

Smelt Working Group  
February 20, 2018

**Meeting Summary**

The Working Group reviewed current Delta conditions, survey data, current water project operations, and forecasted weather. Current weather conditions are cool and relatively dry, with slight precipitation forecasted over the next few weeks. The 3-station average water temperature (Antioch, Rio Vista Bridge, and Mossdale) has remained below 12°C since February 14, which is the temperature indicative of spawning identified in the Biological Opinion and a trigger for the start of Action 3. Current water exports have been kept to a minimum in an effort to increase and maintain Delta outflow. Based on Delta conditions, reductions in water exports, the forecasted weather, and the lack of recent detections of Delta Smelt from surveys within the entrainment risk area, the SWG concluded that the risk for Delta Smelt and Longfin Smelt entrainment is low. In addition, no larval Delta Smelt have been detected and all of the adult Delta Smelt detected from recent surveys have been pre-spawning adults, which indicates that the spawning season likely has not yet begun.

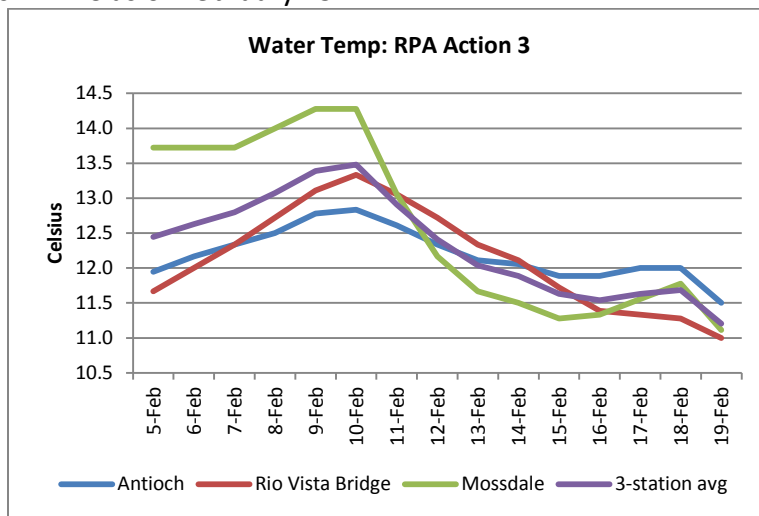
The Working Group does not believe that a recommendation under Action 1, Action 2 (adult pre-spawning Delta Smelt), or Action 3 (larval Delta Smelt) is necessary to protect Delta Smelt at this time. The Working Group will continue to monitor Delta Smelt survey and salvage data, Delta conditions, and this week’s forecasted weather. The group will meet again next Monday, February 26 at 1000 hours.

**Reported Data**

1. **Current environmental data**

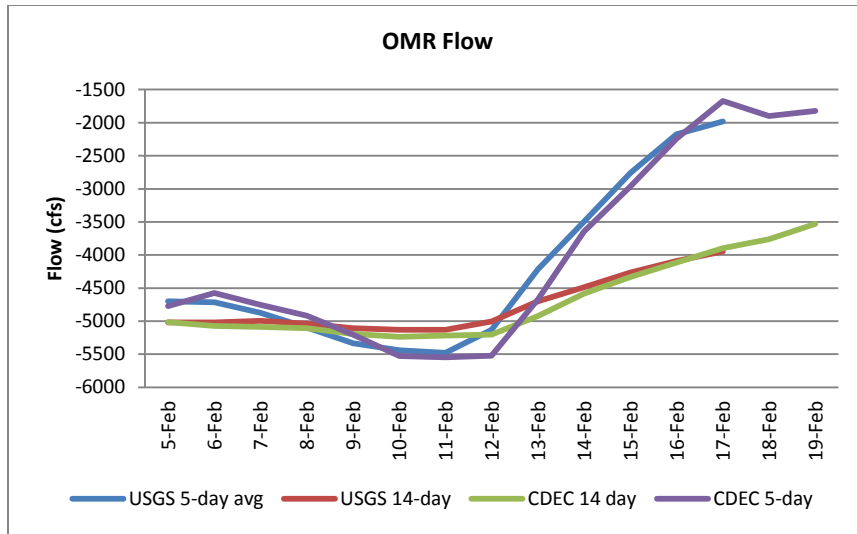
a. **Temperature**

Daily averages of the 3 Delta Stations (Antioch, Rio Vista Bridge, and Mossdale) was 11.2°C as of February 19.



