

**SMELT WORKING GROUP**  
**Monday, March 11, 2013**

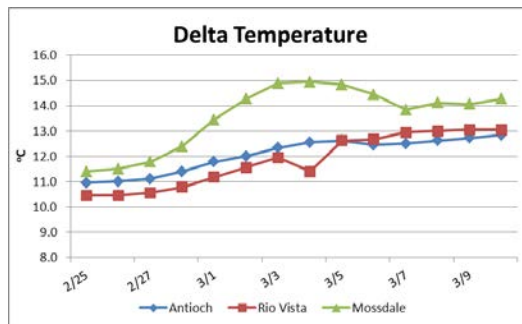
**Meeting Summary:**

The Working Group recommended that OMR flow should be set at a 14-day average flow of no more negative than -5,000 cfs with a corresponding 5-day average flow of no more negative than -6,250 cfs. The Working Group agrees that there will be a need to reconvene immediately to assess the risk of delta smelt entrainment if there is a change in the current low salvage trend. The Working Group will continue to monitor salvage, turbidity, and other conditions, and will reconvene Monday, March 18.

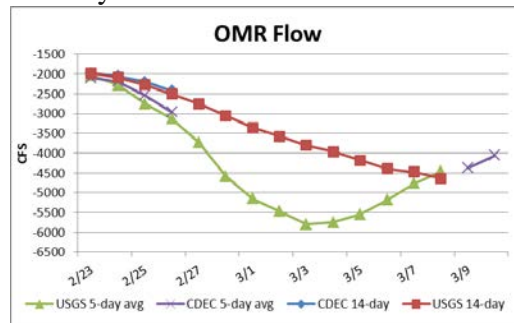
**Reported Data:**

**1) Current environmental data:**

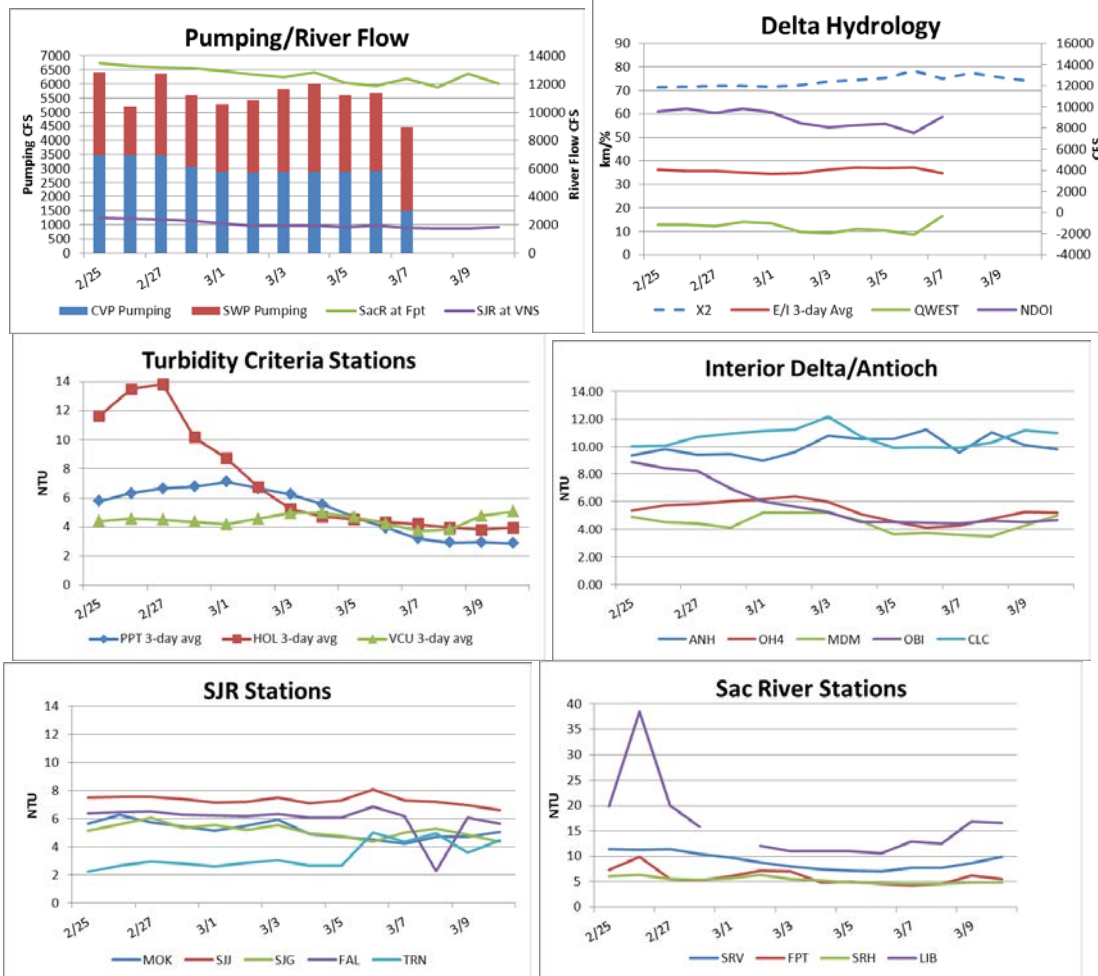
- Water temperatures:**



- OMR:** USGS tidally-averaged 5-day average OMR flow and 14-day average OMR flow on March 8 was -4,462 cfs and -4,633 cfs, respectively. CDEC 5-day average OMR flow on March 10 was -4,055 cfs. 14-day CDEC OMR flow was not available.



