

Smelt Working Group  
February 21, 2017

**Meeting Summary**

The Working Group reviewed current Delta conditions, survey data, and forecasted weather. The SWG indicated that the anticipated positive OMR flows are sufficiently protective of Delta Smelt.

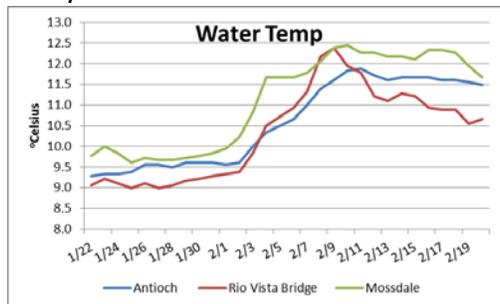
The Working Group is following guidance for entrainment protections from Action 2 (adult Delta Smelt) and Action 3 (juveniles). The Working Group will continue to monitor Delta Smelt survey and salvage data and Delta conditions, and will meet again on Monday, February 27, 2017 at 10 am.

**Reported Data**

1. **Current environmental data**

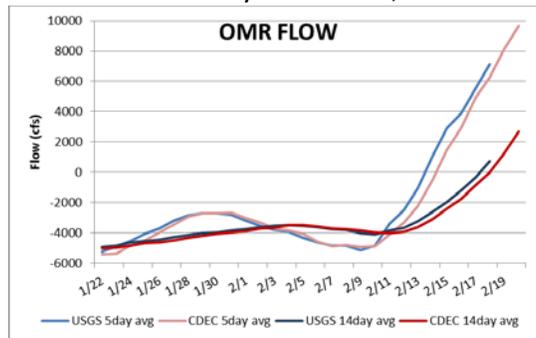
a. **Temperature**

Daily average of the three Delta stations (Rio Vista, Antioch, Mossdale) was 11.3°C on February 20.



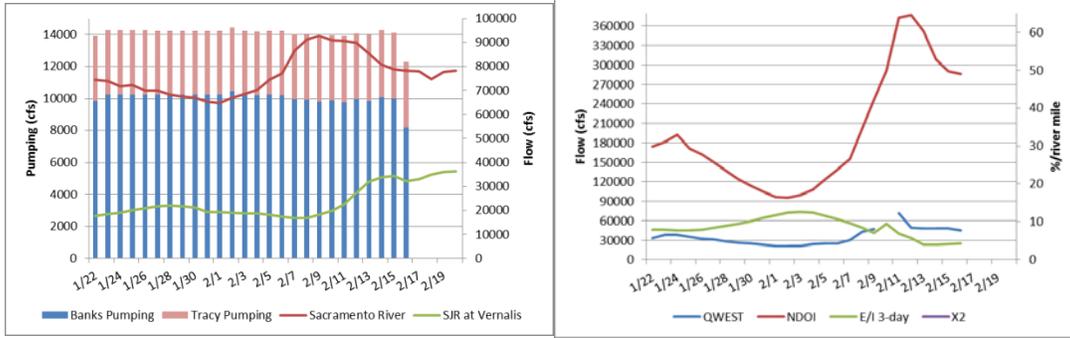
b. **OMR flow**

The CDEC daily average OMR flow for February 20 was 13,643 cfs. USGS daily average OMR flow for February 18 was 10,550 cfs.

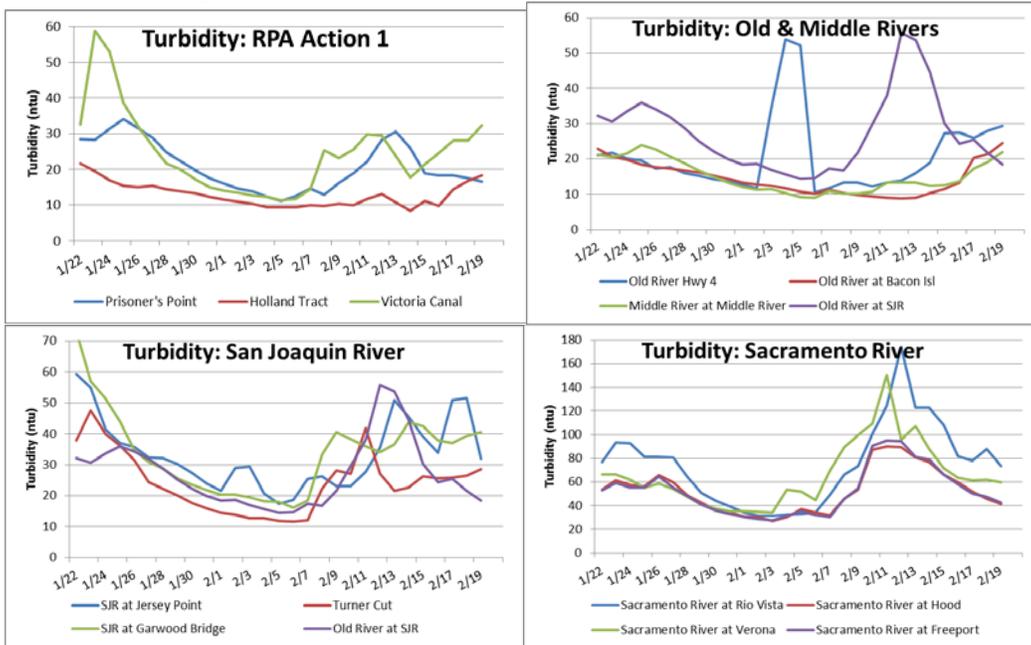


c. **River flows and pumping**

Sacramento River at Freeport flow for February 20 was 78,160 cfs. San Joaquin River at Vernalis flow for February 20 was approximately 36,408 cfs. X2 was downstream of 56 km as of February 20.



