Smelt Working Group
February 27, 2017

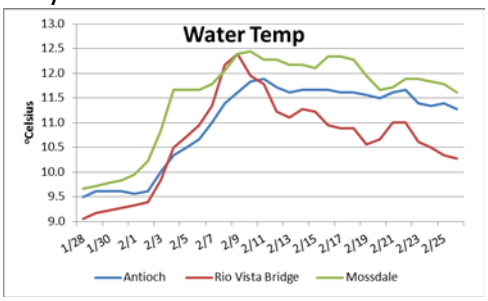
Meeting Summary

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.

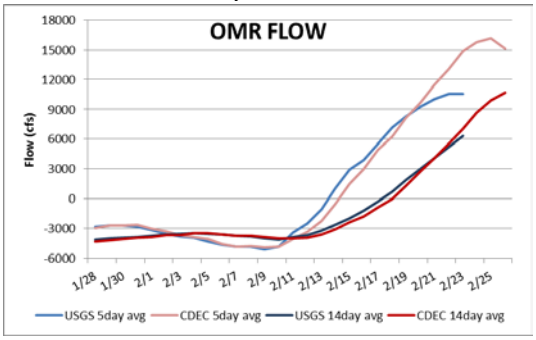
The Working Group is following guidance for entrainment protections from Action 2 (adult Delta Smelt) and Action 3 (juveniles). The Working Group will continue to monitor Delta Smelt survey and salvage data and Delta conditions, and will meet again on Monday, March 6, 2017 at 10 am.

Reported Data

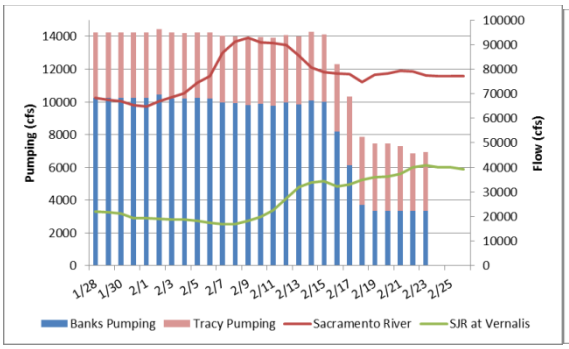
1. **Current environmental data**
    a. Temperature
    Daily average of the three Delta stations (Rio Vista, Antioch, Mossdale) was 11.1°C on February 26.

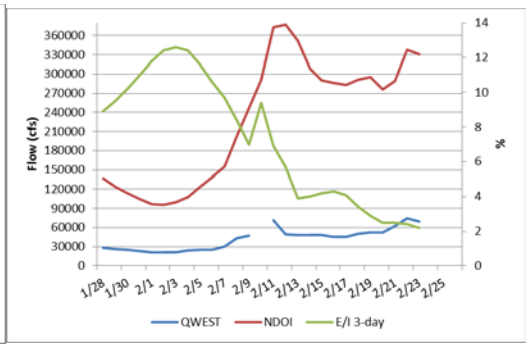


    b. OMR flow
    The CDEC daily average OMR flow for February 26 was 9,087 cfs. USGS daily average OMR flow for February 23 was 10,555 cfs.

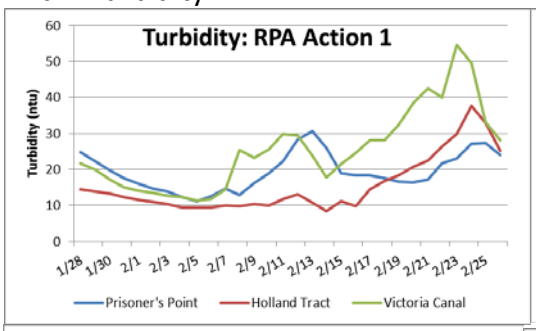


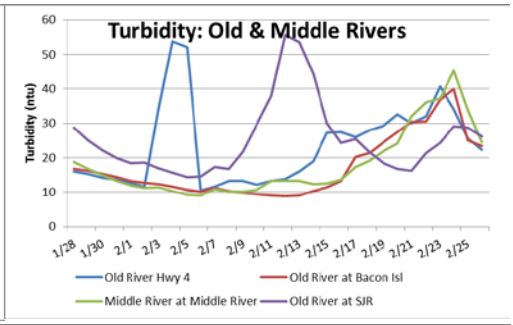
    c. River flows and pumping
    Sacramento River at Freeport flow for February 26 was 77,057 cfs. San Joaquin River at Vernalis flow for February 26 was approximately 39,350 cfs. X2 was downstream of 56 km as of February 26.

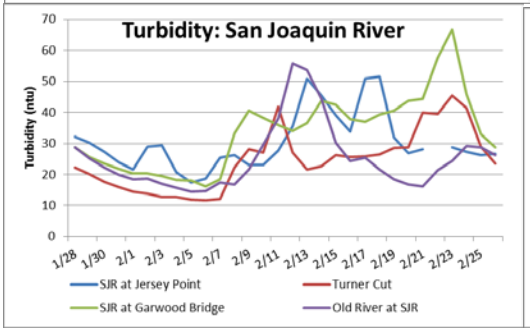


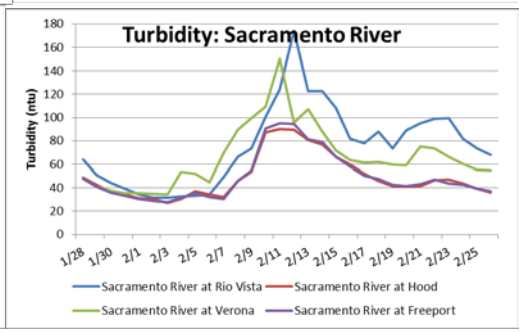


d. Turbidity









2. **Delta fish monitoring**

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

SLS #4 was in the field the week of February 13. 7 Longfin Smelt larvae were collected (2 in the lower Napa River, 1 at Chipps Island, and 4 at San Pablo Bay). SLS #5 is in the field this week, however, no sampling will occur in Old River, Middle River, or the south Delta. These corridors are closed to boat traffic, due to concerns over potential levee failures.

