

SMELT WORKING GROUP
Monday, June 3, 2013

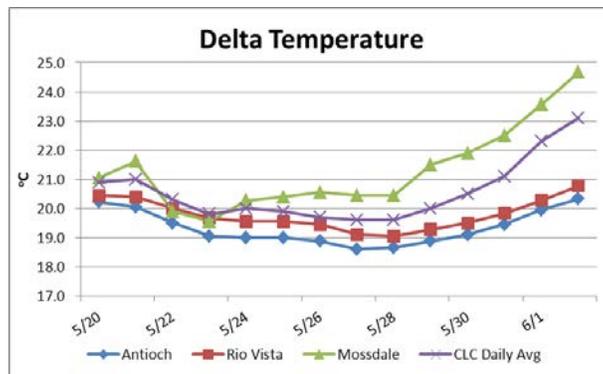
Meeting Summary:

The Working Group agreed that given their present distribution, current salvage, and Delta conditions, the risk of entrainment of delta smelt remains low and therefore, the Working Group recommends that no change in operations is necessary to adequately protect delta smelt from entrainment. The Working Group also agreed that given their present distribution, existing constraining conditions were sufficient to protect longfin smelt. The Working Group will continue to monitor smelt salvage, larval and juvenile smelt survey data, and Delta hydrological conditions and will reconvene June 10, 2013, at 10 am.

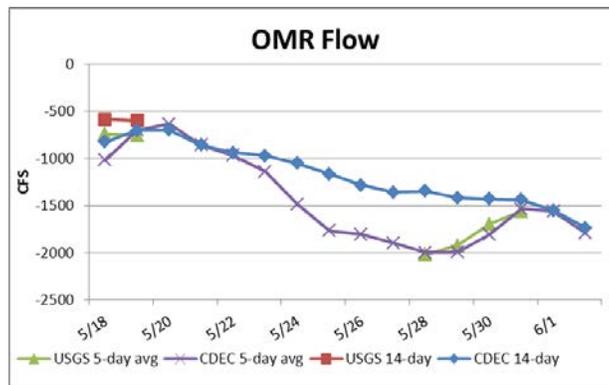
Reported Data:

1) Current environmental data:

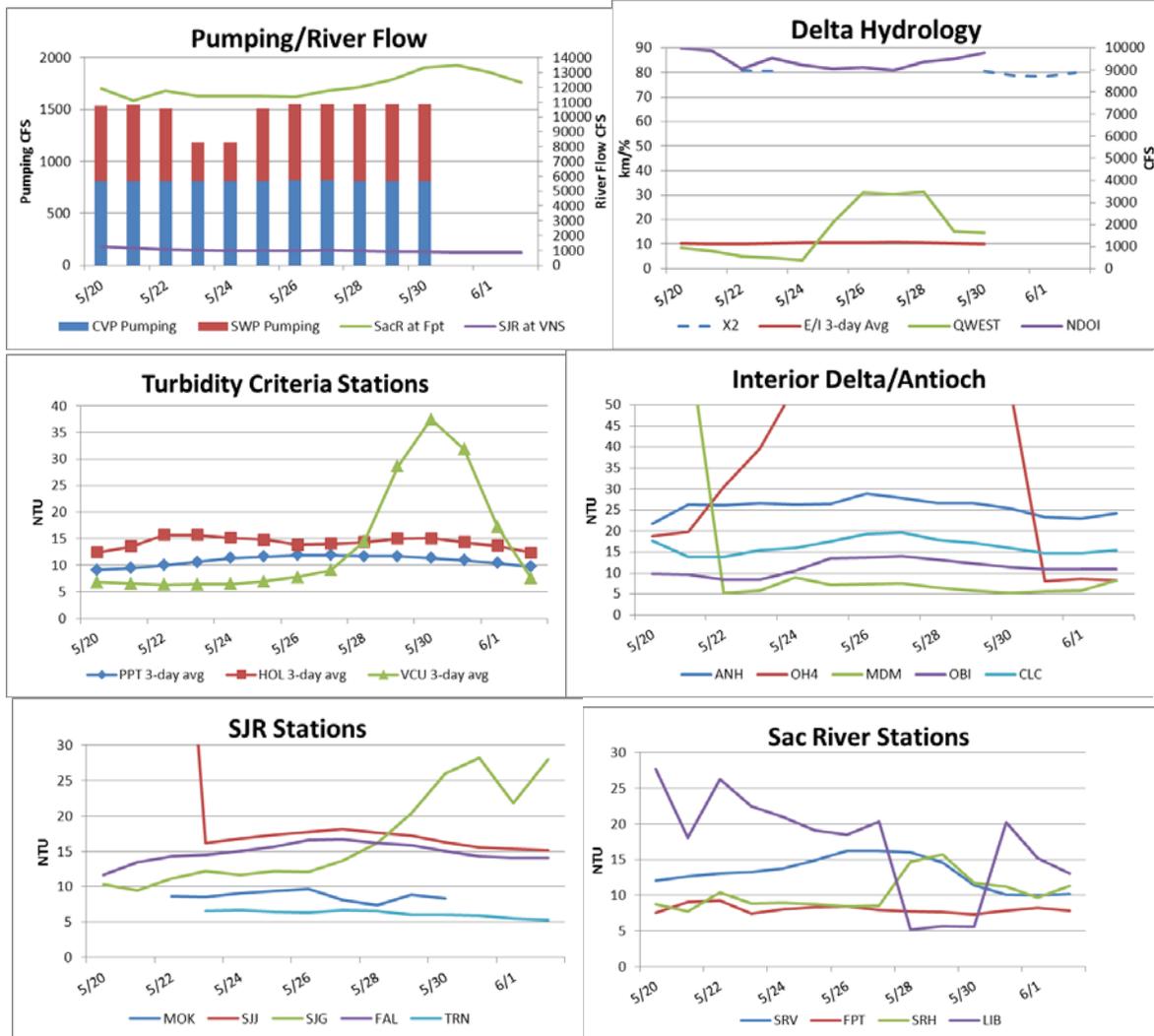
- **Water temperatures:**



- **OMR:** USGS tidally-averaged 5-day and average OMR flow on May 31 was -1,561 cfs. The USGS 14-day average OMR flow was unavailable. CDEC 5-day average OMR flow and 14-day average OMR flow on June 2 was -1,789 cfs and -1,736 cfs, respectively.



- Flow:** Sacramento River flows at Freeport are approximately 11,763 cfs and San Joaquin River at Vernalis is approximately 996 cfs, while X₂ was upstream of Collinsville.



Delta Fish Monitoring:

The 20-mm Survey #6 was in the field May 20 through 23. Sample processing was delayed due to laboratory waste issues although 65% of the field samples have been processed. So far, a total of 94 delta smelt have been collected ranging in length from 10 and 34 mm. Preliminary results indicate the majority of delta smelt are out of the central and southern Delta. Updated 20-mm Survey data have been uploaded to the 20-mm Survey webpage (<http://www.dfg.ca.gov/delta/projects.asp?ProjectID=20mm>).

The 2012 annual Fall Midwater Trawl Index (September through December) is 42. The combined SWP and CVP total allowable take for adult delta smelt for the WY 2013 as calculated from the FMWT Index using the formula prescribed in the BO is 362 (revised). The combined SWP and CVP total allowable take for larval-juvenile delta smelt for the WY 2013 following the formula in Table C-4 of the BO is 2,350 (revised).

The 2012 Delta Smelt Recovery Index (based on September and October) is 13. More information on the Recovery Index can be found on the Bay-Delta Office's web site at http://www.fws.gov/sfbaydelta/species/delta_smelt.cfm. Results from CDFW surveys are available online at: <http://www.dfg.ca.gov/delta/>.

1) Salvage:

Delta Smelt:

A total of 332 young of the year delta smelt of salvageable size (≥ 20 mm) were observed at the CVP and SWP fish facilities for the reporting period of May 27 through June 2 (SWP=324; CVP=8). The season total for juvenile delta smelt ≥ 20 mm is 1,202; or 51% of the WY 2013 larval/juvenile incidental take limit of 2,350. No delta smelt young-of-the-year were observed in larval fish samples from May 27 through 29 at the SWP and May 27 through June 2 at the CVP.

