

**Delta Operations for Salmonids and Sturgeon (DOSS) Group**  
**Conference call: 12/17/2019 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 (CVP) and the State Water Project (SWP) on salmonids and green sturgeon. DOSS will work with other technical teams. DOSS notes and advice can be found here: [CCV Water Operations DOSS page](#).

**CDFW:** Ken Kundargi, Duane Linander, Kyle Griffiths, Jonathan Williams, Chris McKibbon, Geir Aasen, Page Uttley

**DWR:** Bryant Giorgi, Mike Ford, Ian Uecker, Kevin Reece, Brittany Davis

**NMFS:** Jeff Stuart, Kristin Begun

**Reclamation:** Tom Patton, Suzanne Manugian

**SWRCB:** Michael Macon, Craig Williams, Chris Carr

**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: [Bay Delta Live](#))
3. Current Operations
4. Smelt Working Group
5. Fish Monitoring: RSTs/trawls/seines
6. Fish Monitoring: Salvage
7. DOSS Estimates of Fish Distribution
8. Risk of Entrainment
9. WR BY19 JPE discussion
10. DOSS Advice
11. Next DOSS Meeting

**Agenda Item 2.**

**RPA Implementation Review**

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

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

- The First Alert has two components. Capture of yearling-sized spring-run Chinook salmon at the mouths of natal tributaries between October and April indicates that emigration from the tributaries has started or is occurring. As an environmental surrogate to the capture of the yearling-sized spring-run Chinook salmon, which are difficult to capture in the rotary screw traps, tributary flow increases are used to signal conditions

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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](#). 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.

conductive to emigration. The First Alert is triggered if either the first component (greater than 95 cfs flow threshold) or second component (greater than 50% change in mean daily flow) are exceeded. The First Alert was triggered (yellow highlights) this past week due to flows greater than 95 cfs, as well as exceeding a 50% increase in mean daily flows on 12/12/2019 and 12/14/2019.

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
12/10/2019	181	-26%	209	-30%
12/11/2019	172	-5%	186	-11%
12/12/2019	297	73%	301	61%
12/13/2019	241	-19%	268	-11%
12/14/2019	365	51%	381	42%
12/15/2019	262	-28%	280	-26%
12/16/2019	203	-23%	217	-23%

- The Second Alert is triggered only if **both** Wilkins Slough flows are greater than 7,500 cfs and Knights Landing temperature is less than 56.3°F. The second alert is in effect beginning 10/1/2019, and was triggered every day this past week.

Wilkins Slough (WLK)		Knights Landing (KL)
Date	Mean Daily Flow (cfs)	Daily water temperature (°F)
12/10/2019	12,706	53.3
12/11/2019	9,868	53.2
12/12/2019	8,481	52.7
12/13/2019	8,697	52.6
12/14/2019	10,253	52.8
12/15/2019	10,229	52.2
12/16/2019	10,099	51.6

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

- DCC gates will remain closed per operations described in RPA Action IV.1.2 starting 12/1/2019 and are expected to remain closed until mid-May.

**Action IV.3<sup>3</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 28 Knights Landing Catch Index (KLCI) or Sacramento Catch Index (SCI) >10] was triggered on 12/11/2019, 12/12/2019, 12/13/2019, 12/15/2019, and 12/16/2019 (see table below).

<sup>2</sup> For details, see pages 62-66 in Enclosure 2 of the [2011 Amendments to the 2009 RPA document](#).

<sup>3</sup> For details, see pages 79-80 in Enclosure 2 of the [2011 Amendments to the 2009 RPA document](#).

Date	KLCI*	Sac Seine SCI	Sac Trawl SCI
12/10/2019	6.90		
12/11/2019	316.6	14.4	
12/12/2019	37.1		35.0
12/13/2019	22.4	25.1	19.0
12/14/2019	3.7		
12/15/2019	14.0		
12/16/2019	14.3		

\*KLCI values accounted for half cone configuration (50% efficiency).

- Since the action went into effect on 11/1/2019, no salvage-based triggers that would require export reduction have been exceeded.