- Flow:** Sacramento River flows at Freeport are approximately 12,020 cfs and San Joaquin River is 1,850 cfs. X<sub>2</sub> calculation from CDEC is at 74km.



**Delta Fish Monitoring:**

SKT #3 was in the field last week. The preliminary total for adult delta smelt is 75. Distributional catch data is as follows: 809—8 females and 2 males, 508—1 female, 719 (two tows)—19 female and 7 males, 706—5 females and 4 males, 704—5 females and 3 males, 519—5 females, 609 (two tows)—2 females and 2 males, 610—2 females, 606—8 females and 1 male. Spent females were detected across the system and were found at 7 out of the 9 stations that reported catch of delta smelt.

Smelt Larval Survey #6 is in the field March 18.

20-mm Survey #1 is in the field this week. Some preliminary information is anticipated for the southern and central Delta stations by the end of the week.

The Bay Study collected 3 delta smelt close to SKT station #815 last week. The study also collected longfin smelt at Big Break, near Antioch.

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 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](http://www.fws.gov/sfbaydelta/species/delta_smelt.cfm). Results from CDFW surveys are available online at: <http://www.dfg.ca.gov/delta/>.

## **2) Salvage:**

Ten adult delta smelt were salvaged on March 9 at the SWP facility. The total combined delta smelt salvage for the season is 252 (112 at the SWP and 140 at the CVP) as of March 10, or approximately 70% of the total allowable take of 362. No longfin smelt have been salvaged since January 21st. The total combined longfin smelt salvage for the season is 4.

The SWP indicated that larval fish sampling began on March 6. No larval delta smelt have been reported as yet. The CVP indicated that larval fish sampling will begin this week.

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 approximately 5,200 cfs as of March 11 and will reduce to 3,200 cfs on March 13. Operators commented that current pumping levels support the Delta D-1641 standards (SWRCB); specifically the 18 days X2 needs to meet Chipps Island in March. Operators indicated pumping needs to remain at a reduced level for four to eight days in order to achieve the minimum number of Chipps Island days for the month.

## **4) Particle Tracking Modeling:**

No PTM runs were requested for this week.

## **5) Turbidity Modeling:**

No turbidity modeling was discussed today.

## **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 Working Group from the onset of Action 2 through its termination...” (page 35).

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.

With the detection of spent females in the SKT last week, the Working Group will now look to Action 3 of the RPAs for guidance on assessing the risk of entrainment to juveniles as well as continuing to assess the risk of entrainment to adults. The Working Group discussed its March 4 recommendation, the Service’s March 5 determination of -5,000 cfs OMR flow target, the revised, increased WY 2013 adult delta smelt Incidental Take Limit, and the low salvage of adult delta smelt for the previous month.

The Working Group members discussed the revised 2013 WY remaining allowable take of 110 adult delta smelt, (362 adult delta smelt take limit minus the 252 cumulative total adult delta smelt salvaged to date). Considering April 6 as the average last date of adult delta smelt salvage (based on a review of salvage data over the last few years), there are approximately 27 days left until the probable end of the adult entrainment period. Given this information, the Projects could salvage 29 fish at a constant weekly rate and not exceed the adult delta smelt incidental take limit.

OMR flow was increasingly negative from February 23 until March 1, with no apparent increase in salvage. Daily OMR flows since March 2 have ranged between -3,400 and -5,500 cfs, again with no apparent change in salvage rate. The weekly total salvage for the previous reporting period was eight, while the current week’s reporting total is ten. Low weekly salvage for the past month further suggests that delta smelt densities in the south Delta are low.

Although the Working Group expects that low levels of salvage may continue, the Working Group considered that the projects are not at the Biological Opinion’s concern level (revised to 272) and concluded that at the current low salvage trend, the projects are not at risk of

approaching the WY 2013 incidental take level. However, the Working Group will continue to monitor Delta conditions, delta smelt salvage, and survey data to determine if the salvage trend could be expected to increase to a level that would cause the projects to approach the concern level, and potentially exceed the incidental take limit.

Due to the lack of distributional information regarding delta smelt larvae, the Working Group did not make a recommendation to protect that life stage at this time. Members indicated that the SLS starting March 18 should be the best opportunity to obtain distributional information on larvae prior to April.

The Working Group recommended to the Service that OMR flow could be maintained at -5,000 cfs (14-day average). Should the facilities experience three consecutive days of salvage or exceed 29 fish for the weekly total, the Working Group will reconvene and reassess the assessment of risk and a potential new recommendation. The Working Group will closely monitor salvage and Delta conditions and reconvene on Monday, March 18.

