

SMELT WORKING GROUP
Monday, April 29, 2013

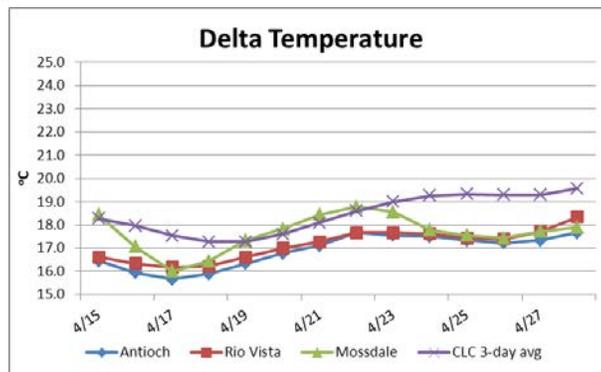
Meeting Summary:

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, adult and larval smelt survey data, and Delta hydrological conditions and will reconvene May 6, 2013, at 10 am.

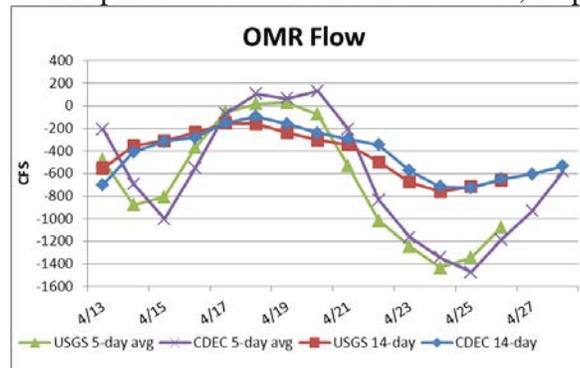
Reported Data:

1) Current environmental data:

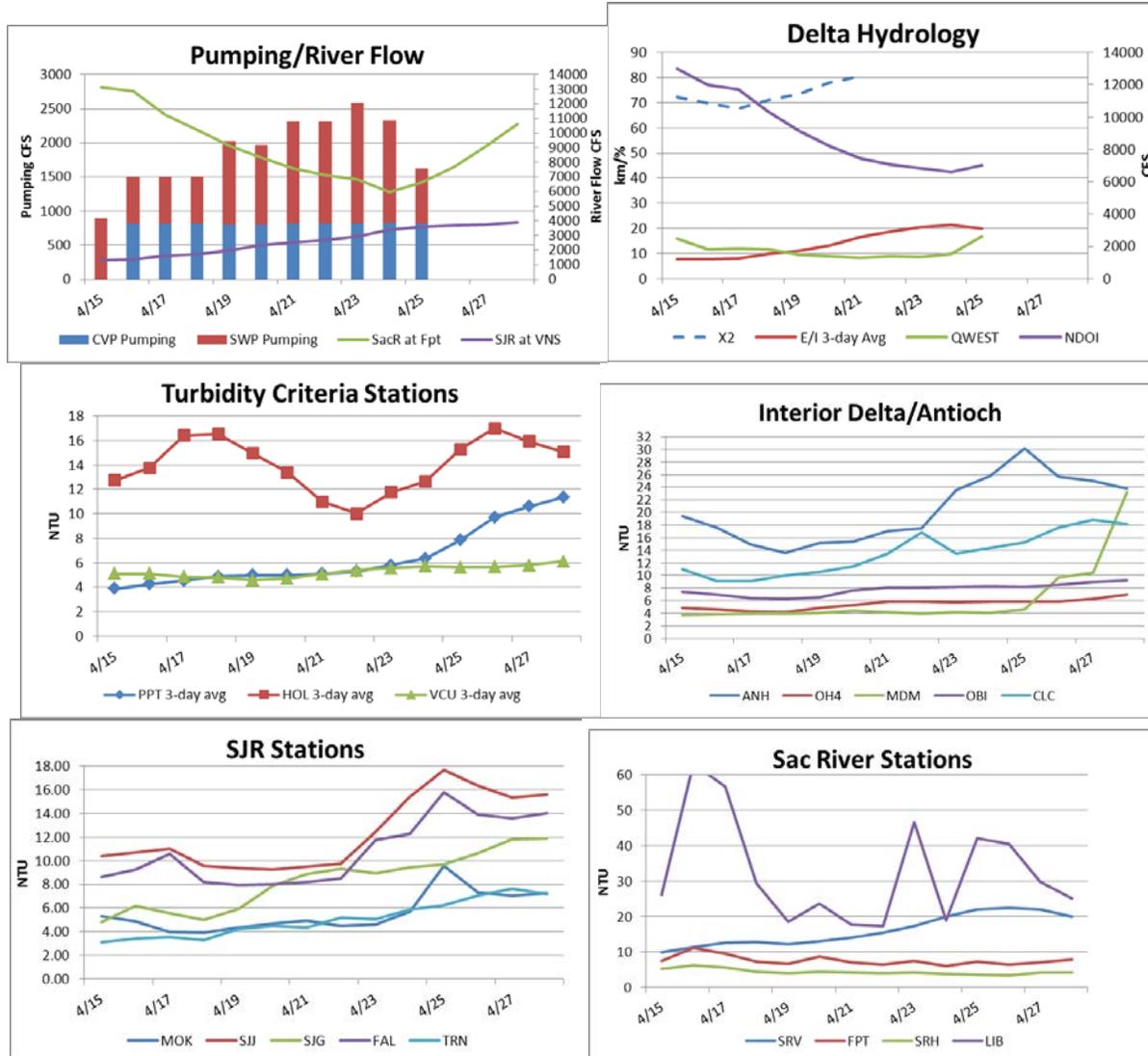
- **Water temperatures:**



- **OMR:** USGS tidally-averaged 5-day average OMR flow and 14-day average OMR flow on April 26 was -1,076 cfs and -659 cfs, respectively. CDEC 5-day average OMR flow and 14-day average OMR flow on April 28 was -582 cfs and -536 cfs, respectively.



- **Flow:** Sacramento River flows at Freeport are approximately 10,629 cfs and San Joaquin River at Vernalis is approximately 3,881 cfs, while X₂ was upstream of 82km.



Delta Fish Monitoring:

The 20-mm Survey #4 was in the field last week, beginning April 22. Sample processing is approximately 26% complete. At least one sample has been processed from all south and central Delta stations, and most Sacramento River stations. A total of 41 delta smelt were collected so far, with a size range of 9 to 28 mm. Eleven delta smelt were collected from 2 stations in the south and central Delta (10 fish from 809 and 1 fish from 815); the remaining 30 delta smelt were collected in the Sacramento River system. Processing is also on-going for 20-mm Surveys #2 and 3. Updated 20-mm Survey data have been uploaded to the 20-mm Survey webpage (<http://www.dfg.ca.gov/delta/projects.asp?ProjectID=20mm>).

Spring Kodiak Trawl #5 is in the field this week. Preliminary results for the central and southern Delta stations are anticipated prior to the next SWG call.

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:

No adult delta smelt (DS) have been salvaged since March 25. The preliminary season total of adult DS is 260, or 72% of the 2013 ITL. Adult DS salvage will only be reported in subsequent weeks should salvage occur.

A total of 28 young of the year DS of salvageable size (≥ 20 mm) was observed at the SWP fish facility for the reporting period of April 22 through April 28: 8 at the SWP on April 23, and a total of 20 at the CVP on April 25 and 26. The season total for juvenile DS ≥ 20 mm is now 36. DS larvae < 20 mm were observed in larval fish samples taken at the SWP on April 20 through 24. Larval fish samples for the previous week are still being processed at this time.

Longfin Smelt:

A total of 76 young of the year (≥ 20 mm FL) longfin smelt (LFS) was salvaged for the reporting period: 24 at the SWP and 52 at the CVP. LFS post-larvae < 20 mm were observed at the CVP on April 20 and 22 and at the SWP on April 21 and 22. No adult LFS was salvaged last week.

Salvage Operations

One of the two CVP salvaged fish release sites will be out of commission starting on May 1 for repairs.

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 2,500 cfs as of today. Projected operations are expected to target a combined 4,000 cfs starting May 2, in support of the SWRCB D-1641 water quality requirements of 1:1 pumping to flow at the San Joaquin River at Vernalis. In addition, the NMFS RPA also requires 1:1 pumping with the flow at Vernalis from April 1 through May 31.

3) Particle Tracking Modeling:

No PTM runs were requested or discussed.

