

SMELT WORKING GROUP

Monday, March 23, 2015

Meeting Summary:

The Working Group agreed that given present distribution, current salvage, and Delta conditions, there was no indication that the projected combined exports of approximately 1500 cfs for the week (potentially resulting in OMR flows no more negative than approximately -1700 cfs daily average) need to be more restrictive for the protection of Delta Smelt adults and larvae.

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

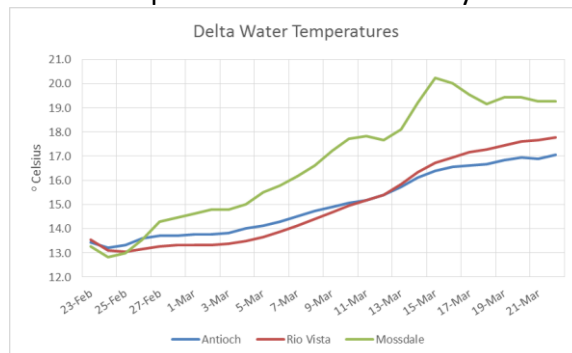
The Working Group also agreed that given their present distribution, existing constraining conditions were sufficient to protect longfin smelt from entrainment in the southern Delta.

The Working Group will continue to monitor Delta Smelt survey and salvage data and Delta conditions and will meet again Monday, March 30, 2015 at 10 am.

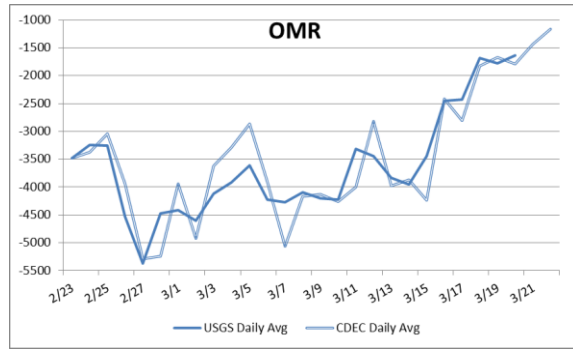
Reported Data:

1. Current environmental data:

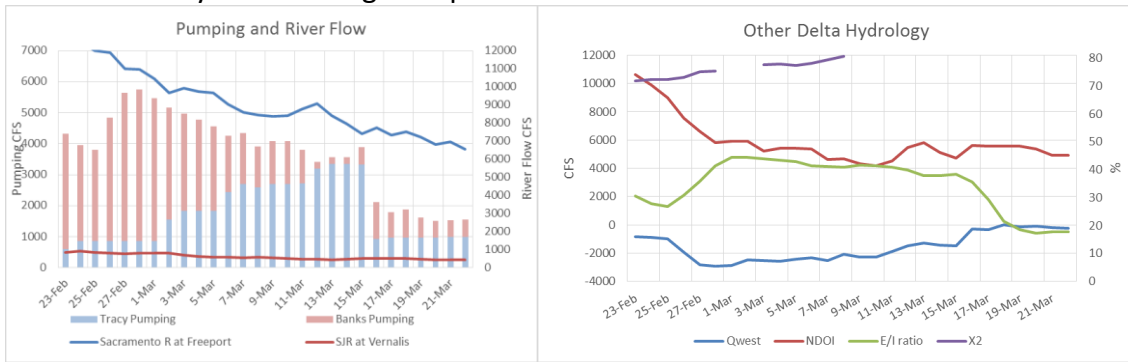
- Since February 3, it has been warm enough for Delta Smelt to spawn throughout much, or all of, the Delta. Water temperatures since February 23 are as follows:



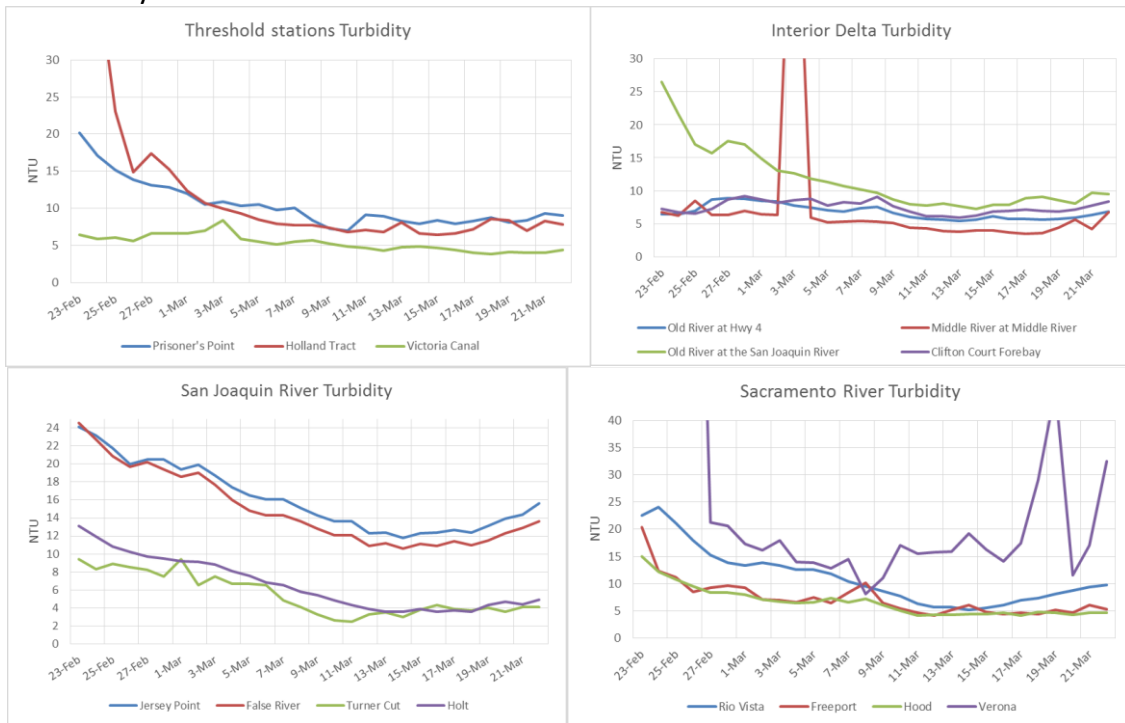
- OMR Flow: USGS tidally-averaged daily, 5-day, and 14-day average OMR flow for March 20 was -1631, -1993, and -3196 cfs, respectively. CDEC daily, 5-day average, and 14-day average OMR flow as of March 22 was -1159, -1574, and -2884 cfs, respectively.



- River Flows: Sacramento River inflow is 6548 cfs and San Joaquin River is 447 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).

SLS #5 was in the field March 2 through 4. Processing is ongoing. One Delta Smelt larva was collected at station 723 in the Sacramento Deepwater Shipping Channel. SLS #6 starts on March 24.

20-mm Survey #1 was in the field last week. Processing is ongoing. Samples are processed for stations in the central and southern Delta and for the lower Sacramento River stations. One 6 mm Delta Smelt was caught in the lower Sacramento River on March 16 at station 706.

The Service's Early Warning Survey decreased sampling to once per week for each site beginning March 9. Results for last week are as follows:

3-16 (Jersey Point): one Delta Smelt in the north lane

3-17 (Prisoner's Point): no catch

3. Salvage:

Delta Smelt 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 have been observed in salvage counts during WY 2015. Both the SWP and CVP operated their fish facilities with normal 30 minute counts this past week. Both facilities continue to conduct larval fish monitoring although the frequency of larval fish samples at the CVP has been reduced to three per day on some days due to heavy debris load in the salvage collections. No larval Delta Smelt have been reported.

4. Expected Project Operations:

Combined SWP/CVP exports today are approximately 1500 cfs. Operators indicated that they expect the OMR flow to be approximately -1700 cfs for the week. It was reported that combined exports currently are restricted by the Temporary Urgency Change Petition, which restricts pumping to 1500 cfs when water quality standards have been exceeded.

5. Delta Conditions Team:

There was no DCT call last week.

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/>).

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 March 22 was 18°C.

