

SMELT WORKING GROUP
Monday, June 10, 2013

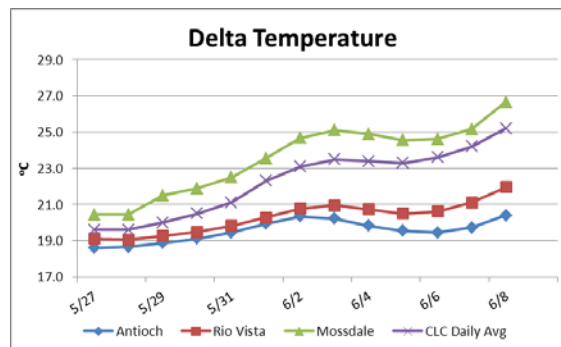
Meeting Summary:

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 17, 2013, at 10 am.

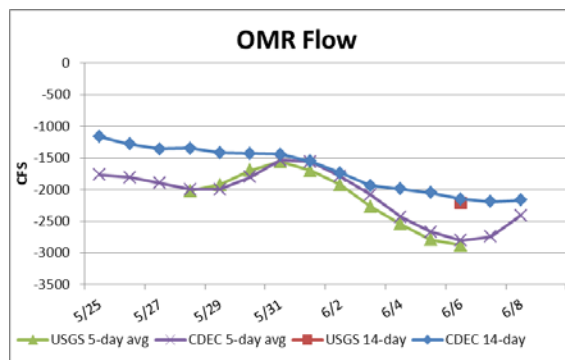
Reported Data:

1) Current environmental data:

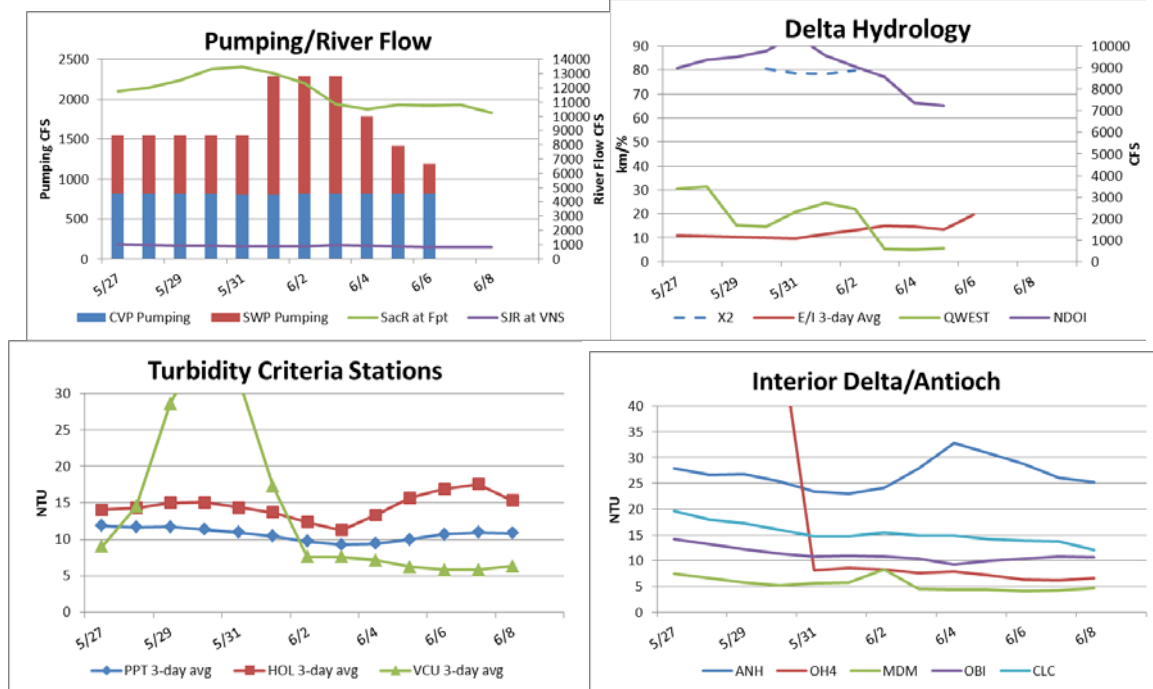
- **Water temperatures:**



- **OMR:** USGS tidally-averaged 5-day and 14-day average OMR flow on June 6 was -2,878 cfs and -2,215 cfs, respectively. The 5-day and 14-day average OMR flows were reported as -2,460 cfs and -2225 cfs, respectively, at the time of the Working Group meeting.



