Smelt Working Group
February 13, 2017

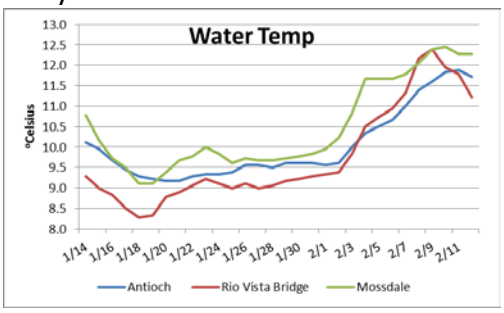
Meeting Summary

The Working Group reviewed current Delta conditions, survey data, and forecasted weather. The SWG is now looking to both Action 2 and 3 for guidance in assessing the risk of entrainment, due to the increase in water temperatures. The SWG indicated that the anticipated OMR flows (Index -1,400 cfs today and anticipated to become positive later in the week) are sufficiently protective of Delta Smelt.

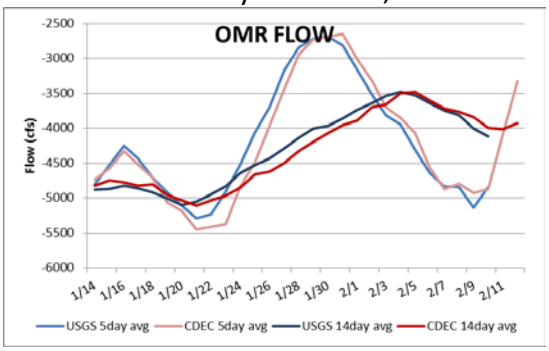
The Working Group is following guidance for entrainment protections from Action 2 (adult Delta Smelt) and Action 3 (juveniles). The Working Group will continue to monitor Delta Smelt survey and salvage data and Delta conditions, and will meet again on Tuesday, February 21, 2017 at 10 am.

Reported Data

1. **Current environmental data**
    a. Temperature
    Daily average of the three Delta stations (Rio Vista, Antioch, Mossdale) was 11.7°C on February 12.

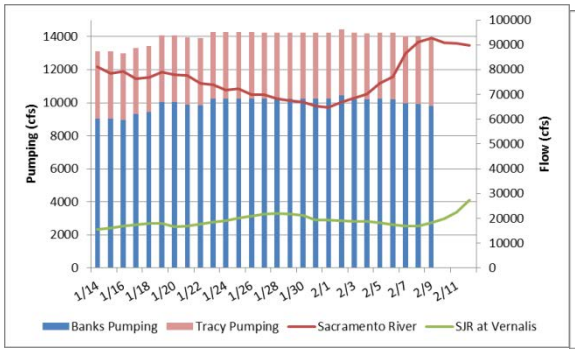


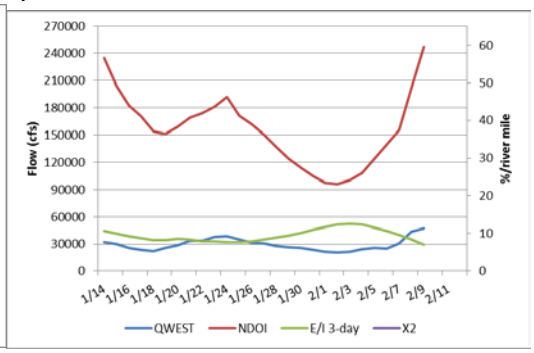
    b. OMR flow
    The CDEC daily average OMR flow for February 12 was -1,395 cfs. USGS daily average OMR flow for February 10 was -3,8460 cfs.



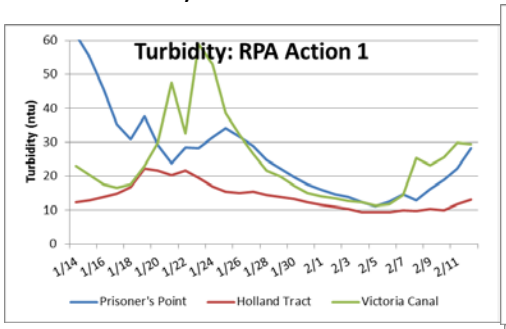
    c. River flows and pumping

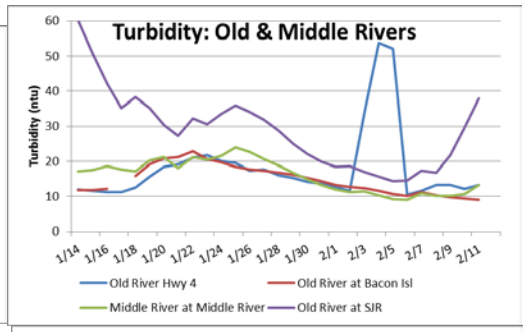
Sacramento River at Freeport flow for February 12 was 89,830 cfs. San Joaquin River at Vernalis flow for February 12 was approximately 27,383 cfs. X2 was downstream of 56 km as of February 12.

