

**Delta Operations for Salmonids and Sturgeon (DOSS) Group**  
**Conference call: 11/8/2016 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:** Duane Linander, Ken Kundargi, Bob Fujimura  
**DWR:** Bryant Giorgi, Kevin Reece, Mike Ford, Tracy Pettit  
**NMFS:** Barb Byrne, Kristin McCleery  
**Reclamation:** Towns Burgess, Tom Patton, Mike Hendrick  
**SWRCB:** Chris Carr, Chris Kwan  
**USFWS:** Leigh Bartoo

**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. Fish Monitoring: Salvage
5. Fish Monitoring: RSTs/trawls/seines
6. DOSS Estimates of Fish Distribution
7. Recommendation for release timing of spring-run surrogates from Coleman NFH
8. New features on SacPAS: <http://www.cbr.washington.edu/sacramento/>
9. DOSS advice
10. Next DOSS meeting

**Agenda Item 2.**

**RPA Implementation Review**

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

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

- First Alert: Mill Creek and Deer Creek flows [highlighted cells exceed the first component (>95 cfs flow threshold) or second component (>50% flow change)]:

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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.

| 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 |
| 11/1/2016 | 819                   | 87%                       | 465                   | 32%                       |
| 11/2/2016 | 455                   | -44%                      | 369                   | -21%                      |
| 11/3/2016 | 302                   | -34%                      | 242                   | -34%                      |
| 11/4/2016 | 244                   | -19%                      | 190                   | -21%                      |
| 11/5/2016 | 219                   | -10%                      | 162                   | -15%                      |
| 11/6/2016 | 200                   | -9%                       | 147                   | -9%                       |
| 11/7/2016 | 196                   | -2%                       | 137                   | -7%                       |

- The first alert (triggered if either component is met) was triggered based on Mill Creek and Deer Creek flows >95 cfs or a change in mean daily flow of over 50% (either or both creeks; see table above for details) on 11/1-11/7.
- Second Alert: recent conditions for:
  - Wilkins Slough flow: 6,280-11,429 cfs (range of mean daily flow 11/1-11/7)
  - Knights Landing temperature: 59-61°F (range of temperatures reported at the rotary screw traps during trap checks during the 10/31-11/6 period)
  - The second alert is triggered only if both components are met (Knights Landing temperatures less than 56.3°F and Wilkins Slough flows >7,500 cfs). The second alert has not been triggered this week.

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

- On 11/4/16, the Knights Landing Catch Index (KLCI) was 16.1, which exceeded the trigger requiring DCC gate closure.
- Gates were closed on the morning of 11/6/16.
- The KLCI on 11/5/16 was 10.2 and on 11/6/16 was 5.3, both exceeding the trigger requiring DCC gate closure.

**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 23: Knights Landing Catch Index (KLCI) or Sacramento Catch Index (SCI) >10) was triggered on 11/4/16 (KLCI was 16.1) and 11/5/16 (KLCI was 10.2).
- Since the action went into effect on 11/1/16, no salvage-based triggers that would require export reduction have been exceeded.

<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)

<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)

**Agenda Item 3.**

**Current Operations (11/8/16)**

| SWP                               |                     | CVP                                 |        |
|-----------------------------------|---------------------|-------------------------------------|--------|
| <b>Exports (cfs)</b>              |                     |                                     |        |
| Clifton Court Forebay             | 6,680               | Jones Pumping Plant                 | 4,200* |
| <b>Reservoir Releases (cfs)</b>   |                     |                                     |        |
| Feather - Oroville                | 2,450               | American - Nimbus                   | 1,250  |
|                                   |                     | Sacramento - Keswick                | 5,000  |
|                                   |                     | Stanislaus - Goodwin                | 200    |
|                                   |                     | Trinity - Lewiston                  | 300    |
| <b>Reservoir Storage (in TAF)</b> |                     |                                     |        |
| San Luis (SWP)                    | 475                 | San Luis (CVP)                      | 201    |
| Oroville                          | 1,551               | Shasta                              | 2,817  |
| New Melones                       | 510                 | Folsom                              | 378    |
| <b>Delta Operations</b>           |                     |                                     |        |
| DCC                               | Closed              | Sacramento River at Freeport (cfs)  | 13,572 |
| Outflow Index (cfs)               | 4,500               | San Joaquin River at Vernalis (cfs) | 1,494  |
| E:I                               | 64.5% (14-day avg.) | X2                                  | >81 km |

\*Exports will be reduced to 3,500 on 11/9/16.