- **Flow:** Sacramento River flows at Freeport are approximately 10,832 cfs and San Joaquin River at Vernalis is approximately 831 cfs, while X₂ was upstream of Collinsville.



Delta Fish Monitoring:

The 20-mm Survey #7 was in the field June 3 through 6. Processing of samples from Survey #7 is ongoing; 28% of all samples have been processed to date. A total of 85 delta smelt has been collected ranging in length from 15 and 40 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 292 young of the year delta smelt of salvageable size (≥ 20 mm) was observed at the CVP and SWP fish facilities for the reporting period of June 3 through June 9 (SWP=272; CVP=20). The season total for juvenile delta smelt ≥ 20 mm is 1,524; or 65% of the WY 2013 larval/juvenile incidental take limit of 2,350. Larval fish sampling was conducted at the SWP

from June 3 through June 6 and the CVP from June 3 through June 9; one delta smelt (<20mm) was observed in the larval fish samples from the SWP on June 3.

Longfin Smelt:

A total of 10 young of the year (≥ 20 mm FL) longfin smelt (LFS) was salvaged at the SWP fish facility for the reporting period of June 3 through June 9; no LFS were salvaged at the CVP. No LFS post-larva < 20 mm have been observed in larval fish samples collected at either the SWP or CVP since May 7.

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:

Projected exports at the CVP are targeting 800 cfs. Projected exports at the SWP are targeting 1,000 cfs and may increase to 2,000 cfs on Wednesday (06/12). D-1641 water quality standards for June require meeting 7,100 cfs outflow at Collinsville for the month (3-day average), which is presently controlling operations.

3) Particle Tracking Modeling:

No PTM runs were requested for this week.

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 daily

water temperature at Clifton Court Forebay reaches 25°C for three consecutive days (pages 282 and 358).

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 June 3 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 June 3 have ranged between approximately -1,786 and -3,469 cfs. Exports are presently constrained by D-1641 to support the 7,100 cfs outflow water quality standard at Collinsville.

Delta smelt distribution data from field surveys conducted every other week since the beginning of May (20-mm Surveys #5 through #7) indicate that the center of delta smelt distribution has been out of the south Delta. The majority of delta smelt collected from 20-mm Survey #7 (in the field the week of June 3; sample processing is ongoing), were observed in the lower Sacramento River and confluence area.

A total of 292 larval/juvenile delta smelt (≥ 20 mm) was salvaged over the reporting period of June 3 through June 9 (SWP=272; CVP=20). This is a reduction from the previous week's salvage (week of May 27), which was the highest weekly salvage of juvenile delta smelt in WY 2013. The cumulative seasonal total of salvaged larval/juvenile delta smelt is 1524, or 65% of the WY 2013 total ITL of 2,350.

The weekly total salvage decreased last week as compared to the previous week, which may be indicative of a pattern historically observed where salvage spikes as temperatures increase and approach approximately 25°C. As water temperatures continue to approach 25°C, it is less likely that an additional spike in delta smelt salvage will be observed. This pattern of salvage may be a result of delta smelt moving downstream and away from the influence of project exports, and is similar to what has been observed over the last several weeks with longfin smelt. Water temperatures at Clifton Court Forebay (gauge CLC) have steadily increased since May 31, and reached 25°C this past Saturday and Sunday (June 8 and 9).

The SWG noted that in addition to increased water temperatures, this past week's salvage reduction also coincided with a reduction in exports at the SWP, and will continue to monitor salvage as it relates to both water temperature and exports. As ambient temperatures over the next 7 to 10 days are expected to be much cooler than what was observed this past weekend, water temperatures in the south Delta are expected to decrease.

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 and salvage data.