#### d. Turbidity



## 2. Delta fish monitoring

The 2016 FMWT Index is 8. This is the 2nd lowest index on record.

SLS #4 was in the field last week, laboratory processing is 35% complete. No Delta Smelt or Longfin Smelt larvae have been identified as yet. SLS #5 is in the field next week.

SKT #3 is in the field the week of March 6th.

No update on the Bay Study.

Enhanced Delta Smelt Monitoring was in the water last week on February 14, 15, and 16.

Sampling from February 10 was included in this week's results.

A total of 6 Delta Smelt were detected: 1 from the high risk/high density zone and 5 from the low risk/low density zone. Crews plan to sample today through Friday of this week, but will not include the high risk/low density zone.

## 3. Modeling

No PTM runs were distributed to the group this morning for discussion.

#### **4. Salvage**

A total of 13 Delta Smelt were salvaged over the past week (9 on February 14 and 4 on February 15, both at the SWP). The seasonal total of Delta Smelt salvage so far is 25 fish.

The CVP has begun their larval sampling. DWR is expecting to begin their larval sampling later this week.

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

Combined pumping today is 7,500 cfs. Pumping currently is unrestrained by OMR levels. OMR is anticipated to remain positive this week. SWP share of San Luis is full. CVP expects to fill their share of San Luis within a week.

Some wet weather is anticipated during the week with another storm coming through next weekend into Monday.

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

No DCT update was given.

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

Members recommended DWR suspend the survey for the remainder of this water year.

#### **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 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).

The ITL for adult Delta Smelt in WY2017 is 64 fish with a concern level of 48 fish. The ITL for juvenile Delta Smelt is 448 fish with a concern level of 298 fish.

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

*Turbidity*

High turbidity levels throughout the Delta were noted.

#### *Delta Smelt Detections*

Members did not draw any conclusions as far as distribution. Salvage of Delta Smelt indicates that fish are present in the south Delta.

#### *EDSM*

Members indicated their concern that the high risk/low density zone does not seem to be sampled as often as other zones. Members indicated this zone is their primary area of concern for the survey and stress the importance of covering this zone sufficiently. It was noted that recent surveys failed to observe fish in this area despite the occurrence of Delta Smelt salvage at the export facilities. Some members deemphasized the need for sampling in other zones since high flows likely decrease Delta Smelt catchability. This is due to the fish seeking flow refuge on the bottom or shallow areas. Members also expressed concern about potential large catches in other zones, since Delta Smelt are out of the water column and in close proximity to each other in refuges. However, catchability of fish may be increased in the south Delta, providing opportunities to compare south Delta abundance with salvage or evaluate our assumptions of Delta Smelt behavior or entrainment in this area. It was acknowledged that sampling in this area has recently been sporadically cancelled for the safety of the field crew due to extreme weather concerns.

Some members also discussed concerns regarding some of the survey protocols. Since the net is left in the water between tows and only the live-box is removed from the water and cleaned out, then fish may be flushed back up the net, rather than into the live-box. Also, heavy debris can clog the mouth of the live-box, which may be pushing fish into the wings of the net, resulting in 'code 9' fish that do not contribute to the abundance estimates. 'Code 9' fish were a concern for the SWG, since the net is not thoroughly examined and cleaned between tows, then the actual station of capture of these fish is not known. Therefore the SWG cannot use this data to infer Delta Smelt distributions. Some members suggested that low density detection could be improved by increasing sampling effort although there was no consensus on this subject. It was acknowledged that prior analyses show the current sampling design has a very high detection probability for each site if implemented without external constraints. Some members suggested adjusting the weekly reporting period for improved interpretation of EDSM results by the SWG members.

#### *Spawning Migration*

Some members indicated that larvae could begin to hatch soon. No conclusions were made regarding what proportion of the population is actively spawning.

#### *General discussion*

Members indicated that the current OMR flow rate (which is considerably more positive than indicated in the Biological Opinion under Actions 2 and 3) should be sufficiently protective of Delta Smelt for the remainder of the week.

The Working Group will continue to monitor conditions and Delta Smelt distribution and will meet again on Monday, February 27, 2017.

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

### **Advice for week of February 21, 2017:**

The Smelt Working Group has no advice for Longfin Smelt: Advice is not warranted at this time given current flow conditions above the off-ramp thresholds at Rio Vista and Vernalis.