Factors controlling Delta exports:

**11/1/16-11/7/16:** D-1641 14-day E:I ratio.

**11/8/16:** D-1641 outflow and seasonal salinity management.

**Agenda Item 4.**

**Fish Monitoring: Salvage**

No listed species have yet been salvaged during WY 2017. Over the past week, several large Chinook have been salvaged at the fish collection facilities. These large Chinook are not assigned to race as they are larger than the maximum size included in the length-at-date criteria used to assign juvenile Chinook salmon to race. The seasonal (10/1/2016 to present) salvage totals of all Chinook salmon at the state facility are 6 adipose clipped and 0 non-adipose clipped.

### DOSS Weekly Salvage Update

Reporting Period: Oct 31-Nov 6, 2016

Prepared by Bob Fujimura on November 7, 2016 21:00

Preliminary Results -Subject to Revision

| Criteria               | 31-Oct | 1-Nov  | 2-Nov  | 3-Nov  | 4-Nov  | 5-Nov  | 6-Nov  | Trend |        |
|------------------------|--------|--------|--------|--------|--------|--------|--------|-------|--------|
| <b>Loss Densities</b>  |        |        |        |        |        |        |        |       |        |
| Wild older juvenile CS | 0      | 0      | 0      | 0      | 0      | 0      | 0      | →     | 0      |
| Wild steelhead         | 0      | 0      | 0      | 0      | 0      | 0      | 0      | →     | 0      |
| <b>Exports</b>         |        |        |        |        |        |        |        |       |        |
| SWP daily export       | 9,485  | 10,122 | 10,122 | 11,398 | 12,661 | 12,548 | 13,064 | ↗     | 11,343 |
| CVP daily export       | 8,106  | 8,099  | 8,089  | 8,063  | 8,065  | 8,328  | 8,752  | →     | 8,215  |
| 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

Highlight Days = SWP performed predator flushes and secondary louver cleaning resulting in salvage interruptions from 10 to 45 minutes per secondary channel

### 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        | →     | 0            | 0        |
| Fall Run        | 0            | 0        | →     | 0            | 0        |
| Unclassified    | 0            | 0        | →     | 0            | 0        |
| <b>Total</b>    | <b>0</b>     | <b>0</b> |       | <b>0</b>     | <b>0</b> |
| <b>Hatchery</b> |              |          |       |              |          |
| 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    | 6            | NC       | ↗     | 6            | NC       |
| <b>Total</b>    | <b>0</b>     | <b>0</b> |       | <b>6</b>     | <b>0</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         | 0            | 0        |       | 0            | 0        |
| Hatchery     | 0            | 0        |       | 0            | 0        |
| <b>Total</b> | <b>0</b>     | <b>0</b> |       | <b>0</b>     | <b>0</b> |

