

SMELT WORKING GROUP
Monday, January 14, 2013

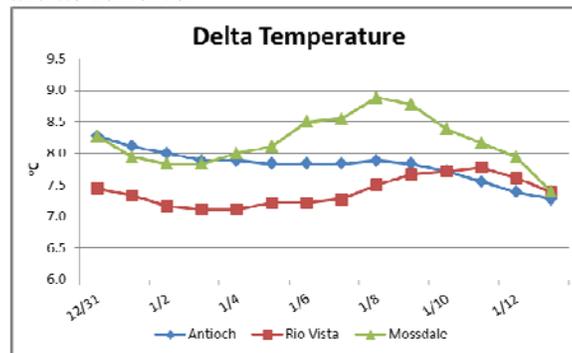
Meeting Summary:

The Working Group recommended that OMR flow should be set at a 14-day average flow of no more negative than -2,500 cfs with a corresponding 5-day average flow of no more negative than -3,125 cfs. Implementation of Action 2 began January 2, 2013, following immediately the end of Action 1. The Working Group will continue to monitor salvage, turbidity, and other conditions, and will reconvene Tuesday, January 22.

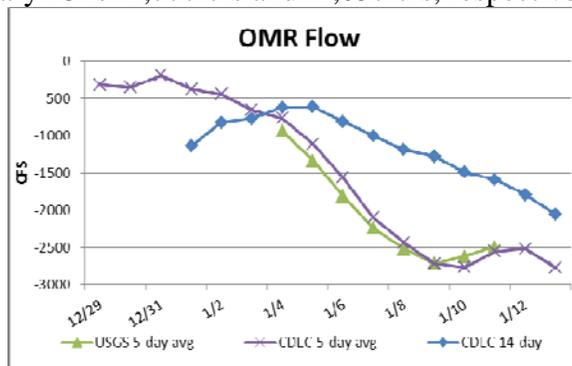
Reported Data:

1) Current environmental data:

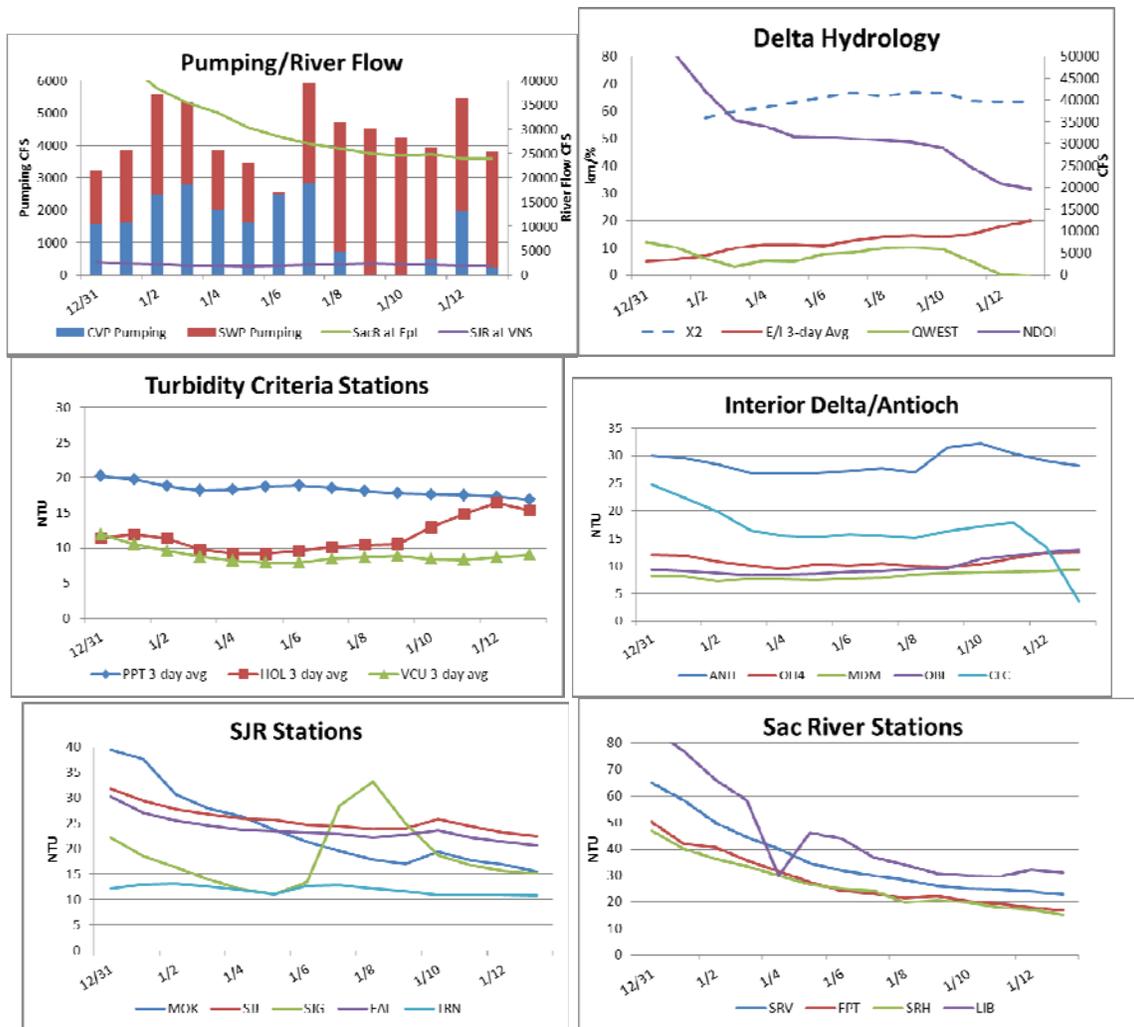
- **Water temperatures** are as follows:



- **OMR:** USGS tidally-averaged daily OMR flow and 5-day average OMR flow on January 11 was -2,189 cfs and -2,485 cfs, respectively. CDEC 5-day OMR flow and 14-day average OMR flow as of January 13 is -2,777 cfs and -2,057 cfs, respectively.



- **Flow:** Sacramento River inflow is 23,900 cfs and San Joaquin River is 1,850 cfs. X_2 calculation from CDEC is at 63km. The graphs below show the most recent trends in Delta hydrology and water quality that were evaluated by the Working Group. Of special note is the fact that during the period 1/8 through 1/13 CVP exports were kept at low levels due to facility maintenance; however, the average daily combined export level remained fairly consistent between 4,000 and 5,000 cfs.



Delta Fish Monitoring:

Spring Kodiak Trawl #1 was in the field last week. A preliminary total of 100 adult delta smelt have been collected, pending QA/QC by CDFW. Station #719 (Sacramento DWSC) had the largest individual numbers at 46 fish. No delta smelt were collected in the southern Delta, while 11 were detected in the central Delta (lower San Joaquin River). All females were prespawn condition and eggs were ~1/2mm. SKT #2 is in the field the week of February 4.

Smelt Larval Survey #2 is in the field this week. No delta smelt larvae were detected in SLS #1.

The Final Fall Midwater Trawl Index (all four months) is 42. Smelt Larval Survey began sampling January 2, 2013 and the Spring Kodiak Trawl began sampling January 7, 2013. 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 305.

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 CDFG surveys are available online at: <http://www.dfg.ca.gov/delta/>.

2) Salvage:

16 delta smelt were salvaged on January 7 and 6 on January 13 at the CVP facility. CVP export levels were zero or low levels from January 8 through January 13. The total combined delta smelt salvage for the season is now 112 (66 at the CVP, 46 at the SWP). No longfin smelt have been salvaged at either facility for the season.

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>

3) Expected Project Operations:

Combined CVP/SWP exports are expected to be approximately 5,300 cfs for the week of January 14, 2013.

4) Particle Tracking Modeling:

No PTM runs were requested for this week.

5) Turbidity Modeling:

Modeling runs discussed by the Delta Conditions Team (DCT) earlier this morning were distributed to the Working Group immediately prior to the call. Outputs of the models were described during the DCT as of low confidence value. Members of the SWG that attended the DCT conveyed the opinion of the DCT members that the turbidity bridge between the confluence/Sacramento River and the central/southern Delta is in place.

6) 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 35).

Discussion: The Working Group reviewed and discussed all relevant data from Delta monitoring, salvage, field surveys, and planned Project operations. Turbidity has continued to decrease over the entire system, with the exception of the Old River stations, which have increased since January 9. The Working Group discussed potential reasons for this increase in turbidity and the tidal cycle was suggested as a potential cause.

The Working Group discussed the data distributed by CDFW regarding historical salvage and patterns. In post-1993 years, the date when 50% of the seasonal adult salvage was achieved occurred across a broad range of dates between January 4th and March 20th with a mean date of February 15th. However, in two thirds of these years and in the last seven years, the date of 50% seasonal salvage has occurred after February 20th. Historical data seem to indicate that the current year is not following any historical year's trend in salvage.

Members noted that at the current total salvage of 112 fish, there are only 40 more salvaged fish until 50% of the ITL has been reached. If we assumed the same trend in salvage from the past week, the Projects will have surpassed 50% of their ITL at or near the end of January, prior to the historical mid-February mark. The Working Group noted that this scenario could result in less flexibility in operations later in the season. Concern is heightened by the fact that the CVP, where 59 percent of this season's salvage has occurred, was exporting water at low levels January 8 and 11 and did not export water January 9 and 10 during this past week. Had the CVP been pumping a more normal proportion of exports during the week 50% ITL likely would be much more imminent. Some members recommended maintaining operations of both CVP and SWP to enhance detection of entrained fish.

