

SMELT WORKING GROUP

Monday, May 11, 2015

Meeting Summary:

The Service requested that the Working Group provide an assessment of risk for Delta Smelt for the -1250 to -2000 cfs OMR flow range. The Working Group reviewed the recent survey data, current salvage, and Delta conditions, and indicated that the OMR flow range of -1250 to -2000 cfs had a low to medium risk of Delta Smelt entrainment.

The Working Group is following guidance for entrainment protections from both Action 2 (adult Delta Smelt) and Action 3 (juvenile Delta Smelt).

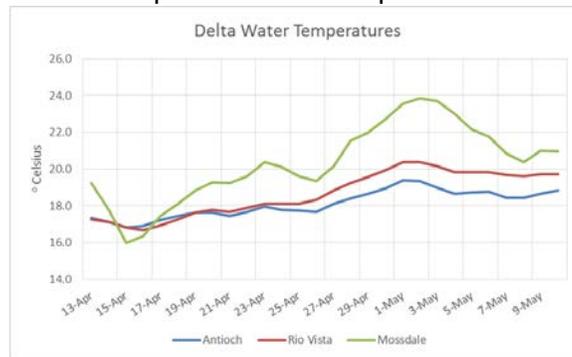
The Working Group agreed that given their present distribution, existing conditions were sufficient to protect longfin smelt from entrainment in the southern Delta.

The Working Group will continue to monitor Delta Smelt survey and salvage data and Delta conditions and will meet again Monday, May 18, 2015 at 10 am.

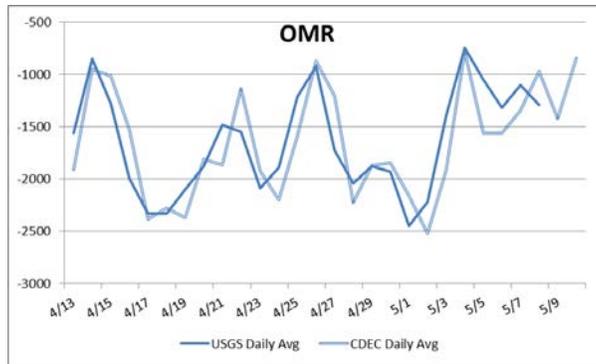
Reported Data:

1. Current environmental data:

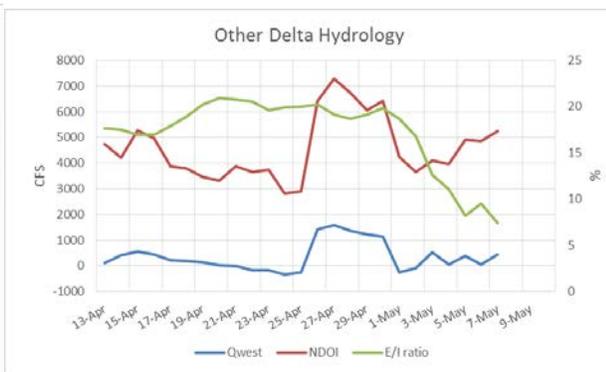
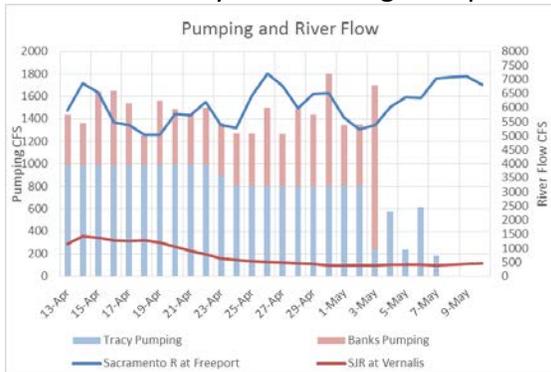
- Since February 3, it has been warm enough for Delta Smelt to spawn throughout much, or all of, the Delta. Water temperatures since April 13 are as follows:



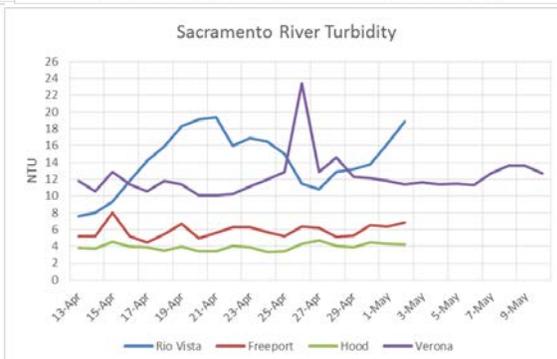
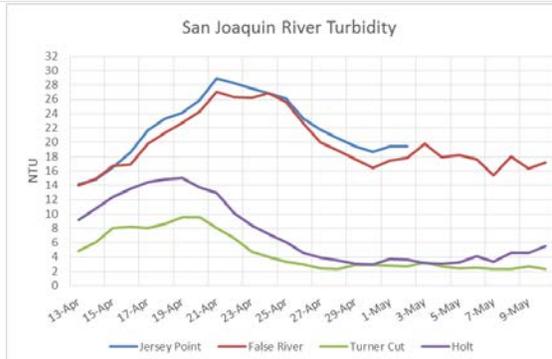
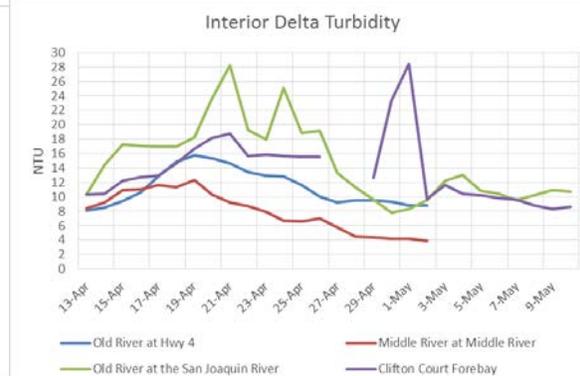
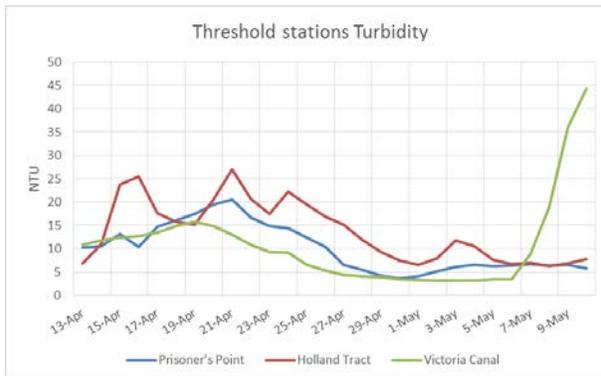
- OMR Flow: USGS tidally-averaged daily, 5-day, and 14-day average OMR flow for May 8 was -1297, -1104, and -1522 cfs, respectively. CDEC daily, 5-day average, and 14-day average OMR flow as of May 10 was -845, -1231, and -1589 cfs, respectively.



- River Flows: Sacramento River inflow is 6806 cfs and San Joaquin River is 457 cfs. X2 calculation from CDEC has been upstream of Collinsville since March 9. 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 2014 Fall Midwater Trawl Annual Index for Delta Smelt is 9. This is the lowest reported fall index since the beginning of this survey in 1967, and approximately one half of the previous lowest indices of 17 (2009) and 18 (2013).

20-mm Survey #4 was in the field the week of April 27 through 30. Processing is complete. A total of 11 Delta Smelt were collected (2 from the south and central Delta, 9 from the north Delta and lower Sacramento River). Sizes ranged from 12 to 24 mm. 20-mm Survey #3 was in the field the week of April 13. Processing is complete. A total of 20 Delta Smelt were collected at stations 719 (18, 12-23mm) and 723 (2, 18mm). 20-mm Survey #5 is in the field this week.