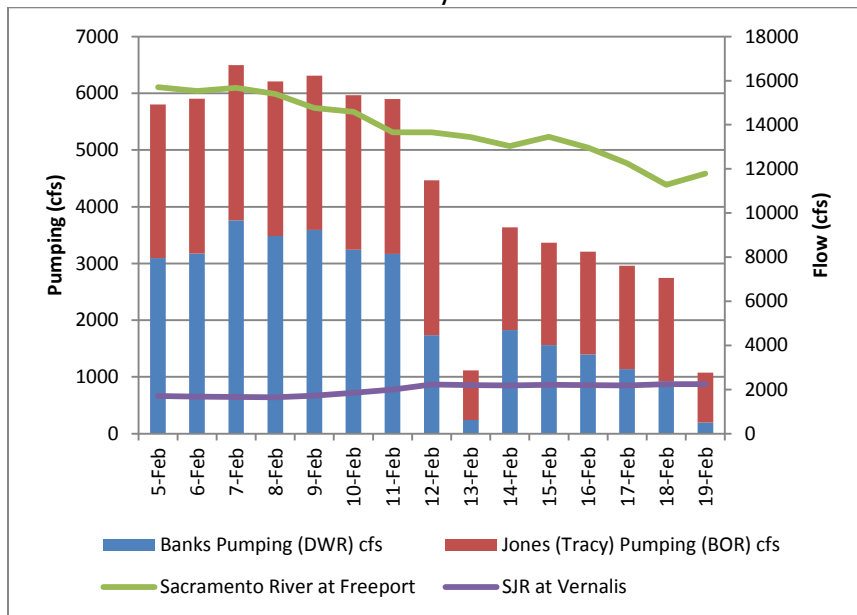
b. **OMR flow**

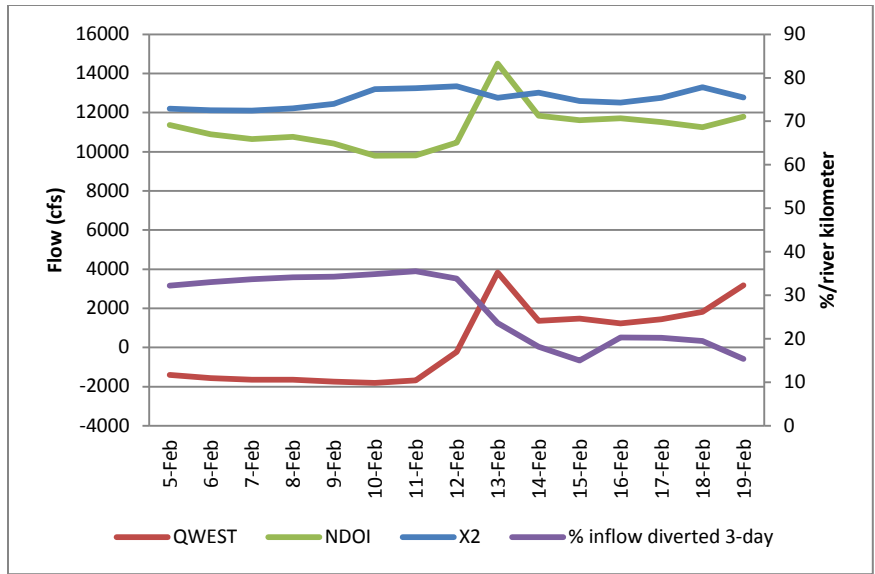
The CDEC daily average OMR flow for February 19 was -708 cfs. USGS daily average OMR flow for February 17 was -2,642 cfs.



