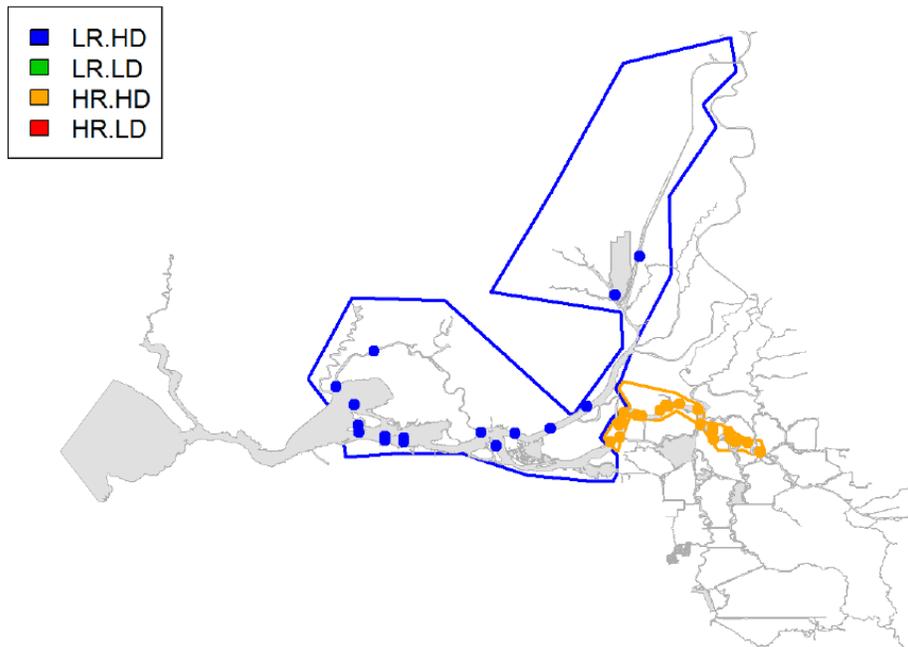
During the second week of sampling, the lone salmonid caught was an ad-clipped Chinook (very likely a late-fall run Chinook salmon from the recent Coleman National Fish Hatchery releases) caught in the mainstem Sacramento River near Rio Vista.

*Note:* The EDSM sampling regions in the following table and map are named according to relative entrainment risk for and population density of Delta Smelt.

Week	Dates	Number of Sites	Species	Low Risk, High Density (LR.HD)	Low Risk, Low Density (LR.LD)	High Risk, High Density (HR.HD)	High Risk, Low Density (HR.LD)	Total Catch
1	Dec 15 - Dec 22	23	FR Chinook	2	Not sampled in Week 1	0	Not sampled in Week 1	2
			SR Chinook	1		1		2
			WR Chinook	0		0		0
			Tagged Chinook	3		4		7
			Delta Smelt	17		7		24
2	Dec 27 - Dec 30		FR Chinook	0	Not sampled in Week 2	0	Not sampled in Week 2	0
			SR Chinook	0		0		0
			WR Chinook	0		0		0
			Tagged Chinook	1		0		1
			Delta Smelt	19		15		34

### Map of Sampling Locations (USFWS)

#### Sampling Locations Across All Weeks



**Agenda Item 8.**

**DOSS Estimates of Fish Distribution**

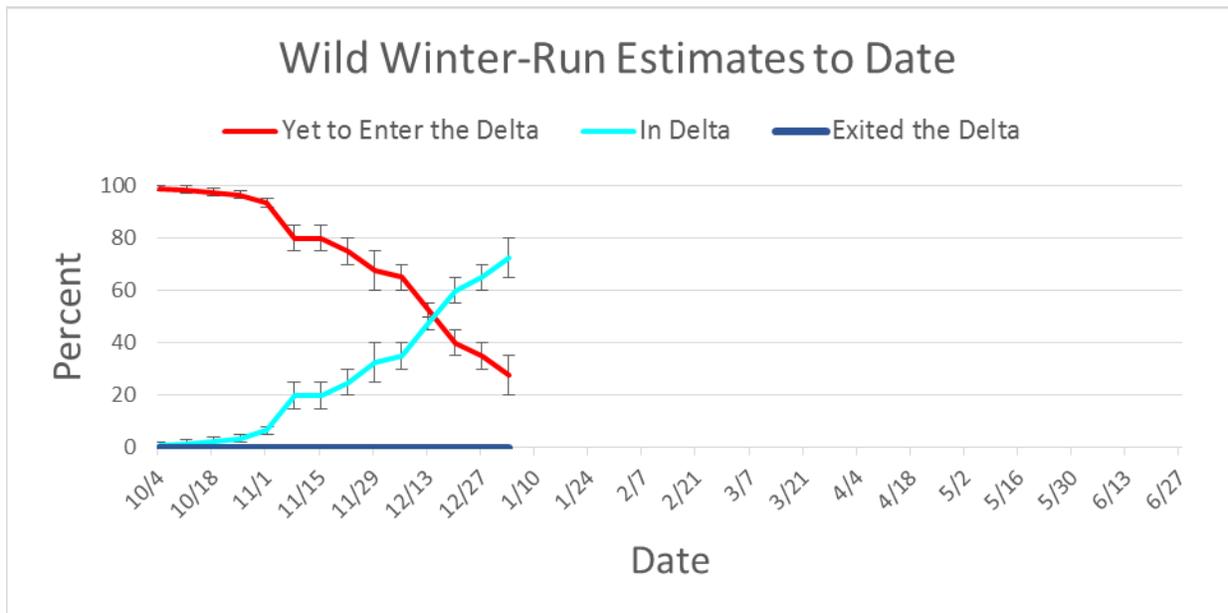
DOSS estimates of the current distribution of listed Chinook, as a percentage of the population, are based on recent monitoring data and historical migration timing patterns.