### Agenda Item 3.

#### Current Operations (12/17/2019)

SWP		CVP	
<b>Exports (cfs)</b>			
Clifton Court Forebay	7,400	Jones Pumping Plant	4,200
<b>Reservoir Releases (cfs)</b>			
Feather - Oroville	2,500	American - Nimbus	2,500
		Sacramento - Keswick	5,000
		Stanislaus - Goodwin	800
		Trinity - Lewiston	300
<b>Reservoir Storage (TAF)</b>			
San Luis (SWP)	761	San Luis (CVP)	312
Oroville	2,027	Shasta	3,297
New Melones	1,972	Folsom	522
<b>Delta Operations</b>			
DCC	Closed	Sacramento River at Freeport (cfs)	~20,700
Outflow Index (cfs)	~11,800	San Joaquin River at Vernalis (cfs)	~3,000
E:I	~43% (14-day avg.)	X2	75 km

Factors controlling Delta exports:

- 12/10/2019-12/17/2019: US Army Corps permits and available physical capacity.

Approximate OMRs as of 12/14/2019:

	USGS gauges (cfs)	Index (cfs)
Daily	-8,100	-7,600

	USGS gauges (cfs)	Index (cfs)
5-day	-7,100	-7,100
14-day	-7,400	-7,300

Approximate OMRs as of 12/16/2019:

	Index (cfs)
Daily	-9,400
5-day	-8,000
14-day	-7,600

#### *Weather Forecast*

Dry weather will continue today with a chance of precipitation tonight and tomorrow in the Sacramento area. Cool temperatures and patchy frost in the valley this morning. Precipitation chances return tonight and over the weekend. Snow accumulation is looking to be 1-4" with most of the accumulation above 4000 feet. Snow level rising later this week.

#### **Agenda Item 4. Smelt Working Group**

The Smelt Working Group met on Monday, 12/16/2019.

The Smelt Working Group (SWG) reviewed current Delta conditions, survey data, expected exports, and forecasted weather. The SWG indicated that the precipitation forecasted for mid-week would be minor, and a “first flush” event is unlikely to occur this week. Field surveys have not detected any Delta Smelt outside of the Sacramento Deepwater Ship Channel in the past week. Turbidity levels are low and steady. Current OMR index values of -9,400 cfs are expected to remain steady for the week and these highly negative flows in the OMR corridor were of concern to the group. The SWG concluded that there was no evidence of fish in the entrainment zone and not enough information to warrant advice.

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 SWG will meet again on Monday, 12/23/2019, at 10 am.

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

**Fish Monitoring:** The following table presents fish monitoring data summarized over the past week. Unless otherwise noted, reported races are based on fork length (length-at-date).

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>	Chipps Is. Midwater Trawl <sup>D</sup>	Mossdale Kodiak Trawl <sup>D</sup>
Sample Date		12/6-12/16	12/9-12/16	12/9-12/13	12/8-12/10, 12/12-12/13	12/8-12/13	12/9, 12/11, 12/13
FR Chinook		65	155	76	7		

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>	Chipps Is. Midwater Trawl <sup>D</sup>	Mossdale Kodiak Trawl <sup>D</sup>
SR Chinook		671	192	31	7		
WR Chinook		438	296	78	47		
LFR Chinook		22	7	4	7	1	
Chinook (ad-clip)		3 WR 13 LFR	1 WR 54 LFR	1	19	3	
Steelhead (wild)		6					
Steelhead (ad-clip)		1	2		1		
Green Sturgeon							
Flows (avg. cfs)		9,156	9,730				
W. Temp. (avg. °F)		53.0	52.6				
Turbidity (avg. NTU)		18.5	34.40				

<sup>A</sup> GCID RST removed from bypass channel on 12/1/2019 due to high flows and heavy debris, and for repairs.

<sup>B</sup> Tisdale RST sampling period was from 12/6/2019 at 9:45 am to 12/16/2019 at 10:00 am.

<sup>C</sup> Knights Landing RST sampling period was from 12/9/2019 at 2:00 pm to 12/16/2019 at 10:30 am. Cone effort was 50%. Trap cones raised on 12/10/2019 due to excessive large woody debris prior to cleaning out livewell allowing for the possibility of fish to escape from the livewell.