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

Advice for week of June 10, 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. Only a single longfin smelt larvae was 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 weakly positive and should hold positive while total exports continued at 1,500 cfs or less. San Joaquin River flow remains about 800 cfs 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 June 3 through June 9, 10 juvenile longfin smelt were salvaged, a marked decrease from the 58 salvaged the previous week. No juvenile longfin smelt has been salvaged since June 4. Due to warming water temperatures, it is unlikely that any more adult longfin smelt will be salvaged this year. Similarly, it is also unlikely that substantially greater numbers of juvenile longfin smelt will be salvaged for the remainder of this season.

2. Longfin smelt spawning is 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 seventh 20-mm Survey took place June 3 through 6. Only a single longfin smelt larva was detected in the central or south Delta based on partially completed processing of these samples (Table 1). 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, 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 7,400 cfs. Combined State and federal exports will increase from 1,800 to 2,000 cfs on June 12. Averaged OMR flows since mid-May have been moderately negative: USGS 14 day average was -2,225 cfs on June 6. Weakly negative OMR flows are not anticipated to change markedly; even though May 31 ended the NMFS BO's San Joaquin River flow RPA requiring a 1:1 ratio of exports. D-1641 Collinsville standard for X2 remains controlling and will limit exports. Qwest has been weakly positive – about +2,200 cfs last weekend.

Table 1. Longfin smelt catch per station from 20-mm Survey, Survey #7, 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	7	323		0	Not Yet Processed	0				Suisun Bay & West
2013	7	340		0	Not Yet Processed	0				
2013	7	342		0	Not Yet Processed	0				
2013	7	343		0	Not Yet Processed	0				
2013	7	344		0	Not Yet Processed	0				
2013	7	345		0	Not Yet Processed	0				
2013	7	346		0	Not Yet Processed	0				
2013	7	405		0	Not Yet Processed	0				
2013	7	411		0	Not Yet Processed	0				
2013	7	418		0	Not Yet Processed	0				
2013	7	501		0	Not Yet Processed	0				
2013	7	504		0	Not Yet Processed	0				
2013	7	519		0	Not Yet Processed	0				
2013	7	602		0	Not Yet Processed	0				
2013	7	606		0	Not Yet Processed	0				
2013	7	609		0	Not Yet Processed	0				
2013	7	610		0	Not Yet Processed	0				
2013	7	508		0	Not Yet Processed	0				Confluence
2013	7	513		0	Not Yet Processed	0				
2013	7	520		0	Not Yet Processed	0				
2013	7	801		0	Not Yet Processed	0				Sac. River System
2013	7	804	05-Jun-13	1	No Longfin Catch	0				
2013	7	703	05-Jun-13	3	Longfin Smelt	5	23	29	26.40	
2013	7	704	05-Jun-13	1	Longfin Smelt	56	21	35	28.34	
2013	7	705	04-Jun-13	1	No Longfin Catch	0				
2013	7	706	04-Jun-13	1	Longfin Smelt	12	26	32	29.17	
2013	7	707	04-Jun-13	1	Longfin Smelt	1	21	21	21.00	
2013	7	711		0	Not Yet Processed	0				
2013	7	716	03-Jun-13	1	No Longfin Catch	0				
2013	7	718	03-Jun-13	1	No Longfin Catch	0				
2013	7	719	03-Jun-13	1	No Longfin Catch	0				
2013	7	720	03-Jun-13	1	No Longfin Catch	0				
2013	7	723	03-Jun-13	1	No Longfin Catch	0				
2013	7	724	03-Jun-13	1	No Longfin Catch	0				
2013	7	726		0	Not Yet Processed	0				
2013	7	809	03-Jun-13	1	No Longfin Catch	0				Central & South Delta
2013	7	812		0	Not Yet Processed	0				
2013	7	815		0	Not Yet Processed	0				
2013	7	901	03-Jun-13	2	No Longfin Catch	0				
2013	7	902	03-Jun-13	3	No Longfin Catch	0				
2013	7	906	04-Jun-13	1	No Longfin Catch	0				
2013	7	910	03-Jun-13	3	No Longfin Catch	0				
2013	7	912	03-Jun-13	3	Longfin Smelt	1	14	14	14.00	
2013	7	914	03-Jun-13	1	No Longfin Catch	0				
2013	7	915	03-Jun-13	2	No Longfin Catch	0				
2013	7	918	03-Jun-13	2	No Longfin Catch	0				
2013	7	919	04-Jun-13	1	No Longfin Catch	0				

Processing complete through 06/07/2013