

**SMELT WORKING GROUP**  
**Monday, December 8, 2014**

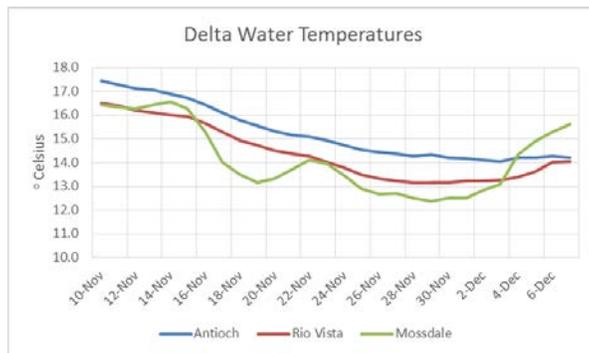
**Meeting Summary:**

**The Working Group did not make a recommendation in projected operations based on a review of current Delta Smelt distribution and salvage data, and current Delta conditions, but noted that the change in hydrology this week anticipated from weather patterns and planned changes in combined pumping will require an additional meeting on December 10 to discuss Delta Smelt entrainment risk.**

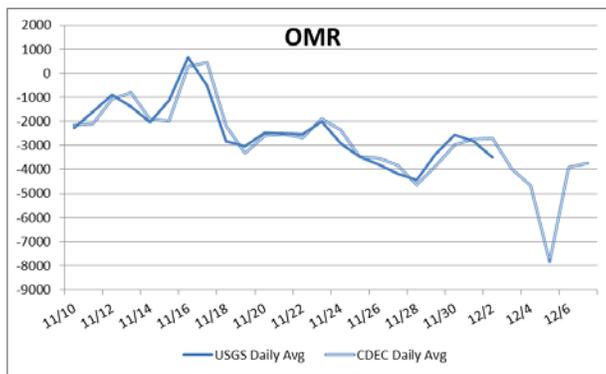
**Reported Data:**

**1. Current environmental data:**

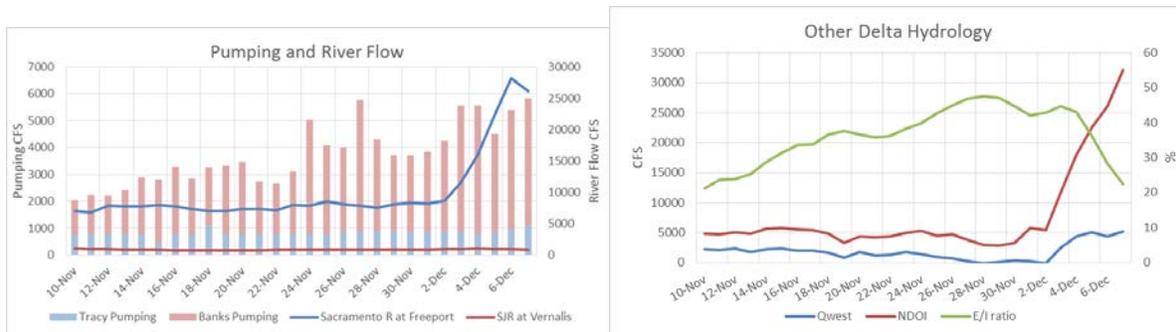
- Water Temperatures are as follows:



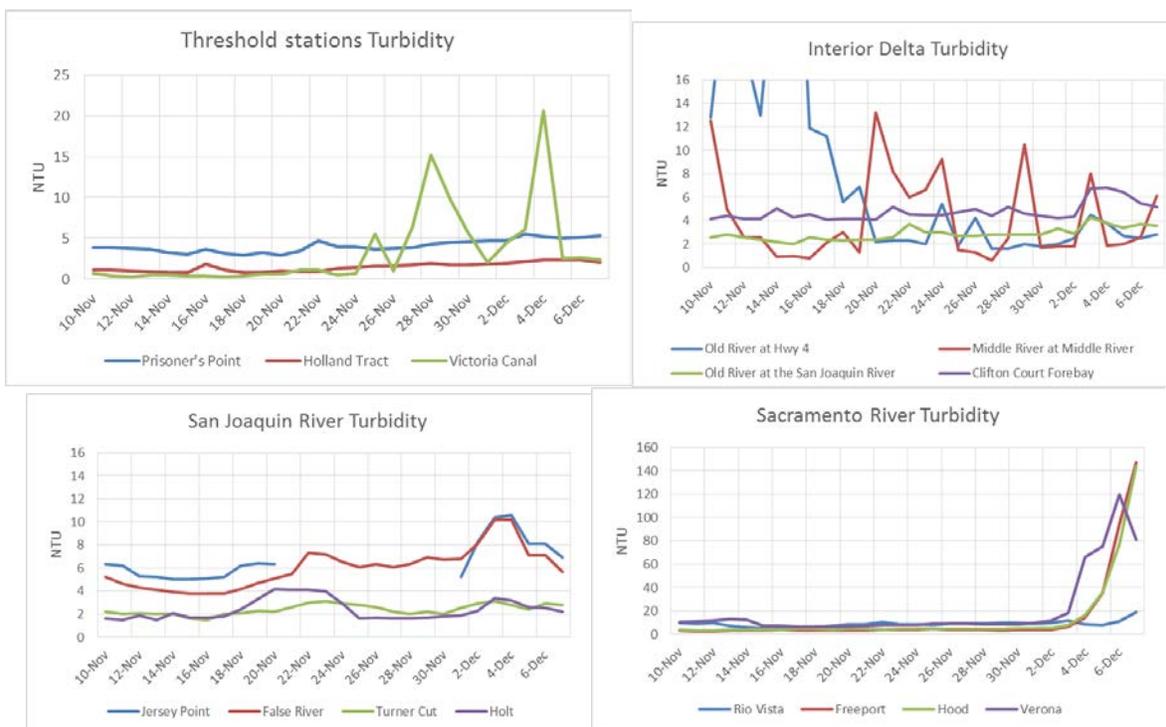
- OMR Flow: USGS tidally-averaged daily OMR as of December 2 is -3510 cfs. CDEC daily OMR flow as of December 7 is -3748 cfs



- River Flows: Sacramento River inflow is 26,125 cfs and San Joaquin River is 848 cfs. X2 calculation from CDEC remains upstream of 81 km. The graphs below show the most recent trends in Delta hydrology and water quality that were evaluated by the Working Group



- **Turbidity:**



## 2. Delta Fish Monitoring:

Spring Kodiak Trawl will begin sampling the week of December 15. The SKT is shadowing the FMWT this week through Wednesday.

The Smelt Larva Survey will begin sampling the week of January 5.

The 2014 Fall Midwater Trawl has completed sampling for September, October, and November. Catches have been very low, on par with POD years' catch results. The 2014 Annual Fall Midwater Trawl Index will be generated using catch results from September through December tows and is anticipated to be released after January 1, 2015.

In the interim, CDFW calculated a partial Delta Smelt index based on the sum of September and October indices (the annual abundance index will be the sum of September through December indices). The September and October index is 8, which is consistent with some of the lower indices encountered since the POD decline.

The USFWS, as part of the Delta Smelt recovery plan, developed an alternate index based on

catch at a subset of FMWT stations during September and October, referred to as the Delta Smelt Recovery Index. The 2014 Delta Smelt Recovery Index (based on September and October) is 5. More information on the Recovery Index can be found on the Bay-Delta Office's web site at [http://www.fws.gov/sfbaydelta/species/delta\\_smelt.cfm](http://www.fws.gov/sfbaydelta/species/delta_smelt.cfm).

CDFW indicated that the September and October Index (based on the FMWT results) for Longfin Smelt is nine. The Longfin Smelt Incidental Take Permit for the SWP indicates that the concern level for take is reached when salvage surpasses 5 times the FMWT index, so the current level of concern is a cumulative salvage of 45. Calculation of the final concern limit will include additional FMWT survey results for November and December, but is anticipated to be relatively small. Larval protection for Longfin Smelt will begin in January.