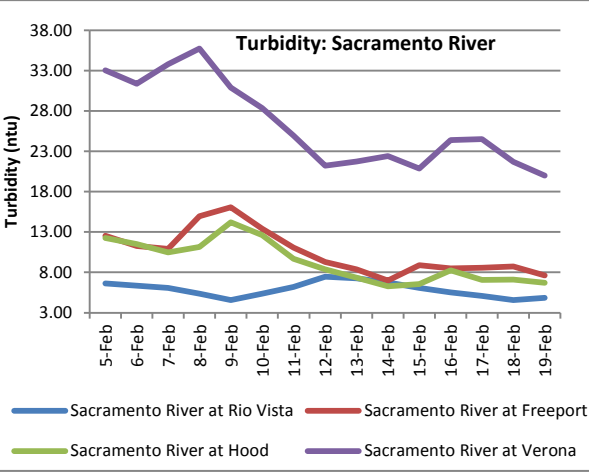
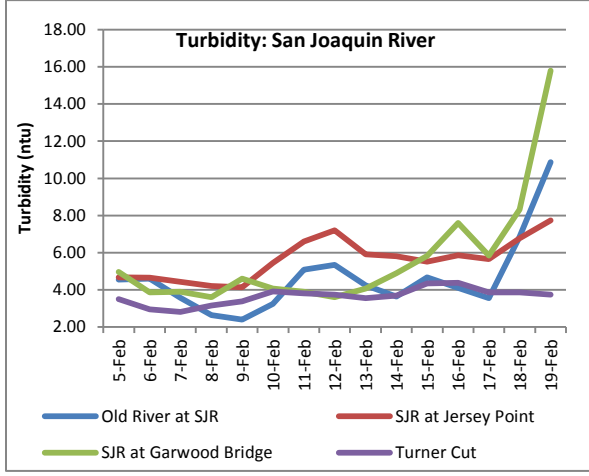
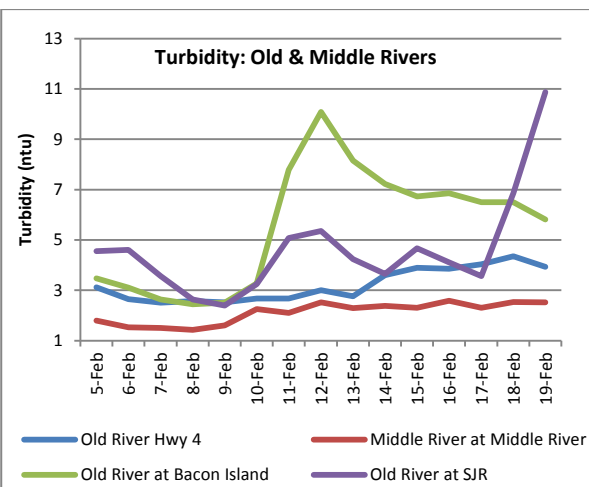
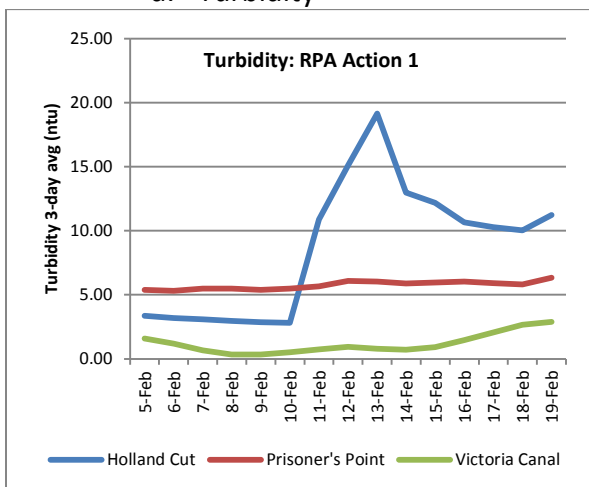
c. River flows and pumping

Sacramento River at Freeport flow for February 19 was approximately 11,794 cfs.  
 San Joaquin River at Vernalis flow for February 19 was approximately 2,242 cfs.  
 X2 was at 75.49 km as of February 19.





d. Turbidity



2. Delta fish monitoring

Approximately 34% of the samples from Smelt Larva Survey (SLS) #4, which was out in the field last week, have been processed. No larval Delta Smelt were observed and 86 larval Longfin Smelt were detected, ranging from 5-10 mm in length. No California Department of Fish and Wildlife smelt-centric surveys are scheduled for this week.

Enhanced Delta Smelt Monitoring (EDSM) was in the field last week and will be in the field this week. Last week, one adult Delta Smelt and 5 adult Longfin Smelt were detected. Complete EDSM catch reports are publicly available [here](#).

### **3. Modeling**

No modeling or PTMs were performed over the past few weeks, and there were no new modeling requests.

### **4. Salvage**

No adult or juvenile stages of Delta Smelt and Longfin Smelt have been observed in salvage so far this season (WY 2018). The group was asked if larvae sampling should be initiated at the fish salvage facilities. One group member mentioned that as conditions remain unchanged and the temperature has dropped off, there is a less of a concern this week than last week for smelt larvae entrainment at the facilities. The overall group consensus is that larvae sampling at the fish salvage facilities is not necessary at this point.

### **5. Expected Project Operations**

Combined pumping for the Banks and Tracy pumping facilities on February 19 was 1,374 cfs, and Net Delta Outflow on February 19 was 11,789 cfs. Pumping is currently restricted by SWRCB D-1641 (Spring X2), which requires enhanced Delta outflow to meet water quality standards. As river flows have dropped due to dry conditions, the combined pumping will be held at around 1,100 cfs for the remainder of this week to maintain Delta outflow.

Ambient temperatures are anticipated to remain cool this week. Slight precipitation is forecasted for the coming weeks.