4) Turbidity Modeling:

No turbidity modeling was discussed today.

5) 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 continues to assess the risk of entrainment to adults and is following the guidance provided in Action 3 of the RPA for assessing the risk of entrainment to juveniles. The Working Group discussed its April 22 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.

The WY 2013 ITL for juvenile delta smelt is 2350. The concern level and incidental take statistics for WY 2013 (following Table C-4 of the BO), are as follows:

	April	May	June	July	Total
Concern	13	540	1379	1566	1566
ITL	20	809	2069	2350	2350

The Working Group recommends to the Service that planned operations and current OMR

flows are sufficiently protective of delta smelt. Should projected operations deviate from what was reported, resulting in OMR flows becoming increasingly negative (daily values approaching -2,500 to -3,000 cfs), the Working Group will reconvene to review new available data and the entrainment risk to delta smelt.

Salvage of ≥ 20 mm size delta smelt increased during the previous week. The monthly take limit for April was exceeded; however, this number reflects 2% of the WY 2013 annual ITL of 2,350.

Daily OMR flows since April 21 have ranged between approximately -1,800 and +424 cfs, and larvae of salvageable size were detected on April 23, 25 and 26. Similarly positive OMR flows are anticipated to continue through May 31, which is the end of the NMFS BO's San Joaquin River flow RPA requiring a 1:1 ratio of exports to flows at Vernalis in critically dry water year types. The daily OMR flows have been mostly more protective than the range of 14-day average OMR target flows required in the Service's BO RPA Action 3 for larval and juvenile delta smelt (-1,250 to -5,000 cfs).

Based on samples processed so far from 20-mm Survey #4, it appears that the center of distribution of larvae is out of the south the central Delta. This is an apparent shift from the larval distribution indicated in 20-mm Surveys #2 and 3, which indicated larvae may be occurring in the same (or slightly lower) proportion than in the north Delta. The Working Group will continue to monitor this pattern of fish distribution, and review updated data from 20-mm Surveys as they become available.

Samples from the SWP larval fish sampling (conducted between April 21 and April 24) indicate that there are larval delta smelt in the south and central Delta. The Working Group acknowledged the potential to begin seeing an increase salvageable-size (≥ 20 mm) delta smelt at the facilities in the near term.

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. As projected operations are anticipated to change in the next week or two, the Working Group will continue to monitor Delta conditions and surveys data. Should OMR flow become increasingly negative (approaching a daily OMR flow range of -2,500 to -3,000 cfs), the Working Group will meet to conduct an additional delta smelt entrainment risk assessment.

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

Advice for week of April 29, 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. Few longfin smelt larvae remain in the central Delta, and current hydrologic conditions are very favorable. Qwest remains

positive at about +3,247 cfs and should hold positive while total exports (2,500 cfs starting April 29) are temporarily lower than San Joaquin River inflow (3,881 cfs at Vernalis) to improve west Delta water quality. Thus there's little risk of additional larva entrainment into the south Delta even though some longfin smelt larvae remain in the San Joaquin River and Old River. Within the south Delta, OMR has just turned positive after a period of weakly negative (more positive than -1,000 cfs). The longfin smelt ITP concern period for Barker Slough ended March 31. Barker exports have been < 35 cfs since March 1, increased to 50 on April 18 and increased to about 70 cfs April 24; risk of entrainment is low even though longfin smelt densities were relatively high based on 20-mm Survey #4 results for Station 718 and 720.

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 April 8 and similar to March and early April reviews, OMR of -5,000 was deemed protective. Actual conditions present through April have been much more favorable.

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, 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. Seventy-six juvenile longfin smelt were salvaged during the period April 22-28; thirty-six juvenile longfin smelt were salvaged during the period of April 14-21, and larvae were detected regularly through both periods. Due to warming water temperatures, it is unlikely that any more adult longfin smelt will be salvaged this year. More juvenile longfin smelt can be expected in salvage, but no ITP criterion exists for juvenile longfin smelt.

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 fourth 20-mm Survey took place April 22-25 and longfin smelt larvae were detected in low numbers in Old River and in the lower San Joaquin River (Table 1). With the exception of Station 809, few larvae remain in the central and south Delta regions. Thus, 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 numerous longfin smelt larvae are present at Station 716 and at 718 and 720 in Lindsay Slough, the recent low export levels pose little risk and the increase to 70 cfs April 24 is still low. (<http://www.water.ca.gov/swp/operationscontrol/docs/delta/DeltaHydrology.pdf>).

