

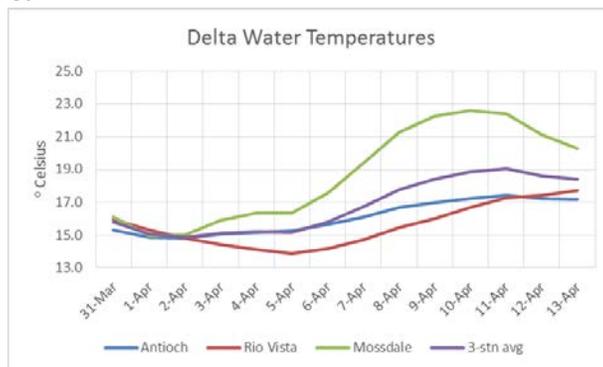
**Smelt Working Group
Monday, April 14, 2014**

Meeting Summary:

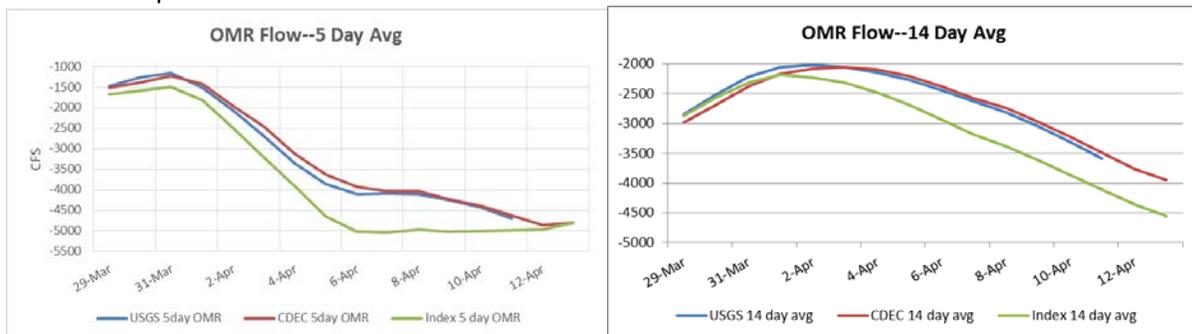
The Working Group agreed given their present distribution, current salvage, and Delta conditions, there was no indication that projected exports (potentially resulting in OMR flows as negative as approximately -3500 cfs daily average) need to be more restrictive for the protection of delta smelt adults and larvae. 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 next scheduled SWG meeting will be Monday, April 21.

Reported Data:

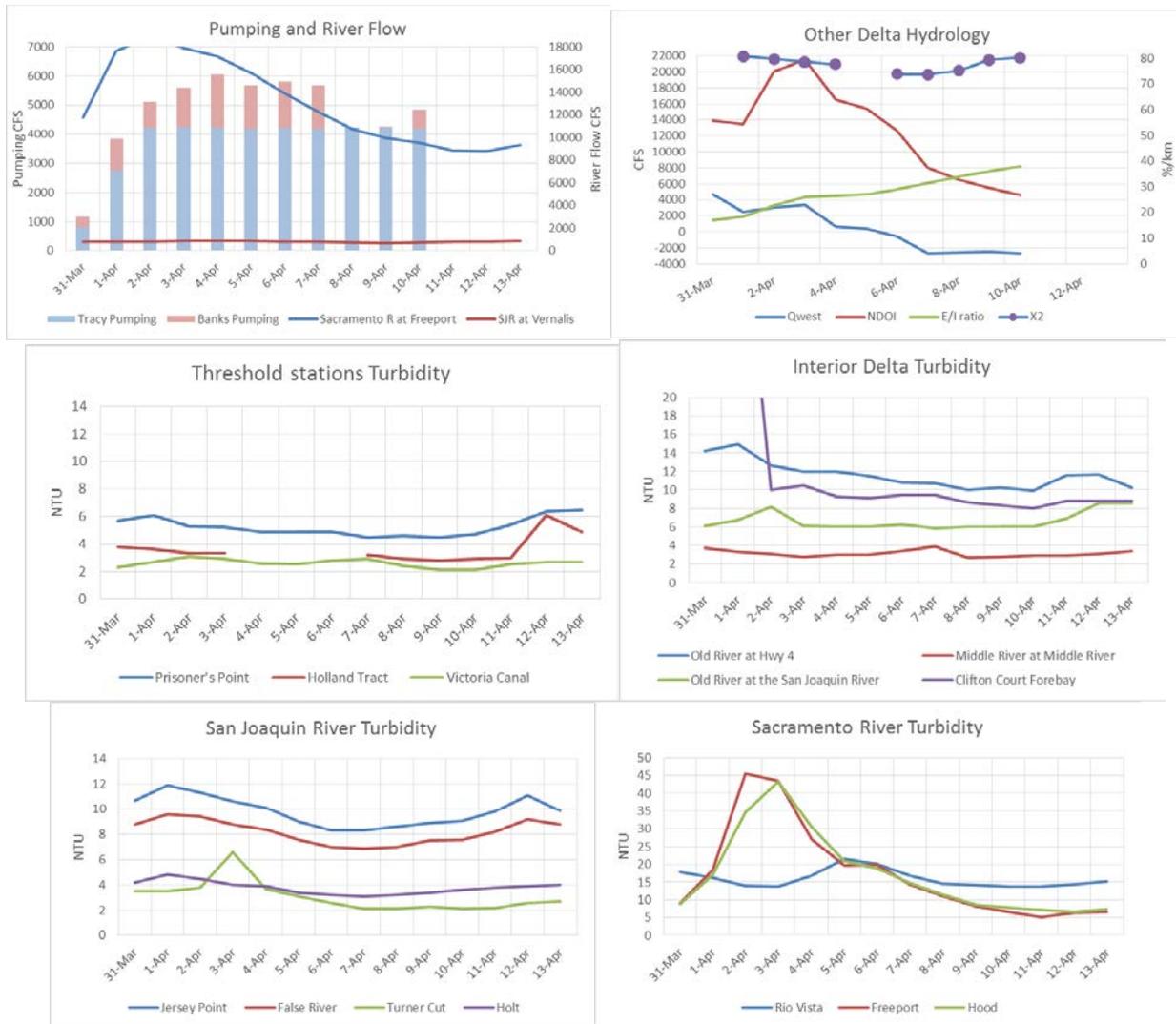
1. **Current environmental data:**
 - **Water temperatures:**