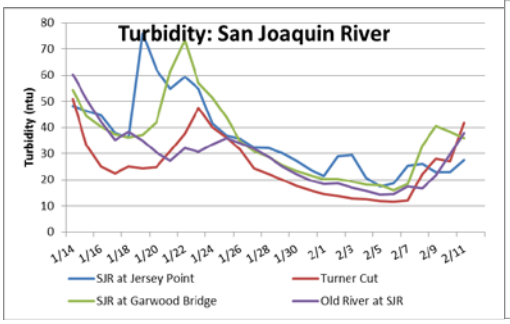


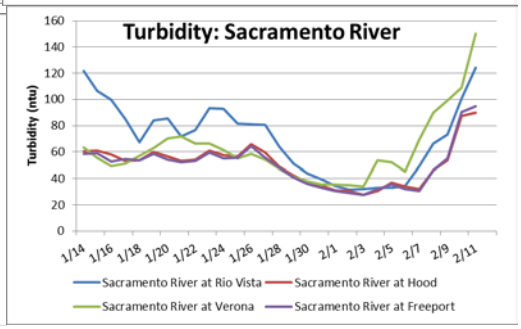


d. Turbidity









2. **Delta fish monitoring**

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

SLS #4 is in the field this week, running February 13 through February 16.

SKT #2 was in the field last week. A total of 8 Delta Smelt were caught: 2 ripe females, 1 spent male, 2 ripe males, and 3 prespawn males. Fish were captured at stations 812, 719, 609, and 610.

The Bay Study started the February sample last week in the upper estuary through San Pablo Bay. A single Delta Smelt was caught in the western Suisun Bay and single Longfin Smelt was detected in San Pablo bay. Sampling is expected to continue today.

Enhanced Delta Smelt Monitoring was in the water last week on Monday, Wednesday, Thursday, and Friday. Friday's catch was not included in this week's summary. A total of 10 Delta Smelt were detected, none of which were from the high risk/low density zone. Crews

were unable to conduct sampling today due to high flows and large debris. It is uncertain if any sampling will be possible this week.

3. **Modeling**

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

4. **Salvage**

A total of 8 Delta Smelt were salvaged over the past week (4 on February 6 at the CVP, 4 on February 10 at the SWP). The seasonal total of Delta Smelt salvage so far is 12 fish.

5. **Expected Project Operations**

Combined pumping today is 14,500 cfs. Pumping currently is unrestrained by OMR levels. Operators indicated that the OMR Index for today is approximately -1,400 cfs and expected to become positive later in the week.

Wet weather is anticipated from Wednesday evening through next week. Significant rainfall totals are expected from the series of storms.

6. **Delta Conditions Team**

No DCT update was given.

7. **DWR Turbidity Transects**

Members indicated that data from transects would not provide sufficient information to warrant the dangerous flow and debris conditions in the Delta and encouraged DWR to suspend the survey for this week. DWR will reevaluate next week on whether to conduct further transects.

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

Members noted that conditions which reflect elevated turbidity throughout the Delta have been in place for the past few weeks. Turbidity levels are anticipated to remain steady or increase this week, due to expected storms.

Delta Smelt Detections

Members could not draw any significant conclusions as far as distribution. Salvage of Delta Smelt indicates that fish are present in the south Delta, but that the lack of catch in other surveys in this region could indicate a low density of fish in the south Delta.

The group discussed some of the salvage operations at both the state and federal facilities, and louver efficiencies and various pumping levels.

Spawning Migration

Members suspect that some spawning has begun (spent male detected in the SKT last week), but is not likely to be widespread as yet. Some Delta Smelt could remain in their spawning migration, and we may see additional smaller movements within their range until spawning becomes widespread.