Current conditions: Net Delta outflow has declined rapidly to about 6,800 cfs on April 21 and remained near that level, but will increase this week. X2 increased to over 80 km. Combined State and federal exports were 1,800 over the weekend and are currently at 2,500 cfs. This is below Vernalis flows (ca. 3,880 cfs) to provide improved outflow for west Delta water quality. Qwest has been modestly positive (+1,404 to +3,087) for the past week and is currently +3,247.

Table 1. Longfin smelt catch per station from 20-mm Survey, Survey #4, 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	4	323		0	Nbt Yet Processed	0				Suisun Bay & West
2013	4	340		0	Nbt Yet Processed	0				
2013	4	342		0	Nbt Yet Processed	0				
2013	4	343		0	Nbt Yet Processed	0				
2013	4	344		0	Nbt Yet Processed	0				
2013	4	345		0	Nbt Yet Processed	0				
2013	4	346		0	Nbt Yet Processed	0				
2013	4	405		0	Nbt Yet Processed	0				
2013	4	411		0	Nbt Yet Processed	0				
2013	4	418		0	Nbt Yet Processed	0				
2013	4	501	23-Apr-13	1	Longfin Smelt	50	13	24	19.50	Confluence
2013	4	504	23-Apr-13	1	Longfin Smelt	5	14	28	21.80	
2013	4	519	23-Apr-13	1	Longfin Smelt	157	16	28	21.28	
2013	4	602	23-Apr-13	1	Longfin Smelt	69	14	28	19.98	
2013	4	606		0	Nbt Yet Processed	0				
2013	4	609		0	Nbt Yet Processed	0				
2013	4	610	23-Apr-13	1	Longfin Smelt	303	16	26	21.06	
2013	4	508		0	Nbt Yet Processed	0				
2013	4	513		0	Nbt Yet Processed	0				
2013	4	520		0	Nbt Yet Processed	0				
2013	4	801		0	Nbt Yet Processed	0				
2013	4	804		0	Nbt Yet Processed	0				
2013	4	703		0	Nbt Yet Processed	0				
2013	4	704		0	Nbt Yet Processed	0				
2013	4	705	23-Apr-13	1	Longfin Smelt	2	11	13	12.00	Sac. River System
2013	4	706	23-Apr-13	1	Longfin Smelt	1084	12	24	18.68	
2013	4	707	23-Apr-13	1	Longfin Smelt	53	12	24	18.60	
2013	4	711	22-Apr-13	2	Nb Longfin Catch	0				
2013	4	716	22-Apr-13	1	Longfin Smelt	2	15	16	15.50	
2013	4	718	22-Apr-13	1	Longfin Smelt	2	21	21	21.00	
2013	4	719	22-Apr-13	1	Longfin Smelt	10	16	34	23.10	
2013	4	720	22-Apr-13	1	Longfin Smelt	5	18	24	20.40	
2013	4	723	22-Apr-13	1	Longfin Smelt	2	19	28	23.50	
2013	4	724	22-Apr-13	1	Nb Longfin Catch	0				
2013	4	726		0	Nbt Yet Processed	0				
2013	4	809	22-Apr-13	2	Longfin Smelt	18	12	21	15.72	Central & South Delta
2013	4	812	23-Apr-13	1	Longfin Smelt	2	14	14	14.00	
2013	4	815	23-Apr-13	1	Nb Longfin Catch	0				
2013	4	901	22-Apr-13	3	Nb Longfin Catch	0				
2013	4	902	22-Apr-13	3	Longfin Smelt	1	12	12	12.00	
2013	4	906	23-Apr-13	2	Nb Longfin Catch	0				
2013	4	910	22-Apr-13	1	Nb Longfin Catch	0				
2013	4	912	22-Apr-13	1	Nb Longfin Catch	0				
2013	4	914	22-Apr-13	1	Nb Longfin Catch	0				
2013	4	915	22-Apr-13	3	Nb Longfin Catch	0				
2013	4	918	22-Apr-13	1	Nb Longfin Catch	0				
2013	4	919	23-Apr-13	1	Nb Longfin Catch	0				

Processing complete through 4/25/2013