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

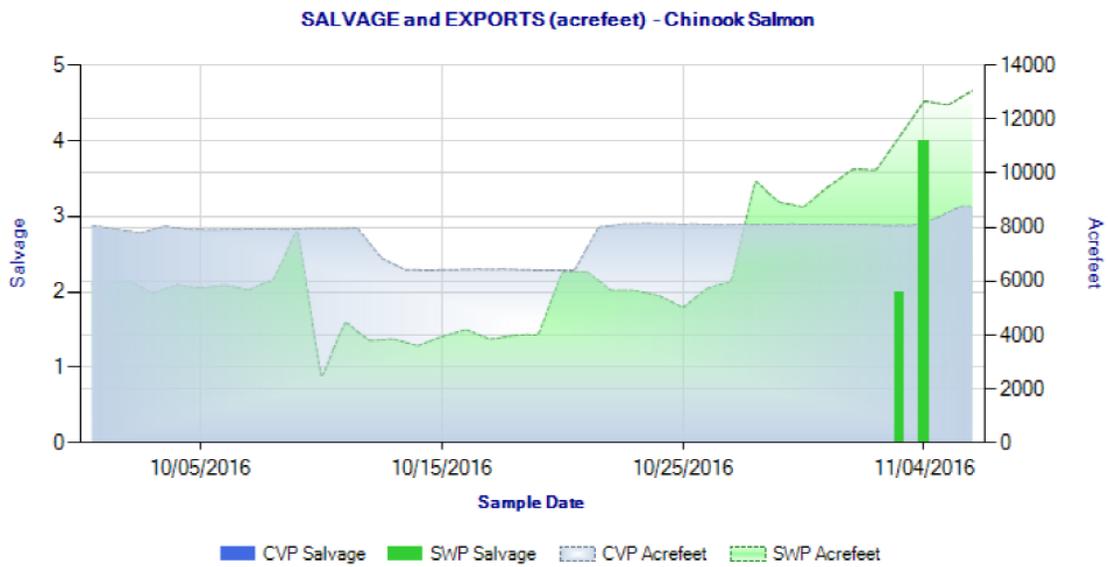


Figure 1. Daily salvage of Chinook Salmon (all races) and water exports from the state and federal fish salvage facilities during Oct 1 through Nov 6, 2016. Graph obtained from the DFG salvage monitoring web-page: <http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx>.

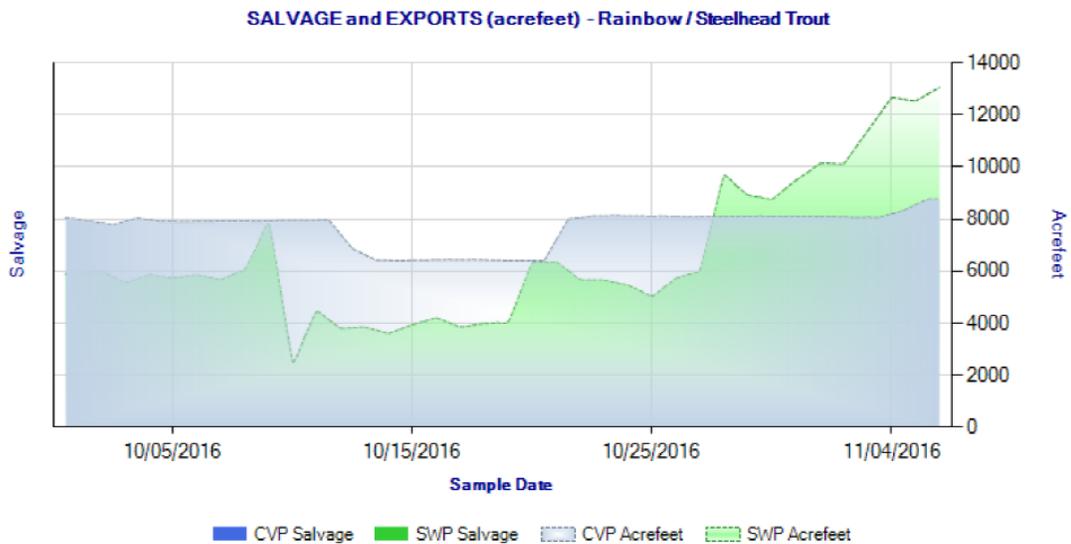


Figure 2. Daily salvage of Steelhead and water exports from the state and federal fish salvage facilities during Oct 1 through Nov 6, 2016. Graph obtained from the DFG salvage monitoring web-page: <http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx>.