Spring Kodiak Trawl #5 was in the field last week. Processing is complete. Eight Delta Smelt were collected; five adults from stations 719 and 716 and three juveniles from station 719.

The Service's Early Warning Survey concluded sampling for the season on March 31.

3. Salvage:

Delta Smelt adults have not been observed in salvage counts since February 21. The estimated cumulative seasonal total (CVP and SWP combined) for adult Delta Smelt salvage is still 68. No adult Longfin Smelt has been observed in salvage counts during WY 2015. Four juvenile Delta Smelt > 20 mm were salvaged at the CVP on May 4, which is the first salvage of juvenile Delta Smelt for the season. A total of 4 young-of-year Longfin Smelt > 20 mm were salvaged from May 4 through 10. No larval Delta Smelt (< 20 mm) were reported for either the CVP or SWP fish facilities.

4. Expected Project Operations:

Combined SWP/CVP exports today are approximately 300 cfs. Tomorrow, combined exports are anticipated to be approximately 1100 cfs. CVP exports are cycling between 800 cfs and off on a daily basis. Operators indicated that they expect the OMR flow to be approximately -1100 to -1400 cfs for the week. Combined exports are restricted by the Temporary Urgency Change Petition, which restricts pumping to 1500 cfs when water quality standards have been exceeded. Operators indicated that salinity levels are restraining exports to the current levels.

5. Delta Conditions Team:

There was no Delta Conditions Team call on May 1, 2015

6. 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 2: “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...” (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).

“Upon completion of RPA Component 1 or when Delta water temperatures reach 12°C (based on a 3-station average of daily average water temperature at Mossdale, Antioch, and Rio Vista) or when a spent female delta smelt is detected in the trawls or at the salvage facilities, the projects shall operate to maintain OMR flows no more negative than -1,250 to -5000 cfs based on a 14-day running average with a simultaneous 5-day running average within 25 percent of the applicable 14-day OMR flow requirement. Depending on the extant conditions, the SWG shall make recommendations for the specific OMR flows within this range from the onset of implementing RPA Component 2 through its termination. The Service shall make the final determination regarding specific OMR flows. This action shall end June 30 or when the 3-day mean water temperature at Clifton Court Forebay reaches 25° C, whichever occurs earlier” (page 282).

Discussion:

The Working Group reviewed and discussed all relevant data from Delta flow and water quality monitoring, salvage, field surveys, and planned Project operations.

The Service presented its updated WY2015 adult Delta Smelt ITL (196 fish) and early warning level (78 fish) at the January 12 SWG meeting. The January 9, 2015 reinitiation memo regarding these updated levels has been posted to the Bay-Delta FWO website (<http://www.fws.gov/sfbaydelta/>). The WY 2015 juvenile Delta Smelt ITL is 504, based on a WY 2014 FMWT index of 9.

Three-station average water temperature surpassed 12°C as of February 3, 2015. The Working Group is now looking to Action 3 of the Biological Opinion as well as Action 2 in framing their advice to the Service. The 3-station average water temperature as of May 10 was 19.8°C.

The Service requested that the Working Group provide their assessment for the level of risk of entrainment using the January 12, 2015 “Framework for Providing Advice to the Service,” for the most positive OMR flow range as stated in the Biological Opinion (-1250 to -2000 cfs). Based on a review of the current survey data, salvage data, current Delta conditions and projected operations, the SWG indicated that OMR flows in the -1250 to -2000 cfs range would be expected to have a low to medium risk of entrainment. The members were split in their assessment of risk evenly between low and medium risk, thusly the assessment of low to medium risk.

Members that indicated the risk of entrainment was low cited the current WY 2015 ITL for juvenile Delta

Smelt of 504 and the current combined SWP and CVP take of four. The current low combined take and low south Delta Smelt numbers make it unlikely that total combined annual take will approach 504 this year. Members noted that current moderate central and south Delta water temperatures were unlikely to stimulate emigration, so movement of juveniles would not be anticipated; therefore the low presence (detection) of Delta Smelt in the central and south Delta indicated in 20-mm Survey #4, reflects low risk of entrainment.