Additionally noted by SWG members was that the actual OMR flow level remained less negative than the -3,500 target over the past week. Daily flows from January 5 through 11 averaged ~-2,500cfs, while flows on January 12 and 13 were -3,100 and -4,200cfs, an increase over the previous several days. Members expressed concern that the increase in negative OMR flow in the most recent days could result in additional delta smelt moving into the range of influence of the pumps and ultimately, salvaged.

The SWG discussed the January 14th assessment of the Delta Conditions Team (DCT), which was that the turbidity bridge persists, resulting in a continued risk of entrainment. While the DCT expressed reluctance to use the turbidity forecasting models, as did the SWG, members of the DCT stated that increased OMR could potentially result in increased turbidities on the Middle River corridor as well.

The Working Group acknowledged that the current salvage trend, if continued, would likely result in an exceedance of the ITL. Although the concept of remaining at -3,500cfs OMR flow for the next week and continuing to watch salvage was discussed, the Working Group decided that in order to reduce the current salvage trend and recent increase in negative OMR flow, OMR flows should be no more negative than -2,500cfs. The Working Group noted that although some level of salvage is anticipated over the next week, they expected that a decreasing trend should result within a 10-14 day period. The Working Group noted that the current recommendation of -2,500cfs OMR flow could potentially continue into the future, due to the anticipated length of response in salvage levels. Additionally, should higher than anticipated salvage occur later this

week, the Working Group will reconvene and may recommend that negative OMR flow be further reduced.

The SWG will meet again on January 22.

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

Advice for week of January 14, 2013:

The Smelt Working Group does not have any longfin smelt advice at this time. There is very low risk of entrainment at this time.

Basis for advice:

The 2009 State Water Project 2081 for longfin smelt states that advice to the DFG 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.

Discussion of Criteria

1. As of January 14, 2013, no longfin smelt have been salvaged for the water year. The Fall Midwater Trawl longfin smelt annual abundance index has completed and is 61. The total salvage level threshold for advice is >305 (see criterion in #1). No advice is warranted based on this criterion.

2. January Bay Study sampling collected a single longfin smelt in the San Joaquin River at their station 863 (Santa Clara Shoals, between Twitchell and Bradford Islands). Distribution information does not indicate advice is warranted based on this criterion.

3 & 4. The first Smelt Larva Survey (SLS) of 2013 was conducted January 2-3. Survey 2 is currently sampling. Few longfin smelt larvae were collected in the central or south Delta, and neither larva criterion was met (cf., Table 1 and Basis for Advice #s 3 & 4 above). During SLS survey 1, longfin smelt larvae were collected at only 3 criteria stations and in very low numbers.

Current conditions: Net Delta outflow peaked at 106,000 cfs on December 27 and declined to about 40,000 cfs on January 3, to 31,000 on January 6 and 24,000 on January 13. Vernalis flows averaged 1,850 cfs on January 13. X2 remained below 60 km from December 26 through

January 3, but is currently increasing and at about 63 January 13. Combined State and federal exports are currently 5,300 cfs and predicted to go down due to declining inflows and target of -3500 OMR. The Smelt Working Group today recommended changing the OMR target to -2500. Qwest has been positive since December 19 and is currently about -260 cfs, essentially zero.

Summary of Risk:

Risk of entrainment is very low.

The collection of no adult longfin smelt in salvage and only a single adult in the San Joaquin River or south Delta to date suggests limited spawning in the central or south Delta. The small numbers of larvae collected in the central and south Delta supports this conclusion, though it is too early in the hatching season to predict this will remain the case. The recent and current exports should result in a roughly -3500 OMR and the SWG has set a lower target of -2500 OMR. The current X2 located in Suisun Bay suggests that relatively few adult longfin smelt will move into the central and south Delta to spawn. A Qwest of about zero cfs indicates that any larvae hatching in the lower San Joaquin River and northern portion of the south Delta, particularly the Franks Tract region, are likely to disperse with the tides, but not be transported in any particular direction. These circumstances all support the conclusion of very low risk of entrainment.

Table 1. Longfin smelt catch per station from 2013 Smelt Larva Survey, Survey 1.