General discussion

Given the current hydrology (31,000 cfs on the lower San Joaquin River and increasing), members indicated that any juveniles hatched on the lower San Joaquin River will likely be flushed well downstream, potentially as far as San Pablo Bay. Members did not think the risk of entrainment to any juveniles hatched in current conditions in the central Delta would be significant. Members have been expecting some amount of salvage so far this year, and continue to expect to see low levels in salvage over the coming weeks due to a demonstrated Delta Smelt presence and widespread elevated turbidity. Members indicated that the current OMR flow rate (which is 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 Tuesday, February 21, 2017.

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

Advice for week of February 13, 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. As of February 12th, only one Longfin Smelt has 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 many more adults will be salvaged. Advice is not warranted based on this criterion.

2. Bay Study Survey for February completed sampling through part of San Pablo Bay as of February 9th; only a single Longfin Smelt was collected in San Pablo 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 10, Sacramento River flow at Rio Vista appears 232,000 cfs and increasing, and well above 55,000 cfs off-ramp; on February 12th, San Joaquin River flow above 27,500 cfs; both continue to exceeded flow off-ramp outlined in the Incidental Take Permit. X_2 remains downstream (<59 km).

3&4. The third Smelt Larva Survey (SLS) of 2017 detected no Longfin Smelt larvae in the central or south Delta during the week of January 30; processing is complete for other regions

(Table 1). As of February 9th, Qwest surpassed 47,000 cfs. Vernalis flows increased to more than 27,000 on February 12, and 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 10th, Sacramento River flow at Rio Vista was reported at 232,000 cfs and on the 12th the San Joaquin at Vernalis at 27,383 cfs. Both remain well above the off-ramp thresholds for the Longfin Smelt Incidental Take Permit. Although flows are declining, storms expected at the end of the week will substantially increase river flows.

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, #3. Sample processing is complete.

Year	Survey #	SLS Station	Sample Status	Species	Smelt Catch	Min Length	Max Length	Mean Length	
2017	3	340	Processed	Longfin Smelt	2	7	7	7	
2017	3	342	Processed		No Smelt Catch				
2017	3	343	Processed		No Smelt Catch				
2017	3	344	Processed		No Smelt Catch				
2017	3	345	Processed		No Smelt Catch				
2017	3	346	Processed		No Smelt Catch				
2017	3	347	Processed		No Smelt Catch				
2017	3	348	Processed		No Smelt Catch				
2017	3	349	Processed		No Smelt Catch				
2017	3	405	Processed	Longfin Smelt	1	6	6	6	
2017	3	411	Processed	Longfin Smelt	3	5	6	5.3	
2017	3	418	Processed		No Smelt Catch				
2017	3	501	Processed		No Smelt Catch				
2017	3	504	Processed		No Smelt Catch				
2017	3	508	Processed		No Smelt Catch				
2017	3	513	Processed	Longfin Smelt	1	6	6	6	
2017	3	519	Processed		No Smelt Catch				
2017	3	520	Processed	Longfin Smelt	1	5	5	5	
2017	3	602	Processed		No Smelt Catch				
2017	3	606	Processed		No Smelt Catch				
2017	3	609	Processed		No Smelt Catch				
2017	3	610	Processed		No Smelt Catch				
2017	3	703	Processed		No Smelt Catch				
2017	3	704	Processed		No Smelt Catch				
2017	3	705	Processed		No Smelt Catch				
2017	3	706	Processed	Longfin Smelt	1	5	5	5	
2017	3	707	Processed		No Smelt Catch				
2017	3	711	Processed		No Smelt Catch				
2017	3	716	Processed	Longfin Smelt	1	5	5	5	Barker ITP
2017	3	723	Processed		No Smelt Catch				
2017	3	801	Processed	Longfin Smelt	1	6	6	6	
2017	3	804	Processed		No Smelt Catch				
2017	3	809	Processed		No Smelt Catch				SWP ITP Criteria Stations
2017	3	812	Processed		No Smelt Catch				
2017	3	815	Processed		No Smelt Catch				
2017	3	901	Processed		No Smelt Catch				
2017	3	902	Processed		No Smelt Catch				
2017	3	906	Processed		No Smelt Catch				
2017	3	910	Processed		No Smelt Catch				
2017	3	912	Processed		No Smelt Catch				
2017	3	914	Processed		No Smelt Catch				
2017	3	915	Processed		No Smelt Catch				
2017	3	918	Processed		No Smelt Catch				
2017	3	919	Processed		No Smelt Catch				

Processing is complete through 2/9/2017

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