Longfin Smelt:

A total of 58 young of the year (≥ 20 mm FL) longfin smelt (LFS) was salvaged at the SWP fish facility for the reporting period of May 27 through June 2. No LFS post-larva < 20 mm was observed at the CVP facility from May 20-27 and none were observed at the SWP facility from May 20-22.

Salvage Operations

Current longfin smelt and delta smelt salvage information can be downloaded from DFG's salvage FTP site at <ftp://ftp.dfg.ca.gov/salvage/Daily%20Smelt%20Summary/> or queried from DFG's salvage web page at <http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx>

2) Expected Project Operations:

Combined CVP/SWP exports are approximately 2,000 cfs as of today and are expected to remain at this level through this week. D-1641 water quality standards for June require meeting 7,100 cfs outflow at Collinsville for the entire month (3-day average), which is presently controlling operations. Operators anticipate that OMR flow for the coming week will be approximately - 2,500 cfs.

3) Particle Tracking Modeling:

Three scenarios were run: 1,500 cfs combined pumping, -3,500 cfs OMR flow, and -5,000 cfs OMR flow. Particles were injected at stations 809, 812, and 902. San Joaquin River flow was assumed to be 950 cfs for the 30 day modeling period. Results of the modeling runs are attached and were discussed during the call.

4) Assessment of Risk:

Background:

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 -5,000 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 monitoring, salvage, field surveys, and planned Project operations.

The Working Group is following the guidance provided in Action 3 of the RPA for assessing the risk of entrainment to juveniles. The Working Group discussed its May 28 recommendation, the WY 2013 juvenile delta smelt Incidental Take Limit (ITL), the recent delta smelt distribution data from field surveys, and the low level of salvage of juvenile and larval delta smelt.

Daily OMR flows since May 27 have ranged between approximately -950 and -2,900 cfs. OMR flows are anticipated to remain at approximately -2,500 cfs this week. Exports are constrained by D-1641 to support the 7,100 cfs outflow water quality standard at Collinsville.

Salvage of ≥ 20 mm size delta smelt increased over the reporting period of May 27 through June 2, as compared to the previous week. Total take for the season is now 1,202 or 51% of the WY 2013 annual ITL of 2,350.

Preliminary distribution data from 20-mm Survey #6 indicate that the center of distribution of larval and juvenile delta smelt is out of the south and central Delta, as have the previous 20-mm Surveys. No delta smelt were detected at the southern Delta stations. The Working Group will continue to monitor fish distribution data, and review updated data from 20-mm Surveys as they become available.

Projected operations are expected to result in OMRs that are less negative than the intermediate PTM run scenario of -3500cfs, which indicated that approximately 10% of particles inserted at 20mm stations 809 and 812 would be ultimately entrained at the projects over 30 days. Because

temperatures are increasing, the SWG expects that delta smelt will be behaving less like particles as they move downstream.

Although a large number of delta smelt were salvaged over the weekend, the Working Group does not see the need to change the recommendation from last week. Some members stated that when southern Delta water temperatures reach the 23° to 25°C range, we can expect an initial salvage event, followed by much smaller levels of salvage until lethal water temperatures are reached for the southern Delta. Members posited that this initial surge of salvage may be the result of the remaining south Delta delta smelt attempting to move downstream to their summer habitat in response to the recent upswing in water temperatures.

Based on the review of current delta smelt distribution and salvage data, current Delta conditions and projected operations, the Working Group agrees that projected operations are sufficiently protective of delta smelt. The Working Group will continue to monitor Delta conditions and survey data.

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

Advice for week of June 3, 2013:

The Smelt Working Group believes that an OMR of -5,000 cfs is protective of longfin smelt at this time. No advice for Barker Slough operations is necessary at this time.