- **OMR flow:** USGS tidally averaged OMR flow 14-day and 5-day average for April 11 is listed as -3590 cfs and -4700 cfs. CDEC 14-day and 5-day average for April 13 is listed as -3952 cfs and -4796 cfs. OMR Index Method 14-day average was reported as -4600 cfs and the 5-day average was reported as -4800 cfs.



- **Flow:** Sacramento River average daily flow for April 13 was 9382 cfs and San Joaquin River average daily flow was 849 cfs. X2 calculation from CDEC was upstream of Colinsville (81 km). The graphs below show the most recent trends in Delta hydrology and water quality that were evaluated by the Working Group.



2. Delta Fish Monitoring:

Spring Kodiak Trawl #4 was in the field last week. A total of 36 delta smelt were collected: 27 from station 719 in the Sacramento Deepwater Shipping Channel. The remaining catch of delta smelt were from stations in the Sacramento River, Montezuma Slough, and downstream.

20-mm Survey #2 was in the field the week of April 1. A total of 47 stations were sampled. Processing is complete. One delta smelt larva was detected (station 906) with a size of 12 mm. A total of 650 longfin smelt larvae have been collected, with an average length of 21 mm. 20-mm Survey #3 is in the field this week.

Jersey Point sampling continued for the Service's Early Warning Study through April 10. Catch was low for the final four days of sampling, with catches of zero to two fish per day. The survey was expected to continue through April 15. The Working Group is awaiting official word that this survey is now complete.

The 2013 Annual FMWT surveys have concluded. The Annual FMWT Index (based on all four months) for delta smelt is 18, the second lowest on record, and statistically indistinguishable from the lowest, 17, from 2009.

The 2013 Delta Smelt Recovery Index (based on September and October) is 4. 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 CDFG surveys are available online at: <http://www.dfg.ca.gov/delta/>.

3. Salvage:

No adult delta smelt or longfin smelt have been observed in salvage in WY2014 thus far. One larval delta smelt (12 mm) was processed in the larval collection at the SWP on April 2. Eight juvenile longfin smelt ≥ 20 mm were observed in salvage on April 7. No longfin smelt < 20 mm were observed in salvage for the reporting period of April 1 through 4.

There was no update on the Tracy Fish Collection Facility salvage routine.

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>

4. Expected Project Operations:

Combined SWP/CVP exports are at 3800 cfs as of today, and will drop to 2900 cfs tomorrow. Combined pumping is expected to be at 1500 cfs by April 17, to comply with the export to inflow ratio of 1:1 for April 15-May 15 (NMFS RPA Stanislaus River/Vernalis pulse flows) as well as the water quality standard of 1500 cfs export pumping as per the TUC water board order from January 31, 2014 and subsequent addendums (see below text).