Other potential surveys were discussed, including the CDFW Bay Study and the Service's Early Warning Study. On December 1 the Bay Study sampled the San Joaquin River from Old River Flats to the confluence without detecting either smelt; both were detected in the lower Sacramento River. The Service began the Early Warning Study on December 1, 2014, alternating sampling days at Jersey Point and Prisoner's Point. Sampling currently is ongoing daily until further notice.

### **3. Salvage:**

No salvage has occurred for either Delta Smelt or Longfin Smelt for WY2015. Current longfin smelt and delta smelt salvage information can be downloaded from DFG's salvage FTP site at <ftp://ftp.dfg.ca.gov/salvage/Daily%20Smelt%20Summary/> or queried from DFG's salvage web page at <http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx>

### **4. Expected Project Operations:**

Combined SWP/CVP exports today are 6300 cfs. Anticipated combined exports for tomorrow are 7600 cfs, while combined exports for December 10 are anticipated to be 9280 cfs. Exports have been controlled by salinity up to this date, but increased inflow through this week is expected to reduce salinity and allow increased exports. Operators indicated they anticipate an OMR of -8500 cfs and Qwest of -5000 cfs on December 10 in response to this pumping rate.

Operators indicated another very wet storm is anticipated to move into the area on Thursday, which should bring 3 to 4 inches of rain to the Sacramento River system and 1 to 2 inches of rain for the San Joaquin River system. Sacramento River at Bend is expected to peak above 70,000 cfs in association with the runoff from this storm.

### **5. Assessment of Risk**

#### **Background:**

RPA Component 1: "Beginning in December of each year, the Service shall review data on flow, turbidity, salvage, and other parameters that have historically predicted the timing of delta smelt migration into the Delta. On an ongoing basis, and consistent with the parameters outlined... [in the BO]...the SWG shall recommend to the Service OMR flows that are expected to minimize entrainment of adult delta smelt" (page 280).

RPA Component 1, Action 1, Part A: "Low-entrainment risk period: delta smelt salvage has historically been low between December 1 and December 19, even during periods when first flush conditions (i.e., elevated river inflow and turbidity) occurred. During the low-entrainment risk period, the SWG shall determine if the information generated by physical (i.e. turbidity and river inflow) and biological (e.g., salvage, DFG trawls) monitoring indicates that delta smelt are vulnerable to entrainment or are likely to

migrate into a region where future entrainment events may occur. If this occurs, the Service shall require initiation of Action 1 as described in Attachment B [of the BO]. Action 1 shall require the Projects to maintain OMR flows no more negative than -2,000 cfs (14-day average) with a simultaneous 5-day running average flow no more negative than -2,500 cfs to protect adult delta smelt for 14 days” (page 281).

**Discussion:**

The Working Group reviewed and discussed all relevant data from Delta monitoring, salvage, field surveys, and planned Project operations. The Working Group agreed that although no recommendation was to be made today. The group will reconvene December 10 at 1pm to discuss updated survey and hydrology data and potentially make a recommendation on OMR at that time.

Members discussed the anticipated OMR flow in response to the planned increase in combined pumping. Members indicated the highly negative OMR predicted would pull particles (and potentially fish) from the lower Sacramento River and could reduce the early warning potential with sampling results. Numbers of Delta Smelt in all sampling efforts to date have been low, with most stations indicating no detection; however a few detections have been made in the lower San Joaquin and the lower Sacramento rivers; in both cases in areas that would be under the influence of the pumps given the expected OMR flows later this week.

The Working Group discussed similarities between this year and December 2012, when salvage and entrainment became a concern. The members discussed the importance of acting early to avoid pulling fish into the Central and Southern Delta, and minimize the entrainment risk later in the year. Members indicated they want to take actions before the runoff reaches the Delta, because taking action after hydrology changes is often not as effective.

Some members indicated that the few fish that have been captured in surveys are small and of generally poorer condition. Members indicated this may also influence the fish’s ability to avoid being pulled into the south Delta.