Members that indicated a medium risk of entrainment cited the four juvenile Delta Smelt salvaged on May 4 as well as the two Delta Smelt collected from the south and central Delta stations 20-mm Survey #4. This salvage occurred despite exports being at or below minimum levels of approximately 1000 to 1500 cfs, resulting in OMR flows at or close to the most positive flows indicated in Actions 2 and 3 of the Biological Opinion. Some members stated that application of the survey and salvage data to determine entrainment risk is complicated this year given that the apparent Delta Smelt population level as indexed by field surveys is at a record low and severe Delta conditions given a 4th consecutive year of drought. In assessing the level of risk of the current operations to Delta Smelt, in part, on the current salvage of four, members who indicated the risk of entrainment was medium, based this rationale on their assessment that the existing ITL for juvenile Delta Smelt (504) is not reflective of recent survey data showing record low abundances. Given this information, these members indicated that any entrainment of juveniles should be cause for concern.

The Working Group will continue to monitor conditions and smelt distribution and will meet again on Monday, May 18, 2015, or sooner, if conditions warrant.

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

Advice for week of May 11, 2015:

The Smelt Working Group does not have any Longfin Smelt-related advice based on recent information.

Barker Slough operations advice is not warranted at this time. The concern period for Barker Slough ended on March 31.

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 (≥ 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 20-mm 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 May 10, 2015, no age-1 or adult Longfin Smelt have been salvaged for the water year. The Longfin Smelt adult salvage threshold for advice is > 80 (see criterion in #1 above), which is based on a combined September through December Fall Midwater Trawl Longfin Smelt index of 16. No advice is warranted based on this criterion.

2. Early May sampling by Bay Study detected no age-1 or adult Longfin Smelt in the San Joaquin River and only one age-1 fish in the Sacramento River. No other detections were made in the San Joaquin River or south Delta in early May. Current distribution information does not indicate advice is warranted based on this criterion.

3 & 4. The Survey 4 20-mm Survey sampling was processed for all central and south Delta stations (Table 1, Figure 1) and the distribution and abundance results, have not achieved either limit (see Basis for Advice 2&3 above). Salvage of juvenile Longfin Smelt dropped to four for the week of May 4 through 10 after achieving a peak salvage of 52 for the week of April 27 through May 3. The earlier increase was expected as south Delta water warmed. South Delta temperatures appeared to surpass 22°C and may have caused mortality or stimulated migration. If that was the case, then future salvage will be more limited. Overall, catches in the central and south Delta were not sufficient to reach concern levels based on density or distribution.

5. Entrainment concern for Longfin Smelt larvae in Barker Slough ceased on March 31.

Current conditions: Sacramento River flow dropped to about 6,500 cfs. X2 remains well above 81. Combined State and federal exports are currently varying daily between 300 and 1,100 cfs, as the CVP cycles on and off every other day, and will remain at that level into the future. The OMR is expected to range between -1,100 and -1,400 cfs in the next week. Qwest was slightly positive through May 11, but flows will likely go slightly negative in the near future during the spring tide.

Summary of Risk:

Risk of additional entrainment into the south Delta is very low. This results from past and recent low densities of larvae (except at 809 in 20-mm Survey 2 & 4) in the central Delta and low exports in the south Delta. Risks of additional adult influx have passed for the season. Larva densities remained stable and low in the central Delta during 20-mm Survey 4. Exports are very low (1,100 cfs combined, 300 when only SWP exports) and most larvae appear to be outside of the region of entrainment, so risk of entrainment remains very low. Increasing numbers of Longfin Smelt larvae and small juveniles were detected in SWP salvage as water temperatures in Clifton Court climbed to 22°C April 27 to May 1 and for a few days after.

The limited number of Longfin Smelt larvae and post-larvae detected in the central and south Delta in 20-mm Survey 4 suggests few remain. Current conditions, particularly OMR index projected between -1,100 and -1,400 for the week and weakly positive to weakly negative Qwest, indicate very little additional risk of entrainment for fish hatch within the central Delta. The overall risk of entrainment remains very low.