Operators estimated that daily OMR flow levels for this week to be no more negative than approximately -3500 cfs.

No rain is anticipated this week. The DCC gate is closed.

The board's order from January 31, 2014 states that project operations must maintain a monthly net Delta outflow of no less than 3000 cfs and must not pump more than combined 1500 cfs. An addendum was submitted to the Board on February 7. This addendum allows the operators to revert to compliance with the monthly Outflow standard, and increase pumping above the 1500 cfs included in the TUC petition. A request to extend the board's January 31, 2014 order was approved through the end of March. An additional addendum was approved to modify the number of days required to meet an X2 at Chipps Island (11,400 cfs on a 3-day running average) for the remainder of March. The projects will continue to meet X2 at Collinsville (7,100 cfs on a 3-day running average) prescribed in the Board's Plan. A subsequent addendum was submitted and approved on April 9, 2014 to allow the projects to continue with their drought operations as approved by the board through the month of April.

5. Particle Tracking Modeling:

No modeling runs were discussed.

6. Turbidity Modeling:

No modeling runs were discussed.

7. Assessment of Risk:

Background:

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 SWG 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 monitoring, salvage, field surveys, and planned Project operations. Adult take limit is 155 with a concern level of 116 fish. Juvenile take limit is 1007 with a concern level of 671 fish. These numbers reflect the revised take estimate produced February 2013.

The only delta smelt larva to be collected so far in 20-mm Survey #2 was at station 906, however, the Working Group believes most larvae or young juveniles have not reached sufficient size to be efficiently collected by this gear. Previous survey efforts indicated the majority of the delta smelt population was likely out of the central and southern Delta, however this information is becoming out of date. The group expects some preliminary information from this week’s 20mm Survey #3 by the end of this week. There has been zero adult salvage so far this season, except for the one larva (collected April 2) observed in larval fish collections. Based on the current information the Working Group concluded there was insufficient evidence to recommend a change in expected operations for this week.

8. Framework for providing advice to the Service:

No update was provided.

The SWG will have the next meeting on April 21.

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

Advice for week of April 14, 2014:

The Smelt Working Group believes that current and planned export rates are protective of Longfin Smelt at this time.

Barker Slough operations advice terminated for the year as of 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 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 April 6, 2014, no age-1 or adult Longfin Smelt have been salvaged for the water year. The Fall Midwater Trawl Longfin Smelt annual abundance index was 164. The total salvage level threshold for advice is > 820 (see criterion in #1). No advice is warranted based on this criterion.

On February 24, the first Longfin Smelt larva was detected at the SWP and larvae were detected almost daily for about a week before declining (CVP started sampling for larvae as of March 13 on a day-time work-week schedule). On February 28, the first juvenile (age-0) Longfin Smelt was detected at the SWP. From April 7 and through April 13, 8 juvenile Longfin Smelt were collected and no larvae considering both facilities. This information is not related to a criterion and does not have a direct effect on advice.

2. December Fall Midwater Trawl and Bay Study sampling in December through March collected no Longfin Smelt in the central or south Delta, suggesting limited or no recent proximity to the export pumps. Distribution information does not indicate advice is warranted based on this criterion.

3 & 4. The second 20mm Survey of 2014 was conducted March 31-April 5. Longfin smelt larvae were detected at only 4 central and south Delta stations and 3 of 4 detections involved a single larva. Moreover, larva density at station 809 declined compared to survey 2. Together these data indicate low risk of entrainment.

5. The Barker Slough concern period ended for the water year on March 31. No additional advice will be given for this water year.

Current conditions: Outflow continued to decline after April 6 to very low levels (3,700 to 4,300 cfs) April 11-13. Combined State and federal exports have been close to or in excess of 4,000 cfs for the April 7-13 period. Qwest shifted to modestly negative on April 7 and has been maintained at that level (-2,400 to -2,700 cfs). CDEC 5-day OMR has been trending more negative since April 1, and is currently about -5000 cfs. A pulse flow began on the Stanislaus River April 13 and when it reaches Vernalis, a 31 day pulse flow period begins in which exports are restricted to a 1:1 with Vernalis flow. Reservoir releases will target a pulse flow of 3,300 cfs for the first 15 days and 1,500 cfs thereafter..

Summary of Risk: Qwest was moderately negative (-2,000 to -2,700 cfs) through the past week, while OMR flows were negative throughout the period (CDEC 5-day OMR: -3,800 to -5,000 cfs), but these hydrodynamics will change for the better this week. Vernalis flow will reach about 3,300 cfs this week and maintain that level for 15 days once achieved. Coincidentally, combined exports will also target 3,300 cfs, resulting in a projected OMR of -3,000 to -3,500 cfs. These hydrodynamics though improved will continue to put larvae in central and south Delta at risk of entrainment; however, few Longfin Smelt larvae have been detected in the region (Table 1) and no additional larvae are expected to hatch this season, so the overall risk is low.