**Agenda Item 5.**

**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</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          |   |                               | 11/1-11/7                 | 10/25-11/6                       | 10/30-11/7               | 11/3-11/7             |                                    |
| Total Catch          |   |                               |                           |                                  |                          |                       |                                    |
| FR Chinook           |   |                               |                           |                                  |                          |                       |                                    |
| WR Chinook           |   |                               | 4                         | 34                               | 18                       | 69 juveniles          |                                    |
| SR Chinook           |   |                               |                           | 2                                | 2                        | 8 juveniles           |                                    |
| LFR Chinook          |   |                               |                           | 1                                |                          | 3 juveniles, 6 smolts |                                    |
| Adult Chinook        |   |                               |                           |                                  |                          |                       |                                    |
| Ad-Clipped Chinook   |   |                               |                           |                                  |                          |                       |                                    |
| Delta Smelt          |   |                               |                           |                                  |                          |                       |                                    |
| Splittail            |   |                               | 4                         |                                  |                          |                       |                                    |
| Longfin Smelt        |   |                               |                           |                                  |                          |                       |                                    |
| Steelhead (ad-clip)  |   |                               |                           |                                  |                          |                       |                                    |
| Steelhead (wild)     |   |                               |                           |                                  |                          |                       |                                    |
| Green Sturgeon       |   |                               |                           |                                  |                          |                       |                                    |
| Flows (avg. cfs)     |   |                               |                           | 7405                             | 8410                     | 1031                  |                                    |
| W. Temp. (avg. °F)   |   |                               |                           | 61                               | 55                       | 57                    |                                    |
| Turbidity (avg. NTU) |   |                               |                           | 16                               | 21                       | 22                    |                                    |

<sup>A</sup>Data for the week of 11/1 to 11/7 reported on baydeltalive.com/djfm

<sup>B</sup>Knights Landing RST Sampling period was from 10/25 at 10:45 am to 11/6 at 11 am.

<sup>C</sup>Tisdale RST sampling period was from 10/30 at 10:30 am to 11/7 at 9:30 pm.

<sup>D</sup>GCID RST traps were lowered on 11/3 at 9 am. Sampling period was from 11/3 at 9 am to 11/7 at 12 pm. 4-hour trap checks will continue.

### Red Bluff Diversion Dam (RBDD)

USFWS biweekly report (10/21/16-11/3/16) 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 (BY2016) | 116,834        | 480,666 (371,002-590,330 ) |

### Agenda Item 6.

#### **DOSS Estimates of Fish Distribution**

DOSS estimates of the current distribution of listed Chinook and steelhead, 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> | 75% - 85%<br>(Last week: 92% - 95%)              | 15% - 25%<br>(Last week: 5% - 8%) | 0%<br>(Last week: same)               |

#### **Rationale for changes in distribution**

**Wild winter-run Chinook:** Recent monitoring data indicate an increase in the number of winter-run observed at monitoring stations upstream of and near the Delta entrance: 34 at Knights Landing, 18 at Tisdale, and 69 at GCID, indicating movement into the Delta. Increases in flow and turbidity associated with recent precipitation are cues expected to spur fish movement. Young-of-year winter-run-sized fish have not yet been observed exiting the Delta at Chipps Island.

### Agenda Item 7.

#### **Recommendation for release timing of spring-run surrogates from Coleman National Fish Hatchery**

The group discussed release timing of spring-run surrogates from Coleman National Fish Hatchery (CNFH), based on the information that the late-fall production release will be timed to occur in association with a rainfall event sometime between late November and late December. DOSS recommended the same guidance as last year, that is:

- **1st surrogate release:** ~3 days after the production release, regardless of precipitation events.
- **2nd surrogate release:** Late December, ideally preceding (by ~3-7 days) a precipitation event and at least a week after the previous surrogate release.
- **3rd surrogate release:** Mid-January, ideally preceding (by ~3-7 days) a precipitation event and at least a week after the previous surrogate release.

Byrne (NMFS) will provide this DOSS guidance to staff at CNFH.

### Agenda Item 8.

New features on SacPAS: <http://www.cbr.washington.edu/sacramento/>

Burgess (Reclamation) provided an overview of the functions of the website, focusing on the latest outputs and options for migration modeling.

**Agenda Item 9.**

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

**Agenda Item 10.**

**Next Meeting:** The next DOSS conference call will be on **11/22/16 at 9am.**

The November 15th call will be cancelled due to the Bay Delta Science Conference starting that day. A summary of fish monitoring and operations data will be sent via email and DOSS members will update the winter-run Chinook distribution estimate via e-mail discussion.