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>	20% - 35% (Last week: 30% - 40%)	65% - 80% (Last week: 60% - 70%)	0% (Last week: same)
<i>Wild young-of-year (YOY) spring-run Chinook salmon</i>	55% - 70% (Last week: 60% - 75%)	30% - 45% (Last week: 25% - 40%)	0% (Last week: same)

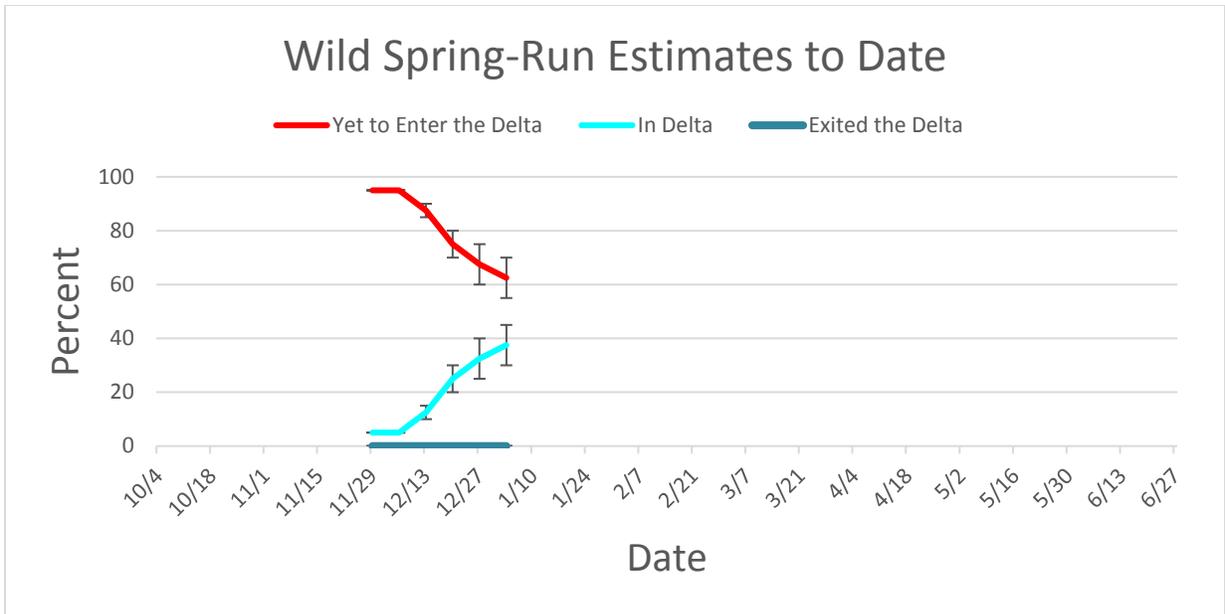
**Rationale for changes in distribution**

Wild winter-run Chinook: Over the past week, 5 juvenile winter-run Chinook salmon were observed at Knights Landing. Because of this observed catch, and in consideration of the relatively low trap efficiency at Knights Landing, DOSS shifted the distribution ranges by 5-10% into the Delta. No winter-run Chinook salmon have been observed at Chipps Island and are not expected to have exited the Delta this early in the season.

Wild spring-run Chinook: Over the past week, 13 juvenile spring-run were observed at Knights Landing, 9 in the beach seines, and 1 in the Sacramento Trawl. Because of this observed catch, DOSS shifted the distribution ranges by 5% into the Delta. No spring-run have been observed at Chipps Island and are not expected to have exited the Delta this early in the season.



WY 2017 wild winter-run distribution estimates to date.



WY 2017 wild spring-run distribution estimates to date.

**Agenda Item 9.**

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

**Agenda Item 10.**

**Next Meeting:** The next DOSS conference call will be on **1/10/17 at 9am.**