Summary of Risk:

Risk of additional entrainment into the south Delta is very low. No longfin smelt larvae were detected in the central or south Delta, though some samples remain to be processed. Current central Delta hydrologic conditions are neutral with exports at a minima of about 1,500 cfs combined. Qwest remains positive at about +1,600 cfs and should hold positive while total exports continued at 1,500 cfs. San Joaquin River flow remains about 900 and water temperature at Vernalis surpassed 22°C, above the threshold for longfin smelt. As the south Delta approaches the 22°C level, longfin smelt are believed to emigrate. Thus there's little risk of additional larva entrainment into the south Delta. Within the south Delta, OMR has been weakly negative. The longfin smelt ITP concern period for Barker Slough ended March 31. Barker exports have been about 100 cfs recently; risk of entrainment is low even though longfin smelt densities were detected in 20-mm Survey #5 results for Station 718.

Summary of Advice:

Previously, SLS Survey #3 distribution numbers triggered Longfin Smelt Incidental Take Permit advice from the SWG on February 4 to limit OMR flows to -5,000 cfs (see criterion 3 below). On February 19, to limit south Delta entrainment of larvae from Station 809 and other San Joaquin River stations, an OMR of no more negative than -4,000 cfs was advised. On February 25 and 26, SLS Survey #5 central and south Delta catches from declined rather than increased, so as of March 4 an OMR of -5,000 was once again deemed protective. Since then central and south Delta larva numbers have remained low. As of June 3 and similar to March, April and May reviews, OMR of -5,000 was deemed protective. Actual flow and export conditions present

through April and May were very favorable. In early June, south Delta temperatures increased to 20°C+, close to the putative limit for longfin smelt in the wild of 22°C.

On March 31, the ITP advice period for Barker Slough ended. Even though longfin smelt larvae remain in the vicinity, Barker Slough exports have remained low from March 1 (< 30 cfs) through April 17 and only increased to 50 cfs on the 18th and to about 100 cfs on May 11 and afterwards; posing little risk for longfin smelt larvae.

Basis for advice:

The 2009 State Water Project 2081 for longfin smelt states that advice to the DFG Director shall be based on the following criteria:

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 (Stations 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. For Barker Slough Exports only: between January 15 and March 31 of Critically Dry or Dry water years only (Sacramento River), based on abundance and distribution and detection of longfin smelt larvae at Station 716.

Discussion of Criteria

1. During the period May 27-June 2, 58 juvenile longfin smelt were salvaged, up slightly from the 42 salvaged the previous week. Nonetheless, salvage remains very low. Due to warming water temperatures, it is unlikely that any more adult longfin smelt will be salvaged this year. Juvenile longfin smelt can be expected in salvage but it is also unlikely that substantially greater numbers of these fish will be salvaged for the remainder of this season.

2. Longfin smelt spawning is likely over for 2013. In early March Bay Study collected 3 longfin smelt adults just upstream from the Antioch Bridge, suggesting that some additional spawning took place in the lower San Joaquin River. No other longfin smelt adults were detected in the central or south Delta since then.

3 & 4. The sixth 20-mm Survey took place May 20 through 23. An algal bloom in the lower San Joaquin River and south Delta was clearing and necessitated only a single reduced tow time to avoid net clogging. No longfin smelt larvae were detected in the central or south Delta based on almost complete processing (Table 1). Although our sampling was reduced, there is no evidence of additional risk of entrainment into the south Delta and an OMR of -5,000 remains protective at this time.

5. Barker Slough Exports: The ITP period of concern ended March 31. Even though some longfin smelt larvae were present at Station 718 in Lindsay Slough, the recent export levels (ca 100 cfs) pose little risk.

(<http://www.water.ca.gov/swp/operationscontrol/docs/delta/DeltaHydrology.pdf>).

Current conditions: Net Delta outflow was about 8,400 cfs on June 2. X2 decreased to above 79.9 km. Combined State and federal exports increased from 1,500 to 2,000 cfs. Averaged OMR flows since mid-May have been weakly negative: CDEC 14 day average -1,736. Weakly negative OMR flows are not anticipated to change; even though May 31 ended the NMFS BO's San Joaquin River flow RPA requiring a 1:1 ratio of exports, the D-1641 Collinsville standard for X2 remains controlling and will limit exports. Qwest has been weekly positive.