<sup>D</sup> Data reported in the 12/8/2019 to 12/14/2019 DJFMP sampling summary.

### Red Bluff Diversion Dam (RBDD) (Received after the conclusion of the call)

USFWS biweekly report (12/3/2019-12/16/2019) for preliminary estimates of passage by Brood Year (BY) and run for unmarked juvenile Chinook salmon captured by rotary screw traps at RBDD included:

Run and Species	Biweekly Total	BY Total (90% CI)
Winter-run Chinook (BY2019)	139,610	3,932,808 (2,573,081-5,292,535)
Spring-run Chinook (BY2019)	20,808	257,777 (155,647-359,908)

### Juvenile Green Sturgeon Monitoring Summary for DOSS; 12/17/2019 Sampling Season Summary

- One juvenile green sturgeon was tagged on 12/10/2019 at sampling site northwest of Sherman Lake: 2017 brood year; 67.5 cm FL (A69-1602-12221)
- Two juvenile green sturgeon tagged 12/12/2019 at sampling site northwest of Sherman Lake:
  - 1 2017 brood year; 69.5 cm FL (A69-1602-12220);
  - 1 2018 brood year; 48 cm FL (A69-1602-12330)

- Three juvenile green sturgeon detected at sampling site northwest of Sherman Lake:
  - 1 tagged 12/27/2018 detected 12/10/2019 (A69-1602-12231);
  - 1 tagged 2/7/2019 detected 12/10/2019 (A69-1602-11446);
  - 1 tagged 10/3/2019 detected 12/10/2019 (A69-1602-12235) at sampling site northwest of Sherman Lake (A69-1602-12229)
- One juvenile white sturgeon tagged 8/6/2019 detected 12/10/2019 and 12/12/2019 at sampling site northwest of Sherman Lake (A69-1602-12229)
- One adult green sturgeon tagged at Tisdale weir 4/26/2019 at sampling site northwest of Sherman Lake (A69-9001-15850)
- One adult white sturgeon tagged at Fremont Weir 5/4/2017 at sampling site northwest of Sherman Lake (A69-1602-12229)
- Five adult white sturgeon tagged by USFWS Lodi staff in the San Joaquin River detected at sampling site northwest of Sherman Lake:
  - 1 tagged 3/11/2014 detected 12/10/2019 and 12/12/2019 (A69-9001-25741);
  - 1 tagged 4/03/2014 detected 12/10/2019, and 12/12/2019 (A69-9001-27462);
  - 2 tagged 3/31/2016 detected 12/10/2019 and 12/12/2019 (A69-9001-19545) and (A69-9001-19546);
  - 1 tagged 3/14/2014 detected 12/10/2019
- One adult white sturgeon tagged by UCD Biotelemetry Lab at an unknown location in August 2011 detected at sampling site northwest of Sherman Lake 12/10/2019 (A69-1303-56454)
- One adult white sturgeon tagged by UCD Biotelemetry Lab at an unknown location in April 2014 detected at sampling site northwest of Sherman Lake 12/10/2019 and 12/12/2019 (A69-9001-25623)

### **CDFW Lower American River Carcass Survey**

Reporting for survey period 12/9/2019-12/13/2019:

- 3,202 observed carcasses
  - 703 females
    - 257 unclipped
    - 446 clipped
    - 703 female carcasses evaluated for spawn condition:
      - 176/703 (25%) prespawn mortalities
      - 40/703 (6%) partially spawned
      - 456/703 (65%) spawned
      - 31/703 were too deteriorated to determine spawning condition
  - 599 males
    - 150 unclipped
    - 449 clipped
  - 203 Jaw Tag Recaptures
  - 1,697 carcasses too deteriorated to determine sex

- Temperatures at Fair Oaks (USGS gage 11446500, ~0.25 mile downstream of Hazel Ave) during the survey period:
  - Minimum: 54.0°F
  - Mean: 54.3°F
  - Maximum: 54.9°F

**Hatchery Releases (Received after the conclusion of the call):**

The release of the second spring-run surrogate group (late fall-run hatchery Chinook salmon from Coleman National Fish Hatchery (CNFH) will occur on 12/18/2019. The release group will have 77,672 fish. All Chinook salmon are ad-clipped and coded wire tagged (CWT) and will be released into Battle Creek at the CNFH.

