

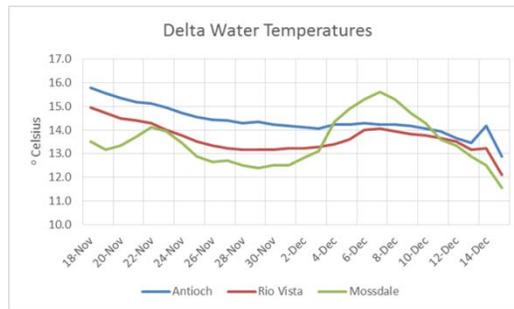
**SMELT WORKING GROUP**  
**Tuesday, December 16, 2014**

**Meeting Summary:**

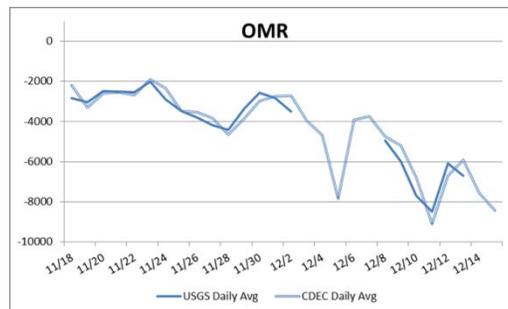
The Working Group held its originally scheduled meeting on Monday, December 15, and reconvened on Tuesday, December 16 to again discuss Delta Smelt entrainment risk. After a review of current Delta Smelt distribution and salvage data, and current Delta conditions, the Working Group recommended that Action 1 be implemented immediately. There is mounting evidence in the Early Warning Survey catch data that adult Delta Smelt are actively moving in response to Delta conditions, which include increasing turbidity in the central and south Delta. These data indicate a high level of risk with regard to Delta Smelt entrainment. The Working Group will continue to monitor Delta Smelt survey and salvage data, and Delta conditions and will meet again Monday, December 22, 2014.

**Reported Data:**

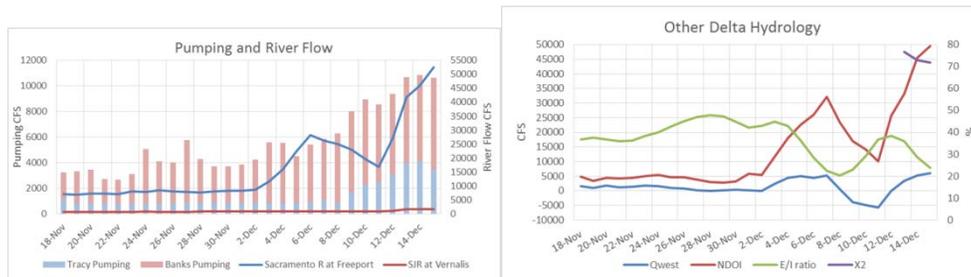
1. **Current environmental data:**
  - Water Temperatures are as follows:



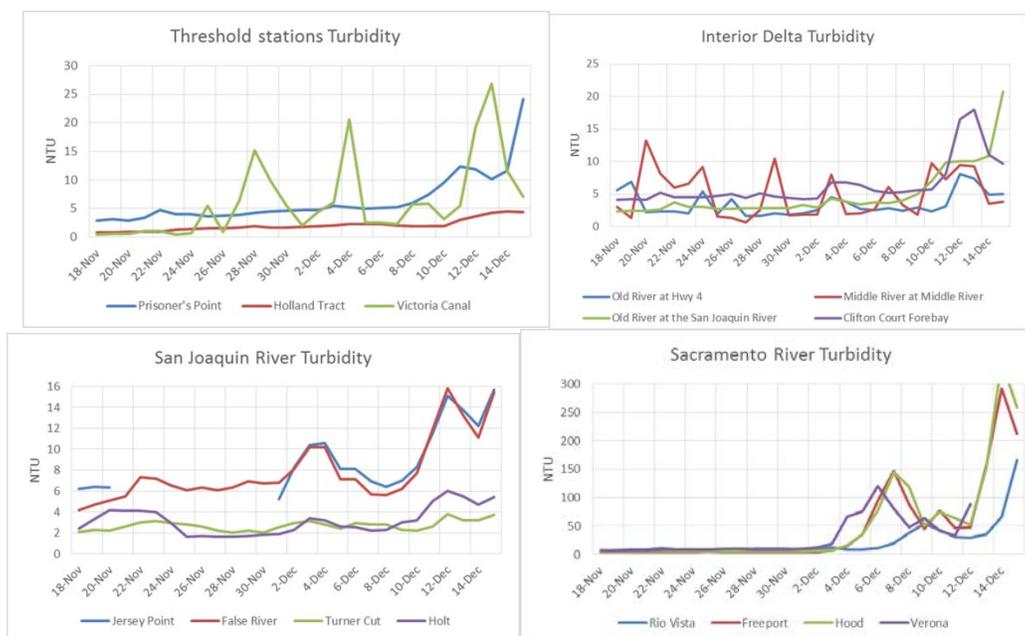
- OMR Flow: USGS tidally-averaged daily OMR as of December 13 is -6710 cfs. CDEC daily OMR flow as of December 15 is -8439 cfs



- River Flows: Sacramento River inflow is 52,500 cfs and San Joaquin River is 1595 cfs. X2 calculation from CDEC is 72km. 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:

The December SKT commenced on Monday, December 15. One Delta Smelt was collected at station 815 (Prisoner’s Point). Preliminary results from today (12/16) report Delta Smelt presence in the confluence area (2 Delta Smelt at station 804, 1 Delta Smelt at station 513), and west of the confluence (1 Delta Smelt at station 519 and 1 Delta Smelt at station 501). No Delta Smelt were observed in the Mokelumne River stations.