Year	Survey	SLS Station	Sample Status	Species	Smelt Catch
2013	1	405	Not yet processed		
2013	1	411	Not yet processed		
2013	1	418	Not yet processed		
2013	1	501	Processed	Longfin Smelt	4
2013	1	504	Processed	Longfin Smelt	10
2013	1	508	Processed		No Smelt Catch
2013	1	513	Processed	Longfin Smelt	15
2013	1	519	Processed		No Smelt Catch
2013	1	520	Processed		No Smelt Catch
2013	1	602	Not yet processed		
2013	1	606	Not yet processed		
2013	1	609	Not yet processed		
2013	1	610	Not yet processed		
2013	1	703	Processed		No Smelt Catch
2013	1	704	Not yet processed		
2013	1	705	Processed		No Smelt Catch
2013	1	706	Processed		No Smelt Catch
2013	1	707	Not yet processed		
2013	1	711	Not yet processed		
2013	1	716	Processed		No Smelt Catch
2013	1	723	Processed		No Smelt Catch
2013	1	801	Processed	Longfin Smelt	1
2013	1	804	Processed		No Smelt Catch
2013	1	809	Processed	Longfin Smelt	1
2013	1	812	Processed	Longfin Smelt	1
2013	1	815	Processed		No Smelt Catch
2013	1	901	Processed	Longfin Smelt	4
2013	1	902	Processed		No Smelt Catch
2013	1	906	Processed		No Smelt Catch
2013	1	910	Processed		No Smelt Catch
2013	1	912	Processed		No Smelt Catch
2013	1	914	Processed		No Smelt Catch
2013	1	915	Processed		No Smelt Catch
2013	1	918	Processed		No Smelt Catch
2013	1	919	Processed		No Smelt Catch

SWP ITP Criteria Stations

Processing is complete through 1/4/13.

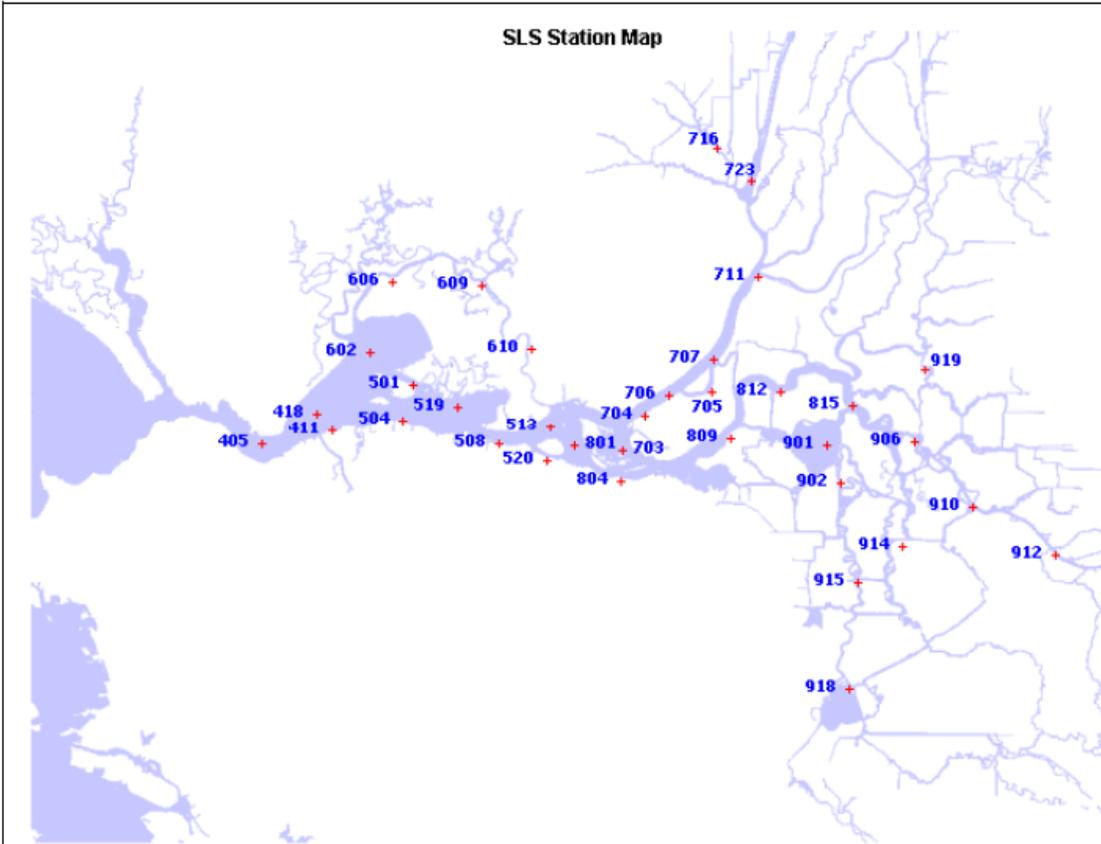


Figure 1. DFG's Smelt Larva Survey station locations.