The release of 270,471 hatchery-produced steelhead from CNFH will occur on 12/19-20/2019. Fish will be released at Bend Bridge on the Sacramento River. All fish are ad-clipped.

**Agenda Item 6.**

**Fish Monitoring: Salvage**

Griffiths (CDFW) provided the following salvage summary for the period of 12/9/2019-12/15/2019.

*Chinook salmon*

Unclipped (wild origin) Chinook: No wild origin Chinook salmon were salvaged this week. Total WY20 salvage of wild-origin Chinook salmon is 12 fish.

Clipped (hatchery origin) Chinook: Weekly salvage of ad-clipped Chinook salmon included 40 spring-run sized fish, 32 late-fall-run sized fish, and 40 fall-run sized fish. Total WY20 salvage of ad-clipped Chinook salmon is 112 fish.

*Steelhead*

Unclipped steelhead: none have been salvaged this season.

Clipped steelhead: no fish salvaged this week. Season total to date is 4 fish.

*Sturgeon*

No sturgeon salvaged yet this season.

*Operations*

The SWP continues to reduce counts to 10 minutes/2 hours of exports due to heavy vegetation in the holding and counting tanks.

No reduced counts occurred at the CVP.

Most of the adipose fin clipped fish collected at the CVP were Salmon Conservation and Research Facility (SCARF) fish released into the San Joaquin River. All of the SCARF fish are ad-clipped, CWT, and PIT tagged. The CVP standard operating procedure is to sacrifice all ad-clipped fish to read their CWTs, including PIT tagged fish. Discussions regarding the ability to

release ad-clipped fish with PIT tags ensued. Release of these fish will enhance and increase the power of the research design for their associated studies. CDFW will investigate how to proceed regarding this operational issue with the management of the different fish agencies.

## DOSS Weekly Salvage Update

Reporting Period: December 9-December 15, 2019  
 Prepared by Kyle Griffiths on December 16, 2019 16:7  
 Preliminary Results -Subject to Revision

Criteria	9-Dec	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec	15-Dec	Trend	
<b>Loss Densities</b>									
Wild older juvenile CS	0	0	0	0	0	0	0	↘	0.00
Wild steelhead	0	0	0	0	0	0	0	→	0.00
<b>Exports</b>									
SWP daily export	13,238	12,609	11,808	11,869	13,165	15,234	15,214	→	13,305
CVP daily export	6,922	6,923	6,942	6,915	7,419	8,062	8,127	↗	7,330
SWP reduced counts	100%	100%	100%	100%	100%	100%	100%		
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	0	0	→	0	0
Spring Run	0	0	→	0	0
Late Fall Run	0	0	↘	8	6
Fall Run	0	0	↘	4	3
Unclassified	0	0	→	0	0
<b>Total</b>	<b>0</b>	<b>0</b>		<b>12</b>	<b>9</b>
<b>Hatchery</b>					
Winter Run	0	0	→	0	0
Spring Run	40	28	↗	40	28
Late Fall Run	32	23	↗	32	23
Fall Run	40	28	↗	40	28
Unclassified	0	0	→	0	0
<b>Total</b>	<b>112</b>	<b>79</b>		<b>112</b>	<b>79</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	0	0	→	0	0
Hatchery	0	0	→	4	3
<b>Total</b>	<b>0</b>	<b>0</b>		<b>4</b>	<b>3</b>

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

**Agenda Item 7.**

**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 Chipps Island)</b>
<i>Young-of-year (YOY) winter-run Chinook salmon</i>	55-70% (Last week: 75-80%)	30-45% (Last week: 20-25%)	0% (Last week: same)
<i>Young-of-year (YOY) spring-run Chinook salmon</i>	87-90% (Last week: 92-95%)	10-13% (Last week: 5-8%)	0% (Last week: same)

**Rationale for changes in distribution**

*Wild winter-run Chinook salmon:*

Over 3.9 million BY 2019 winter-run Chinook salmon have passed RBDD this year and approximately 6,300 BY19 winter-run Chinook salmon have been captured by the GCID RSTs since 8/1/2019. In the last week, 438 length-at-date winter-run Chinook salmon were captured at Tisdale, 296 at Knights Landing, 78 at the beach seines, and 47 in the Sacramento trawl. Since a greater number of winter-run Chinook salmon were observed over the past week, and taking into consideration that Knights Landing was operating at half cone and had limited sampling time, DOSS estimates that 30-45% of the winter-run population has entered the Delta. Since the valley has received a couple of rain events and two more event are in the forecast this week, increased river flows will likely trigger more winter-run to migrate into the Delta over the next week.