The Service’s Early Warning Study reported Delta Smelt catches at Jersey Point on 12/15 (17 Delta Smelt), and Prisoner’s Point on 12/16 (3 Delta Smelt). Since last Friday, the Delta Smelt catch data from the Early Warning Study are as follows:

- 12/12 Prisoners Point=1 Delta Smelt
- 12/13 Jersey Point=3 Delta Smelt
- 12/14 Prisoner's Point=1 Delta Smelt
- 12/15 Jersey Point=17 Delta Smelt
- 12/16 Prisoner's Point=3 Delta Smelt

### 3. **Salvage:**

No salvage has occurred for either Delta Smelt or Longfin Smelt for WY2015.

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

Combined SWP/CVP exports today are 5800 cfs as of this afternoon. Operators indicated the reduction in pumping was an attempt at managing turbidity levels, with the goal that elevated levels will not reach the south Delta. This level of pumping is anticipated through at least Friday. Operators indicated they anticipate an OMR of -5000 cfs and for Qwest to remain positive in response to this pumping rate.

### 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:

At Monday's meeting, the Working Group recommended no change in projected operations for the week because of the voluntary reductions in pumping over the weekend from -9000 to -6000 OMR. However, the Working Group remained concerned about Delta Smelt entrainment risk, and agreed to the need to reconvene on Thursday to consider entrainment risk based on the available data at that time. Upon receiving the Monday (12/15) Early Warning Survey catch data from Jersey Point, the Working Group moved the meeting time up to today (Tuesday, 12/16).

The Working Group reviewed and discussed all relevant data from Delta monitoring, salvage, field surveys, and planned Project operations, with specific focus on the updated Early Warning Survey catch data from Jersey Point and Prisoner's Point, spring Kodiak trawl (SKT) data, and current Delta conditions, including south and central Delta turbidity.

The Early Warning Survey catch data from Monday and Tuesday (12/15 and 12/16) showed a dramatic increase in Delta Smelt abundance at Jersey Point on 12/15 (17 Delta Smelt) as compared to previous catches of 1 or 2 Delta Smelt at this location. The 12/16 Delta Smelt catch of 3 fish at Prisoner's Point was also an increase over previous catches at this location. Of the 8 sampling events at Prisoner's Point since the onset of the Early Warning Survey (12/01), Delta Smelt presence has been confirmed in only the last three events (12/12=1 Delta Smelt; 12/14=1 Delta Smelt; 12/16=3 Delta Smelt). One Delta Smelt was also collected at Prisoner's Point (station 815) in 12/15 SKT survey. This survey is catching fish in all lanes, including the south lane, which is hydrologically more connected to the south Delta than the north lane. While the catch of 17 Delta Smelt at Jersey Point was clearly a significant increase over baseline catch, preliminary analysis indicates the catch of three Delta Smelt in the 12/16 Prisoner's Point survey also represents a significant increase in catch over baseline; there would be less than a 1% chance of having observed 3 or more Delta Smelt at Prisoner's Point given all previous sampling, had there been no change in conditions. The Working Group agreed that this increase in Delta Smelt catches relative to the baseline is reflective of changing conditions and fish movement.

Turbidity in the central and south Delta are increasing, following large increases in turbidity in lower San Joaquin River stations, and along corridors connecting locations in the lower San Joaquin River with documented Delta Smelt presence to the interior Delta: as of 12/16, Mokelumne River at San Joaquin River (> 150 NTU), Prisoners Point (>75 NTU), Old River between San Joaquin and Franks Tract (> 55 NTU), Jersey Point (18 NTU), False River (>20 NTU). Delta conditions at this time are similar to those that occurred in December 2012, where a turbidity pathway was formed and OMR flows were highly negative, resulting in a seasonally early Delta Smelt entrainment event.

Overall length frequency of Delta Smelt from this season's field surveys indicate that this year's Delta Smelt are relatively small and in poor condition, likely due to stressors in the system, including drought. The final 2014 fall midwater trawl (FMWT) survey is not yet complete, however the September through November FMWT catch suggests very low annual FMWT index of relative abundance, and, and thus a very low ITL (Incidental Take level).

At this time, the Working Group agrees that there is evidence of both passive and active Delta Smelt movement into the interior Delta. As described in the Service's BiOp, once the pre-spawn movement has begun, it is difficult to prevent Delta Smelt movement, particularly into areas of high turbidity. The formation of a turbidity pathway from the confluence area through the central Delta into the south Delta further increases Delta Smelt entrainment risk. Setting OMR flows to no more negative than -2000 cfs for 14 days, as described in RPA Component 1, Action 1, is intended to minimize the movement of Delta Smelt into the interior Delta during a "first-flush" early spawning migration by minimizing the draw of turbidity into the interior Delta from the Sacramento River and San Joaquin River, by providing sufficient time for existing turbidity to dissipate, and by minimizing hydrological pull on actively migrating Delta Smelt into the interior Delta.

The Working Group will continue to monitor conditions and smelt distribution and will meet again on Monday, December 22, 2015.