Table 1. Longfin smelt catch per station from 20-mm Survey, Survey #6, 2013. Processing is partial and data are preliminary and subject to change.

Year	Survey	Station	Date	# Tows Processed	Species	Total Catch	Min Length	Max Length	Avg Length	
2013	6	323	22-May-13	1	No Longfin Catch	0				Suisun Bay & West
2013	6	340	22-May-13	1	No Longfin Catch	0				
2013	6	342	22-May-13	1	No Longfin Catch	0				
2013	6	343	22-May-13	1	No Longfin Catch	0				
2013	6	344	22-May-13	1	No Longfin Catch	0				
2013	6	345	22-May-13	3	No Longfin Catch	0				
2013	6	346	22-May-13	1	No Longfin Catch	0				
2013	6	405	21-May-13	1	Longfin Smelt	3	27	29	28.00	
2013	6	411	23-May-13	1	No Longfin Catch	0				
2013	6	418	23-May-13	1	Longfin Smelt	27	23	34	27.70	
2013	6	501	21-May-13	1	Longfin Smelt	5	27	29	27.60	
2013	6	504	23-May-13	1	Longfin Smelt	17	24	30	26.88	
2013	6	519	21-May-13	1	Longfin Smelt	19	19	32	25.42	
2013	6	602	21-May-13	1	Longfin Smelt	3	25	28	26.67	
2013	6	606	21-May-13	1	Longfin Smelt	375	20	33	26.08	
2013	6	609	21-May-13	1	Longfin Smelt	25	20	37	27.08	
2013	6	610	21-May-13	1	Longfin Smelt	82	20	34	25.56	
2013	6	508	22-May-13	1	Longfin Smelt	62	17	30	23.72	
2013	6	513	22-May-13	1	Longfin Smelt	48	20	32	25.60	
2013	6	520	22-May-13	1	Longfin Smelt	459	20	31	25.24	
2013	6	801	22-May-13	3	Longfin Smelt	2	19	25	22.00	
2013	6	804	22-May-13	3	Longfin Smelt	64	18	30	24.11	
2013	6	703	22-May-13	3	Longfin Smelt	10	16	25	21.10	
2013	6	704	22-May-13	3	Longfin Smelt	15	19	30	23.93	
2013	6	705	21-May-13	3	No Longfin Catch	0				
2013	6	706	22-May-13	3	No Longfin Catch	0				
2013	6	707	22-May-13	3	No Longfin Catch	0				
2013	6	711	21-May-13	3	No Longfin Catch	0				
2013	6	716	20-May-13	3	Longfin Smelt	1	30	30	30.00	
2013	6	718	20-May-13	3	Longfin Smelt	1	28	28	28.00	
2013	6	719	20-May-13	1	Longfin Smelt	1	41	41	41.00	
2013	6	720	20-May-13	3	No Longfin Catch	0				
2013	6	723	20-May-13	1	No Longfin Catch	0				
2013	6	724	20-May-13	3	No Longfin Catch	0				
2013	6	726	20-May-13	1	No Longfin Catch	0				
2013	6	809	20-May-13	1	No Longfin Catch	0				
2013	6	812	21-May-13	1	No Longfin Catch	0				
2013	6	815	21-May-13	1	No Longfin Catch	0				
2013	6	901*	20-May-13	3	No Longfin Catch	0				
2013	6	902	20-May-13	3	No Longfin Catch	0				
2013	6	906	21-May-13	3	No Longfin Catch	0				
2013	6	910	20-May-13	3	No Longfin Catch	0				
2013	6	912	20-May-13	3	No Longfin Catch	0				
2013	6	914	20-May-13	3	No Longfin Catch	0				
2013	6	915	20-May-13	3	No Longfin Catch	0				
2013	6	918	20-May-13	3	No Longfin Catch	0				
2013	6	919	21-May-13	3	No Longfin Catch	0				

Processing complete through 5/31/2013

*Reduced tow time