The Working Group decided to meet again on December 10, as additional survey results will be available at that time. Some members indicated they do not anticipate any different results by then in the data. Although the Working Group agreed that the environmental conditions appear to be urgent, most individuals agreed we could wait to meet and make any recommendations on December 10.

## WEEKLY ADVICE FOR THE DEPARTMENT OF FISH AND WILDLIFE FOR LONGFIN SMELT

### **Advice for week of December 8, 2014:**

The Smelt Working Group does not have any advice for Longfin Smelt based on recent information. This is the first Longfin Smelt advice document for water year 2015.

Barker Slough operations advice was not provided by the Smelt Work Group, because the meeting occurred prior to concern period beginning January 15 (see #5 below).

### **Basis for advice:**

The 2009 State Water Project 2081 for Longfin Smelt states that advice to WOMT and the DFW Director shall be based on:

1. Adult Salvage – total adult ( $\geq 80$ mm) Longfin Smelt salvage (SWP+CVP) for December through February  $> 5$  times the Fall Midwater Trawl Longfin Smelt annual abundance index.
2. Adult abundance, distribution or other information indicates that OMR flow advice is warranted.
3. Larva distribution in the Smelt Larva Survey or the 20mm Survey finds Longfin Smelt larvae present at 8 of 12 central and south Delta sampling stations in 1 survey (809, 812, 815, 901, 902, 906, 910, 912, 914, 915, 918, 919; see Figure 1).
4. Larva catch per tow exceeds 15 Longfin Smelt larvae or juveniles in 4 or more of the 12 survey stations listed.
5. During the period January 15 through March 31 of a dry or critically dry water year only, advice for Barker Slough pumping plant operations may be warranted if larval Longfin Smelt are detected at station 716 and other information indicates risk of entrainment.

### **Discussion of Criteria**

1. As of December 8, 2014, no Longfin Smelt have been salvaged for the water year. The interim Longfin Smelt adult salvage threshold for advice is  $> 45$  (see criterion in #1 above), which is based on a combined

September and October Fall Midwater Trawl Longfin Smelt index of 9. It will be revised up when November and December indices are calculated and included in the annual abundance index. No advice is warranted based on this criterion.

2. December Bay Study sampling collected no Longfin Smelt in the San Joaquin River or the south Delta, suggesting no recent proximity to the export pumps. Fall Midwater Trawl samples the central and south Delta later this week. Distribution information does not indicate advice is warranted based on this criterion.

3 & 4. The first Smelt Larva Survey (SLS) of 2015 will be conducted beginning January 5th.

5. Too early for water year classification.

Current conditions: Sacramento River flow has been low (about 10,000 cfs or less) since mid-November and X2 has been >81. Combined State and federal export have been at 4,000 cfs or less through all but a couple days in November. Qwest has been weakly positive through the last half of November. OMR has been trending more negative through the latter half of November, to more negative than -4,000 cfs November 28. The Sacramento River flow is expected to peak at >70,000 cfs sometime after runoff arrives from rains later this week and export facilities are increasing exports daily beginning today such that by Friday both facilities will be at full capacity. By Friday December 12, Qwest is expected to be -5,500 cfs and OMR index at -8,500. Such conditions increase the risk to fishes in the San Joaquin River at and upstream of Jersey Point and regions farther south.

#### Summary of Risk:

Risk of entrainment is very low, but this could change at any time with an influx of Longfin Smelt.

The collection of no adult Longfin Smelt in salvage or in the San Joaquin River within the central Delta (Bay Study sampling) to date suggests few fish have moved into the central or south Delta for spawning. Predicted hydrodynamic conditions, particularly the strong negative OMR and Qwest values, pose a high risk for fish that do move into the central Delta. Enhanced sampling will be conducted in the Delta this week: a Kodiak Trawl crew is shadowing the FMWT as it samples within the Delta and “early warning sampling” comprised of Kodiak trawling daily with sampling (15 tows) alternating between Jersey Point and Prisoners Point. This sampling should inform the SWG on Wednesday December 10 of any distribution shift into the central or south Delta.