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 21, 22, and 23. Sampling also took place on February 24, but those data will be included in the following week's analysis. A total of 6 Delta Smelt were detected: 1 from the high risk/low density zone, 1 from the low risk/high density zone, and 4 from the low risk/low density zone. Crews are in the field this week, but will not sample in the high risk/low density zone, due to the boating closures in place.

3. **Modeling**

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

4. **Salvage**

A total of 4 Delta Smelt were salvaged on February 24 at the SWP. The season total of adult Delta Smelt salvage so far is 29 fish.

The CVP has begun their larval sampling. DWR will begin their larval sampling today.

5. **Expected Project Operations**

Combined pumping today is 7,000 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 this week. Pumping is expected to remain steady upon filling of SL.

Weather is expected to remain dry this week.

6. **Delta Conditions Team**

No DCT update was given.

7. **DWR Turbidity Transects**

DWR has suspended 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
Last week, members indicated their concern that the high risk/low density zone does not seem to be sampled as often as other zones and the importance of fully sampling the zone. The Service coordinated the SWG concerns with the EDSM project leads and clarified that while sampling in this zone had recently been subject to cancellation due to safety concerns and other issues, the study was overall meeting the target goal of at least 6 sites sampled per week as safety permits. It was reported earlier that a large portion of this zone has been closed off due to levee concerns and that the study may not be able to carry out complete high risk/low density sampling this week. Reallocation of effort between zones was also discussed as a possible future development, but would be difficult to apply this early in the study. The full implementation of the study design has been ongoing for 4 weeks now and the group is still waiting to see results after full year of implementation. Members have also voiced concerns regarding the potential undersampling of nearshore habitat due to the limited ability of the gear to sample these habitats, an issue that the Service is looking into.

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, March 6, 2017.

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

Advice for week of February 27, 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 (>=80mm) 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 6th was revised to Wakasagi, 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 24, Sacramento River flow at Rio Vista appears about 246,000 cfs and well above 55,000 cfs off-ramp; and, San Joaquin River at Vernalis flow at 39,350 cfs; both continue to exceeded 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 complete for other regions (Table 1). As of February 23rd, Qwest was 69,866 cfs. High Vernalis flows (39,350 cfs on February 26) remain well above the 8,000 cfs off-ramp for the Incidental Take Permit; thus, no need for OMR restrictions for protecting larvae. OMR index for February 26th was +16,750. 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 24th, Sacramento River flow at Rio Vista was reported at about 246,000 cfs and on the San Joaquin at Vernalis at 40,100 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 complete.

Year	Survey #	SLS Station	Turbidity	Sample Status	Species	Smelt Catch	Min Length	Max Length	Mean Length	
2017	4	340	176	Processed		No Smelt Catch				
2017	4	342	182	Processed	Longfin Smelt	1	8	8	8	
2017	4	343	120	Processed	Longfin Smelt	1	10	10	10	
2017	4	344	44.7	Processed		No Smelt Catch				
2017	4	345	40	Processed		No Smelt Catch				
2017	4	346	41.6	Processed		No Smelt Catch				
2017	4	347	35.1	Processed		No Smelt Catch				
2017	4	348	66.4	Processed		No Smelt Catch				
2017	4	349	103	Processed		No Smelt Catch				
2017	4	405	190	Processed		No Smelt Catch				
2017	4	411	116	Processed	Longfin Smelt	4	5	6	5.25	
2017	4	418	215	Processed		No Smelt Catch				
2017	4	501	243	Processed		No Smelt Catch				
2017	4	504	108	Processed		No Smelt Catch				
2017	4	508	205	Processed	Longfin Smelt	1	5	5	5	
2017	4	513	137	Processed		No Smelt Catch				
2017	4	519	191	Processed		No Smelt Catch				
2017	4	520	105	Processed		No Smelt Catch				
2017	4	602	216	Processed		No Smelt Catch				
2017	4	606	223	Processed		No Smelt Catch				
2017	4	609	273	Processed		No Smelt Catch				
2017	4	610	199	Processed		No Smelt Catch				
2017	4	703	164	Processed		No Smelt Catch				
2017	4	704	214	Processed		No Smelt Catch				
2017	4	705	167	Processed		No Smelt Catch				
2017	4	706	221	Processed		No Smelt Catch				
2017	4	707	199	Processed		No Smelt Catch				
2017	4	711	133	Processed		No Smelt Catch				
2017	4	716	280	Processed		No Smelt Catch				Barker ITP
2017	4	723	130	Processed		No Smelt Catch				
2017	4	801	94.4	Processed		No Smelt Catch				
2017	4	804	74.2	Processed		No Smelt Catch				
2017	4	809	128	Processed		No Smelt Catch				SWP ITP Criteria Stations
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				

Processing is complete through 2/23/2017

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