No Barker Slough operations advice. Water year runoff is listed to be above normal, eliminating the need for Barker Slough restrictions this water year.

### **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. Based on a genetic analysis, the Longfin Smelt identification in salvage January 6<sup>th</sup> was revised to Wakasagi, so as of February 20<sup>th</sup>, no Longfin Smelt have been salvaged during the current water year. The 2016 Fall Midwater Trawl annual abundance index for Longfin Smelt is 7, so the incidental take limit for adult Longfin Smelt is 35. Given the current water conditions, it is unlikely that any more adults will be salvaged. Advice is not warranted based on this criterion.

2. Bay Study Survey completed sampling for February and collected only two Longfin Smelt, one in San Pablo Bay and one in central San Francisco Bay. In January, the Bay Study Survey collected four Longfin Smelt; one was collected in the San Joaquin River just upstream of the Antioch Bridge; all others were caught farther downstream. Chipps Island Trawl continues to collect low numbers of Longfin Smelt weekly. Enhanced Delta Smelt Monitoring collected a

single Longfin Smelt near Twitchell Island on January 24. No additional survey data are available that would indicate the presence of adult Longfin Smelt in the San Joaquin River or south Delta. As of February 20, Sacramento River flow at Rio Vista appears about 224,000 cfs and well above 55,000 cfs off-ramp; and, San Joaquin River at Vernalis flow at 36,421 cfs; both continue to exceed flow off-ramp outlined in the Incidental Take Permit.

3&4. The fourth Smelt Larva Survey (SLS) of 2017 detected no Longfin Smelt larvae in the central or south Delta during the week of February 13; processing is incomplete for other regions (Table 1). As of February 20<sup>th</sup>, Qwest was 52,500 cfs. The high Vernalis flows remain well above the 8,000 cfs off-ramp for the Incidental Take Permit; thus, no need for OMR restrictions for protecting larvae. Any larvae recently hatched in the San Joaquin River have a low risk of entrainment into the south Delta in the near future so long as Vernalis flows remain above 5,000 cfs and Qwest remains positive.

5. Current measurements place the water year as above normal, thus, Barker Slough export restrictions will not be implemented this water year.

**Current conditions:** As of February 20th, Sacramento River flow at Rio Vista was reported at about 224,000 cfs and on the San Joaquin at Vernalis at 36,421 cfs. Both remain well above the off-ramp thresholds for the Longfin Smelt Incidental Take Permit and will remain so as outflow peaks later this week.

**Summary of Risk:** Risk of entrainment is very low due to high outflow surpassing off-ramp triggers (i.e., no OMR restrictions based on Longfin Smelt ITP).

Table 1. Longfin Smelt catch by station in the 20-mm Survey, #4. Sample processing is incomplete.

Year	Survey #	SLS Station	Turbidity	Sample Status	Species	Smelt Catch	Min Length	Max Length	Mean Length
2017	4	340		Not yet processed					
2017	4	342		Not yet processed					
2017	4	343		Not yet processed					
2017	4	344		Not yet processed					
2017	4	345		Not yet processed					
2017	4	346		Not yet processed					
2017	4	347		Not yet processed					
2017	4	348		Not yet processed					
2017	4	349		Not yet processed					
2017	4	405		Not yet processed					
2017	4	411		Not yet processed					
2017	4	418		Not yet processed					
2017	4	501		Not yet processed					
2017	4	504		Not yet processed					
2017	4	508		Not yet processed					
2017	4	513		Not yet processed					
2017	4	519		Not yet processed					
2017	4	520		Not yet processed					
2017	4	602		Not yet processed					
2017	4	606		Not yet processed					
2017	4	609		Not yet processed					
2017	4	610		Not yet processed					
2017	4	703	164	Processed		No Smelt Catch			
2017	4	704		Not yet processed					
2017	4	705		Not yet processed					
2017	4	706		Not yet processed					
2017	4	707		Not yet processed					
2017	4	711	133	Processed		No Smelt Catch			
2017	4	716	280	Processed		No Smelt Catch			
2017	4	723	130	Processed		No Smelt Catch			
2017	4	801	94.4	Processed		No Smelt Catch			
2017	4	804		Not yet processed					
2017	4	809	128	Processed		No Smelt Catch			
2017	4	812	123	Processed		No Smelt Catch			
2017	4	815	123	Processed		No Smelt Catch			
2017	4	901	74.8	Processed		No Smelt Catch			
2017	4	902	24.7	Processed		No Smelt Catch			
2017	4	906	51.1	Processed		No Smelt Catch			
2017	4	910	38.5	Processed		No Smelt Catch			
2017	4	912	44.3	Processed		No Smelt Catch			
2017	4	914	26.7	Processed		No Smelt Catch			
2017	4	915	26.2	Processed		No Smelt Catch			
2017	4	918	33	Processed		No Smelt Catch			
2017	4	919	75.5	Processed		No Smelt Catch			

Barker ITP

SWP ITP Criteria Stations

Processing is complete through 2/16/2017

Figure 1. CDFW's 2017 Smelt Larva Survey station locations.