### **6. Delta Conditions Team**

The DCT met last week and did not have any recommendations for the SWG this week.

### **7. DWR Turbidity Transects**

No turbidity transects have been performed to date. During last week's meeting, it was mentioned that the topic of the necessity of including turbidity transects on the SWG agenda would be re-visited for a final time this week. The turbidity at Holland's Cut has remained relatively high, but one group member mentioned that this is likely due to this past week's high winds instead of flow conditions. Another group member stated that there is no evidence that the high winds have been causing entrainment issues. The overall group consensus is that turbidity transects will no longer be necessary for the rest of the season, and the Department of Water Resources staff no longer needs to be on hand at all times for turbidity transect

deployment. Turbidity transects will no longer be on the agenda for the rest of this season's SWG meetings.

#### **8. Biological Opinion Background:**

RPA Component 1, Action 2 states, "An action implemented using an adaptive process to tailor protection to changing environmental conditions after Action 1. As in Action 1, the intent is to protect pre-spawning adults from entrainment and, to the extent possible, from adverse hydrodynamic conditions."

"The range of net daily OMR flows will be no more negative than - 1,250 to -5,000 cfs. Depending on extant conditions (and the general guidelines below) specific 4 OMR flows within this range are recommended by the Working Group from the onset of Action 2 through its termination..."

The timing of Action 2 is immediately after Action 1. Before this date (in time for operators to implement the flow requirement) the SWG will recommend specific requirement OMR flows based on salvage and on physical and biological data on an ongoing basis. If Action 1 is not implemented, the SWG may recommend a start date for the implementation of Action 2 to protect adult Delta Smelt. (BiOp page 352).

RPA Component 2, Action 3: "The objective of this RPA component (which corresponds to Action 3 in Attachment B), is to improve flow conditions in the Central and South Delta so that larval and juvenile Delta Smelt can successfully rear in the Central Delta and move downstream when appropriate" (page 282).

#### **9. Assessment of Risk Discussion**

##### *Delta Smelt Detections*

So far, SLS #4 has not detected any larval Delta Smelt. Last week, EDSM detected one adult Delta Smelt in the Lower Sacramento near Decker Island. This morning at around 1000 hours, EDSM caught one adult Delta Smelt in the Lower Sacramento River just upstream of Broad Slough. Both were pre-spawning fish and not within close proximity to the pumping facilities. No fish salvaged as yet this season (WY 2018).

##### *Longfin Smelt Detections*

So far, SLS #4 has detected 86 larval Longfin Smelt, with only a few in the South and Central Delta. Last week, EDSM detected 5 adult Longfin Smelt in Suisun Marsh, which is not in close proximity to the pumping facilities. No fish salvaged as yet this season (WY 2018).

##### *General discussion*

Conditions in the Delta are currently cool and dry with slight precipitation forecasted for the coming weeks. Delta outflow is expected to increase as water exports remain low. As recent surveys have not detected any larval Delta Smelt or ripe female adult Delta Smelt, the group consensus is that additional protections for larval smelt are not necessary at this time. One

group member stated that current conditions are sufficiently protective as the risk of entrainment for this week is lower than last week due to reduced exports and the potential delay in spawning due to lower temperatures. Two other group members concurred, and the overall consensus is that the risk for Delta Smelt entrainment this week is lower than it was for last week due to the dip in temperature and lower water exports.

The SWG determined that no recommendation was necessary this week for the protection of Delta Smelt.

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

### **Advice for week of February 20, 2018:**

The Smelt Working Group has no advice for protection of Longfin Smelt.

No advice for Barker Slough operation. Current water year type for the Sacramento River is below normal, which does not trigger concern for Barker Slough risk of entrainment (see Basis for advice #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 February 19, 2018, no Longfin Smelt have been salvaged for the water year. See current conditions discussion below. The 2017 Fall Midwater Trawl Survey annual abundance index for Longfin Smelt is 141, so the salvage threshold is 705. Advice is not warranted based on this criterion.
2. No new juvenile or adult distribution information for February; Bay Study sampling may start this week. January Bay Study sampling was discontinued due to boat issues after sampling within the Delta. No juvenile or adult Longfin Smelt were detected in the central Delta during January survey, but some were collected in the lower Sacramento River. The lack of detection of Longfin Smelt in the central or south Delta makes advice unwarranted.
- 3 & 4. The fourth Smelt Larva Survey (SLS) of 2018 detected two Longfin Smelt larvae at Jersey Point (Station 809) and only a single larvae at two other stations of the 12 central and south Delta criteria stations (Table 1). Based on these criteria, no advice is warranted.