Sample processing from last week’s (March 16-20) 20-mm Survey is ongoing; all central and south Delta samples are processed. One Delta Smelt (6mm) was collected at station 706 near Decker Island on the Sacramento River.

Delta Smelt have not been observed in salvage since February 21.

Expected OMR flows are projected to approach -1700cfs. Projects are currently constrained by D-1641 Net Delta Outflow Index standard.

Based on a review of the Delta Smelt distribution and salvage data, current Delta conditions and projected operations, the SWG agreed that no change in operations is necessary for the protection of

Delta Smelt. The SWG will continue to monitor turbidity, salvage and survey data through this week, and will request a call to discuss Delta Smelt entrainment risk, should one be necessary.

The Working Group will continue to monitor conditions and smelt distribution and will meet again on Monday, March 30, 2015.

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

Advice for week of March 23, 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. No Longfin Smelt larvae were detected at the criteria station and Barker Slough exports have been well below the potential limit of 50 cfs (see Basis for advice and Discussion of Criteria for #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 (≥ 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 March 22, 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. The first larvae of the season were collected at each of the facilities: 1 larva at the CVP on February 27 and 1 larva SWP on March 3. There is no criterion for larvae in salvage. No advice is warranted based on this criterion.

2. Early March sampling by Bay Study detected no age-1 or adult Longfin Smelt in the San Joaquin River and very few in the Sacramento River ($n = 2$). Kodiak Trawl sampling tends to be inefficient for Longfin Smelt, but in February the USFWS detected four adult Longfin Smelt at Jersey Point, compared to two adult Longfin Smelt at that location in January; none have been caught at Prisoner's Point. No other detections were made in the San Joaquin River or south Delta in January. In early January Bay Study detected Longfin Smelt adults in the Sacramento River at Rio Vista (station 761), a juvenile and adult in the Sacramento River at Sherman Lake (station 736), none in the San Joaquin River, and juveniles (< 80 mm) and adults throughout Suisun Bay. During mid- to late February, Chipps Island trawling caught modest numbers of Longfin Smelt (19 and 16 for Feb 15-21 and 22-28), indicating the spawning run continues. Current distribution information does not indicate advice is warranted based on this criterion.

3 & 4. The first 20-mm Survey completed sampling March 16-19 and detected Longfin Smelt larvae at three locations in the central and south Delta, well below the distribution criterion. The fifth Smelt Larva Survey (SLS) completed sampling at all stations March 2-5. Catch per station remains low and Longfin Smelt larvae were detected at 3 of the 12 criteria stations at densities of 2 larvae or less per tow; thus, neither criterion was met for concern (Table 1, Figure 1). Catches are not sufficient to reach concern levels based on density or distribution.

5. SLS 5 did not detect larvae at station 716, the criterion station for Barker Slough, but a single larvae was detected at SLS 5 station 723, the nearest station. The lack of larvae at 716 removes the trigger criterion for North Bay Aqueduct operations and the single larva at 723 suggests the risk to larvae in the vicinity is low. More recent sampling occurred during 20-mm survey, but neither sample has been processed yet. The water year remains critical, based on the February 1, 2015 Bulletin 120 Water Supply Forecast of the water year type for the Sacramento River. In addition to a Dry or Critical water year type, concern also requires the presence of Longfin Smelt larvae at the criteria, station 716. During SLS 4, a single larva was detected at station 716 and none at 723, so criteria remained in effect at that time. SLS 3 sampling collected four larvae at station 716 and two more at 723 indicating presence but not substantial numbers. NBA was exporting less than 30 cfs daily through February, except for a 3-day period near the end of the month; exports ceased entirely March 4 and 5. This level was well below the

50 cfs ceiling established for this component of the Longfin Smelt Incidental Take Permit. Based on no larvae collected at 716, few collected nearby and current export levels well below the potential limit of 50 cfs, no change in current operations is warranted based on this criterion.

Current conditions: Sacramento River flow is 6548. It peaked at a little over 36,000 cfs on February 13, declined to 10,444 on the March 1st, and dropped below 7,719 cfs on March 15. X2 is well above 81. Combined State and federal exports are currently 1,500 cfs and expected to remain at that level into the foreseeable future; exports are targeting an E:I ratio of 35%. The current OMR index is about -1,700. Qwest is -259. Barker Slough exports ranged between 15 and 53 cfs during the past week.