*Wild spring-run Chinook salmon:*

671 length-at-date spring-run Chinook salmon was observed at Tisdale, 192 at Knights Landing, 31 in the beach seines, and 7 in the Sacramento trawl this past week. Since a greater number of spring-run Chinook salmon were observed this past week, DOSS estimates that 10-13% of the spring-run Chinook salmon cohort has moved into the Delta. DOSS took into consideration that Knights Landing was operating at half cone and had limited sampling time. Since more precipitation is in the forecast, increased river flows could trigger part of the spring-run Chinook salmon population to migrate into the Delta over the next week.

**Agenda Item 8.**

**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: MEDIUM** (increased exports and more negative OMRs)
  - Approximately 30-45% of juvenile winter-run Chinook salmon estimated to be in the Delta.
  - Approximately 10-13% of juvenile spring-run Chinook salmon estimated to be in the Delta.
  - California Central Valley steelhead have been observed in monitoring efforts in the northern Delta region
  - Expected storm this weekend to increase river flows.
  - Anticipate outmigration event to coincide with increased flow.
- **Routing Risk: LOW**
  - DCC is closed.
  - Flows are predicted to be high enough to mute tidal effects around Georgiana Slough.
- **Overall Entrainment Risk: LOW-MEDIUM**

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

- **Exposure Risk: LOW-MEDIUM**
  - Listed Chinook salmon from the Sacramento River basin have been observed in multiple monitoring sites in the lower Sacramento River and northern Delta.
  - Flows are expected to increase this week due to precipitation.
  - Salvage is expected to increase this week compared to last week, with a high exports, a more negative OMR which expands the zone of entrainment, and greater numbers of fish in the Delta system.
- **OMR/Export Risk:**
  - OMR -2,500 cfs: LOW

- OMR -3,500 cfs: LOW
- OMR -5,000 cfs: MEDIUM
- OMR -6,250 cfs: MEDIUM-HIGH
- OMR -7,500 cfs: HIGH
- OMR -9,000 cfs: HIGH
  
- **Overall Entrainment Risk:**
  - OMR -2,500 cfs: LOW
  - OMR -3,500 cfs: LOW
  - OMR -5,000 cfs: LOW-MEDIUM
  - OMR -6,250 cfs: MEDIUM-HIGH
  - OMR -7,500 cfs: MEDIUM-HIGH
  - OMR -9,000 cfs: HIGH

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

**Agenda Item 9.**

**WR BY19 JPE discussion**

Stuart (NMFS) reiterated that under RPA Action IV.2.3, the daily older juvenile Chinook salmon loss of greater than 8 fish/TAF is lower than the estimated JPE-based loss density trigger for this year and thus will be the controlling fish density trigger, therefore an interim JPE-based fish density trigger is not necessary.

Also, per RPA Action IV.2.3 beginning 1/1/2020, exports will be managed to produce OMR flows no more negative than -5,000 cfs, or more positive if an action trigger is exceeded.

**Agenda Item 10.**

**DOSS Advice to WOMT and NMFS:**

No operational advice to NMFS or WOMT but a “heads up” for potential fish movement, and the potential for exceeding KLCI or SCI triggers for the third alert of RPA Action IV.3. Listed salmonids are expected to start showing up in salvage at the Federal and State fish facilities in the near future based on current hydrology and the time of year. The reduced period of fish counts at SWP due to heavy vegetation loads increases the chance of exceeding loss density triggers when loss is expanded, however, fewer fish are expected to be salvaged during these periods.

**Agenda Item 11.**

**Next Meeting:** The next DOSS conference call will be on **12/23/2019 at 2 pm.**