Table 1. Longfin Smelt catches by station in 20-mm Survey 4 2015. Sample processing is incomplete.

Year	Survey	Station	Date	# Tows Processed	Species	Total Catch	Min Length	Max Length	Avg Length	
2015	4	323	29-Apr-15	0	Not Yet Processed	0				Suisun Bay & West
2015	4	340	29-Apr-15	0	Not Yet Processed	0				
2015	4	342	29-Apr-15	0	Not Yet Processed	0				
2015	4	343	29-Apr-15	0	Not Yet Processed	0				
2015	4	344	29-Apr-15	0	Not Yet Processed	0				
2015	4	345	29-Apr-15	0	Not Yet Processed	0				
2015	4	346	29-Apr-15	0	Not Yet Processed	0				
2015	4	405	30-Apr-15	0	Not Yet Processed	0				
2015	4	411	30-Apr-15	0	Not Yet Processed	0				
2015	4	418	30-Apr-15	0	Not Yet Processed	0				
2015	4	501	28-Apr-15	1	No Longfin Catch	0				
2015	4	504	28-Apr-15	1	No Longfin Catch	0				
2015	4	519	28-Apr-15	0	Not Yet Processed	0				
2015	4	602	28-Apr-15	1	No Longfin Catch	0				
2015	4	606	28-Apr-15	1	Longfin Smelt	1	25	25	25.00	
2015	4	609	28-Apr-15	1	No Longfin Catch	0				
2015	4	610	28-Apr-15	1	No Longfin Catch	0				
2015	4	508	27-Apr-15	0	Not Yet Processed	0				Confluence
2015	4	513	27-Apr-15	0	Not Yet Processed	0				
2015	4	520	27-Apr-15	0	Not Yet Processed	0				
2015	4	801	27-Apr-15	1	No Longfin Catch	0				
2015	4	804	27-Apr-15	1	Longfin Smelt	2	16	28	22.00	Sac. River System
2015	4	703	27-Apr-15	1	No Longfin Catch	0				
2015	4	704	27-Apr-15	0	Not Yet Processed	0				
2015	4	705	28-Apr-15	1	No Longfin Catch	0				
2015	4	706	27-Apr-15	1	Longfin Smelt	14	18	30	24.50	
2015	4	707	28-Apr-15	0	Not Yet Processed	0				
2015	4	711	28-Apr-15	1	No Longfin Catch	0				
2015	4	716	29-Apr-15	1	No Longfin Catch	0				
2015	4	718	29-Apr-15	1	No Longfin Catch	0				
2015	4	719	29-Apr-15	1	No Longfin Catch	0				
2015	4	720	29-Apr-15	1	No Longfin Catch	0				
2015	4	723	29-Apr-15	1	No Longfin Catch	0				
2015	4	724	29-Apr-15	1	No Longfin Catch	0				
2015	4	726	29-Apr-15	1	No Longfin Catch	0				
2015	4	809	27-Apr-15	1	Longfin Smelt	2	15	16	15.50	Central & South Delta
2015	4	812	28-Apr-15	1	No Longfin Catch	0				
2015	4	815	28-Apr-15	1	No Longfin Catch	0				
2015	4	901	27-Apr-15	1	Longfin Smelt	2	15	19	17.00	
2015	4	902	27-Apr-15	3	No Longfin Catch	0				
2015	4	906	28-Apr-15	1	No Longfin Catch	0				
2015	4	910	27-Apr-15	1	No Longfin Catch	0				
2015	4	912	27-Apr-15	1	No Longfin Catch	0				
2015	4	914	27-Apr-15	1	No Longfin Catch	0				
2015	4	915	27-Apr-15	1	No Longfin Catch	0				
2015	4	918	27-Apr-15	1	No Longfin Catch	0				
2015	4	919	28-Apr-15	1	No Longfin Catch	0				

Processing complete through 5/1/2015

Figure 1. DFW's Smelt Larva Survey/20-mm Survey station locations.