The concern period for Barker Slough exports ended for the water year on March 31.

Table 1. Longfin Smelt catch per station from 2014 20mm Survey, Survey 2. These data are preliminary and subject to change.

Year	Survey	Station	Date	# Tows Processed	Species	Total Catch	Min Length	Max Length	Avg Length	
2014	2	323	03-Apr-14	3	No Longfin Catch	0				Suisun Bay & West
2014	2	340	03-Apr-14	3	No Longfin Catch	0				
2014	2	342	03-Apr-14	3	No Longfin Catch	0				
2014	2	343	03-Apr-14	3	No Longfin Catch	0				
2014	2	344	03-Apr-14	3	Longfin Smelt	3	22	23	22.33	
2014	2	345	03-Apr-14	3	Longfin Smelt	10	14	25	20.20	
2014	2	346	03-Apr-14	3	Longfin Smelt	23	16	28	21.39	
2014	2	405	04-Apr-14	3	No Longfin Catch	0				
2014	2	411	04-Apr-14	3	No Longfin Catch	0				
2014	2	418	04-Apr-14	3	No Longfin Catch	0				
2014	2	501	02-Apr-14	3	Longfin Smelt	9	12	23	16.33	
2014	2	504	02-Apr-14	3	Longfin Smelt	157	12	30	21.86	
2014	2	519	02-Apr-14	3	Longfin Smelt	6	13	24	19.00	
2014	2	602	02-Apr-14	3	Longfin Smelt	3	26	29	27.33	
2014	2	606	02-Apr-14	3	Longfin Smelt	18	15	28	21.56	
2014	2	609	02-Apr-14	3	Longfin Smelt	30	7	32	20.17	
2014	2	610	02-Apr-14	3	Longfin Smelt	34	8	28	19.15	
2014	2	508	03-Apr-14	3	Longfin Smelt	35	13	29	20.29	
2014	2	513	03-Apr-14	3	Longfin Smelt	61	11	29	21.05	
2014	2	520	03-Apr-14	3	Longfin Smelt	75	12	33	21.84	
2014	2	801	03-Apr-14	3	Longfin Smelt	2	10	27	18.50	
2014	2	804	03-Apr-14	3	Longfin Smelt	7	16	24	18.86	
2014	2	703	03-Apr-14	3	Longfin Smelt	3	15	18	16.67	
2014	2	704	03-Apr-14	3	Longfin Smelt	113	10	30	20.72	
2014	2	705	02-Apr-14	3	Longfin Smelt	7	14	25	18.57	
2014	2	706	02-Apr-14	3	No Longfin Catch	0				
2014	2	707	02-Apr-14	3	Longfin Smelt	1	18	18	18.00	
2014	2	711	01-Apr-14	3	No Longfin Catch	0				
2014	2	716	01-Apr-14	3	Longfin Smelt	3	16	32	22.33	
2014	2	718	01-Apr-14	3	No Longfin Catch	0				
2014	2	719	01-Apr-14	3	Longfin Smelt	8	17	26	21.88	
2014	2	720	01-Apr-14	3	Longfin Smelt	1	25	25	25.00	
2014	2	723	01-Apr-14	3	Longfin Smelt	1	29	29	29.00	
2014	2	724	01-Apr-14	3	No Longfin Catch	0				
2014	2	726	01-Apr-14	3	No Longfin Catch	0				
2014	2	809	01-Apr-14	3	Longfin Smelt	37	8	65	18.51	
2014	2	812	02-Apr-14	3	Longfin Smelt	1	9	9	9.00	
2014	2	815	02-Apr-14	3	No Longfin Catch	0				
2014	2	901	01-Apr-14	3	No Longfin Catch	0				
2014	2	902	01-Apr-14	3	No Longfin Catch	0				
2014	2	906	02-Apr-14	3	Longfin Smelt	1	15	15	15.00	
2014	2	910	01-Apr-14	3	No Longfin Catch	0				
2014	2	912	01-Apr-14	3	No Longfin Catch	0				
2014	2	914	01-Apr-14	3	Longfin Smelt	1	12	12	12.00	
2014	2	915	01-Apr-14	3	No Longfin Catch	0				
2014	2	918	01-Apr-14	3	No Longfin Catch	0				
2014	2	919	02-Apr-14	3	No Longfin Catch	0				

Processing complete through 04/11/2014

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