5. Criteria for Barker Slough were scheduled to begin January 15<sup>th</sup> and only go into effect during dry and critical water years. Water year 2018 began classified as “above normal”, but as of January 31 was reclassified as “below normal” (<http://cdec.water.ca.gov/cgi-progs/iudir/WSI>). Based on water year type there is no concern for entrainment of Longfin Smelt larvae. At the time of reporting, SLS survey 4 sample for station 716 had yet to be processed (Table 1). During previous sampling only a single Longfin Smelt larvae was detected at station 716 during survey 3, so risk of entrainment remains low.

**Current conditions:** For February 19, Sacramento River at Freeport was 11,624 cfs and the San Joaquin was about 2,242 cfs. Clifton Court exports were about 300 cfs and Tracy exports were about 900 cfs. Combined exports target about 1,200 cfs to maintain X2 standards. The OMR index was -218 on February 11. Qwest was +3,181 cfs. This should provide for transport/dispersion downstream. In the north Delta, the most current water year designation remains at “below normal”, so North Bay Aquaduct advice is not warranted.

Only four Longfin Smelt larvae were detected at stations from the central or south Delta (Table 1). Current very low export levels pose very little risk of entrainment.

There have been no recent distribution data for juvenile and adult Longfin Smelt. In January, age-1 and older Longfin Smelt were collected by Bay Study in the lower Sacramento River, but not in the lower San Joaquin River. The number of adults returning to spawn in February is expected to peak. To date, sampling of adult Longfin Smelt has been insufficient to support or refute the expectation. Increased outflow in January lowered X2 and likely reduced the fraction of the Longfin Smelt population entering and spawning within the Delta. X2 increased slightly through the end of January and then declined a little. No Longfin Smelt have been salvaged this water year.

**Summary of Risk:** Risk of entrainment is very low due to few Longfin Smelt larvae detected in the central or south Delta, and no juveniles or adults. Hydraulic conditions are as benign as can be expected for this time of year (positive Qwest and only weakly negative OMR). Current hydrodynamic conditions are expected to remain the same through the upcoming week: no significant rain or changes in reservoir releases are expected and water operations target maintaining X2 at Chipps Island, so exports will remain low.



Table 1. Longfin Smelt Larva catch by station in the Smelt Larva Survey, #4. Sample processing is incomplete.

Year	Survey #	SLS Station	Turbidity (NTU)	Sample Status	Species	Smelt Catch	Min Length	Max Length	Mean Length
2018	4	340		Not yet processed					
2018	4	342		Not yet processed					
2018	4	343		Not yet processed					
2018	4	344		Not yet processed					
2018	4	345		Not yet processed					
2018	4	346		Not yet processed					
2018	4	347		Not yet processed					
2018	4	348		Not yet processed					
2018	4	349		Not yet processed					
2018	4	405		Not yet processed					
2018	4	411		Not yet processed					
2018	4	418		Not yet processed					
2018	4	501		Not yet processed					
2018	4	504		Not yet processed					
2018	4	508		Not yet processed					
2018	4	513	23.5	Processed	Longfin Smelt	68	5	10	6.6
2018	4	519		Not yet processed					
2018	4	520		Not yet processed					
2018	4	602		Not yet processed					
2018	4	606		Not yet processed					
2018	4	609		Not yet processed					
2018	4	610		Not yet processed					
2018	4	703		Not yet processed					
2018	4	704		Not yet processed					
2018	4	705		Not yet processed					
2018	4	706		Not yet processed					
2018	4	707		Not yet processed					
2018	4	711		Not yet processed					
2018	4	716		Not yet processed					
2018	4	723		Not yet processed					
2018	4	801	31.6	Processed	Longfin Smelt	11	5	7	6.0
2018	4	804	20.3	Processed	Longfin Smelt	3	7	7	7.0
2018	4	809	10.5	Processed	Longfin Smelt	2	6	7	6.5
2018	4	812	7.9	Processed		No Smelt Catch			
2018	4	815	6.7	Processed	Longfin Smelt	1	8	8	8.0
2018	4	901	9.2	Processed		No Smelt Catch			
2018	4	902	19.8	Processed	Longfin Smelt	1	8	8	8.0
2018	4	906	5.1	Processed		No Smelt Catch			
2018	4	910	6.1	Processed		No Smelt Catch			
2018	4	912	3.4	Processed		No Smelt Catch			
2018	4	914	3.8	Processed		No Smelt Catch			
2018	4	915	6.1	Processed		No Smelt Catch			
2018	4	918	3.9	Processed		No Smelt Catch			
2018	4	919	4.1	Processed		No Smelt Catch			

Barker ITP

SWP ITP Criteria Stations

Processing is complete through 02/15/2018