Summary of Risk:

Risk of entrainment is very low in both the south Delta and Barker Slough. This results from both low densities of larvae and low exports (in the south Delta; Barker Slough exports are more moderate). Risks of additional adult influx continue to diminish. Larva densities appeared to decrease through mid-March resulting in lower risk of entrainment to those close to export facilities.

The limited number of Longfin Smelt larvae detected in the central and south Delta in SLSs 3-5 and 20-mm survey 1, the few adults collected in the San Joaquin River or central Delta fish surveys and the absence of adult Longfin Smelt in salvage samples to date suggests few fish have moved into the central or south Delta for spawning. Current conditions, particularly OMR targeted at -1,700 and neutral Qwest, indicate very little risk for fish that do move into or hatch into the central Delta. The overall risk of entrainment remains very low.

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

Year	Survey	Station	Date	# Tows Processed	Species	Total Catch	Min Length	Max Length	Avg Length	
2015	1	323		0	Not Sampled					Suisun Bay & West
2015	1	340		0	Not Sampled					
2015	1	342		0	Not Sampled					
2015	1	343		0	Not Sampled					
2015	1	344		0	Not Sampled					
2015	1	345		0	Not Sampled					
2015	1	346		0	Not Sampled					
2015	1	405		0	Not yet processed					
2015	1	411		0	Not yet processed					
2015	1	418		0	Not yet processed					
2015	1	501		0	Not yet processed					
2015	1	504		0	Not yet processed					
2015	1	519		0	Not yet processed					
2015	1	602		0	Not yet processed					
2015	1	606		0	Not yet processed					
2015	1	609		0	Not yet processed					
2015	1	610		0	Not yet processed					
2015	1	508		0	Not yet processed				Confluence	
2015	1	513		0	Not yet processed					
2015	1	520		0	Not yet processed					
2015	1	801		0	Not yet processed					
2015	1	804		0	Not yet processed				Sac. River System	
2015	1	703	16-Mar-15	3	Longfin Smelt	2	8	9		8.50
2015	1	704	16-Mar-15	3	Longfin Smelt	1	17	17		17.00
2015	1	705	17-Mar-15	3	No Longfin Catch	0				
2015	1	706	16-Mar-15	3	No Longfin Catch	0				
2015	1	707	17-Mar-15	3	Longfin Smelt	5	14	21		18.60
2015	1	711	18-Mar-15	0	Not yet processed					
2015	1	716	19-Mar-15	0	Not yet processed					
2015	1	718	20-Mar-15	0	Not yet processed					
2015	1	719	21-Mar-15	0	Not yet processed					
2015		720	22-Mar-15	0	Not yet processed					
2015	1	723	23-Mar-15	0	Not yet processed					
2015	1	724	24-Mar-15	0	Not yet processed					
2015	1	728	25-Mar-15	0	Not yet processed					
2015	1	809*	16-Mar-15	2	No Longfin Catch	0				
2015	1	812	17-Mar-15	3	No Longfin Catch	0				
2015	1	815	17-Mar-15	3	No Longfin Catch	0				
2015	1	901**	16-Mar-15	3	No Longfin Catch	0				
2015	1	902	16-Mar-15	3	No Longfin Catch	0				
2015	1	906	17-Mar-15	3	Longfin Smelt	1	9	9	9.00	
2015	1	910	17-Mar-15	3	Longfin Smelt	2	9	13	11.00	
2015	1	912	17-Mar-15	3	No Longfin Catch	0				
2015	1	914	17-Mar-15	3	No Longfin Catch	0				
2015	1	915	16-Mar-15	3	No Longfin Catch	0				
2015	1	918	16-Mar-15	3	Longfin Smelt	1	12	12	12.00	
2015	1	919	17-Mar-15	3	No Longfin Catch	0				

Processing complete through 3/19/2015

*Two tows conducted

**Reduced tow time

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