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

##### **Advice for week of March 11, 2013:**

The Smelt Working Group believes that an OMR of -5,000 cfs is protective of longfin smelt at this time.

##### **Summary of Risk:**

Risk of additional entrainment into the south Delta is low. Smelt Larva Survey (SLS) #5 results showed double digit catches farther from the pumps in the San Joaquin River channel and generally lower catches in the central Delta than SLS #4; larvae dispersed from Station 809, reducing the risk of entrainment into the south Delta. Qwest has been -1,500 to -2,100 since early March, suggesting little net downstream displacement of larvae in the lower San Joaquin River. Barker Slough criteria are only in effect during "Dry" and "Critical" water years; this year is currently forecast as Below Normal for the Sacramento River.

##### **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 1 an OMR of -5,000 was once again deemed protective. As of March 11, OMR of -5,000 remained protective.

##### **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 ( $\geq 80$  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 15 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. On January 20 and 21, 2013, longfin smelt salvage occurred at the SWP for a total salvage of 4. This was the first and only instance of adult longfin smelt salvage this 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). In February, no longfin smelt were collected at central Delta sampling stations. On March 4, 3 longfin smelt were collected by Bay Study just upstream of the Antioch Bridge, suggesting spawning is not over in the San Joaquin River, but not suggesting any substantial additional risk. SLS #6 starting March 18 should detect any larvae hatching from spawning about March 4. Distribution information does not indicate advice is warranted based on this criterion.

3 & 4. The third SLS survey of 2013 was conducted January 28 and 29. During survey 3, longfin smelt larvae were collected at 9 of 12 central or south Delta stations, so the **distribution criterion was met** (cf., Table 1 and Basis for Advice #s 3 & 4 above). During the 4<sup>th</sup> SLS survey the distribution criterion was again achieved, but the density criterion of  $\geq 4$  stations with  $> 15$  larvae each was not. Typically, this second criterion would be necessary to warrant additional protections beyond -5,000 cfs OMR. However, the high catch at Station 809 (and moderate catch at Station 901) poses some additional risk for entrainment into the south Delta. Given these data and the likelihood that we're seeing the peak hatching, an OMR of no more negative than -4,000 cfs was deemed warranted on February 18. Catches from SLS survey #5 showed declines in the south Delta and the lower San Joaquin River (809), with some increases at stations 812 and 815. These results indicate that fewer larvae are in and near the central Delta, and that an OMR of -5000 is protective. No new central or south Delta larva information was available for March 11 discussions; catches for additional SLS survey 5 stations were reported.

5. Barker Slough Exports: current water type for the Sacramento River is Below Normal (<http://cdec.water.ca.gov/cgi-progs/reports/EXECSUM>), therefore even though longfin smelt

larvae are present at Station 716, no advice is provided. Current exports are low (14-30 cfs) and don't pose a substantial risk to larvae in Barker Slough (<http://www.water.ca.gov/swp/operationscontrol/docs/delta/DeltaHydrology.pdf>).

Current conditions: Net Delta outflow declined to between 8,100 and 8,200. X2 is currently about 74 km. Combined State and federal exports are currently about 5,200 cfs, but is planned to decline on February 13 to 3,200 cfs. Releases increased into the Sacramento River and tributaries by 4,450 cfs. Vernalis flows have remained about 1,850 cfs, but releases into the Stanislaus River decreased from 800 to 400 cfs. Qwest has been weakly negative since February 24 (-800 to -2000).

Table 1. Longfin smelt catch per station from 2013 Smelt Larva Survey, Survey 5.

Study Year	Survey #	SLS Station	Sample Status	Species	Smelt Catch
2013		405	Not yet processed		
2013		411	Not yet processed		
2013		418	Not yet processed		
2013		501	Not yet processed		
2013		504	Not yet processed		
2013		508	Not yet processed		
2013		513	Not yet processed		
2013		519	Not yet processed		
2013		520	Not yet processed		
2013		602	Not yet processed		
2013		606	Not yet processed		
2013		609	Not yet processed		
2013		610	Not yet processed		
2013		703	Not yet processed		
2013		704	Not yet processed		
2013		705	Not yet processed		
2013		706	Not yet processed		
2013		707	Not yet processed		
2013		711	Not yet processed		
2013		716	Not yet processed		
2013		723	Not yet processed		
2013		801	Not yet processed		
2013		804	Not yet processed		
2013	5	809	Processed	Longfin Smelt	44
2013	5	812	Processed	Longfin Smelt	14
2013	5	815	Processed	Longfin Smelt	27
2013	5	901	Processed	Longfin Smelt	6
2013	5	902	Processed	Longfin Smelt	11
2013	5	906	Processed		No Smelt Catch
2013	5	910	Processed		No Smelt Catch
2013	5	912	Processed		No Smelt Catch
2013	5	914	Processed		No Smelt Catch
2013	5	915	Processed	Longfin Smelt	4
2013	5	918	Processed	Longfin Smelt	2
2013	5	919	Processed	Longfin Smelt	5

SWP ITP Criteria Stations

Processing is complete through 2/28/13.



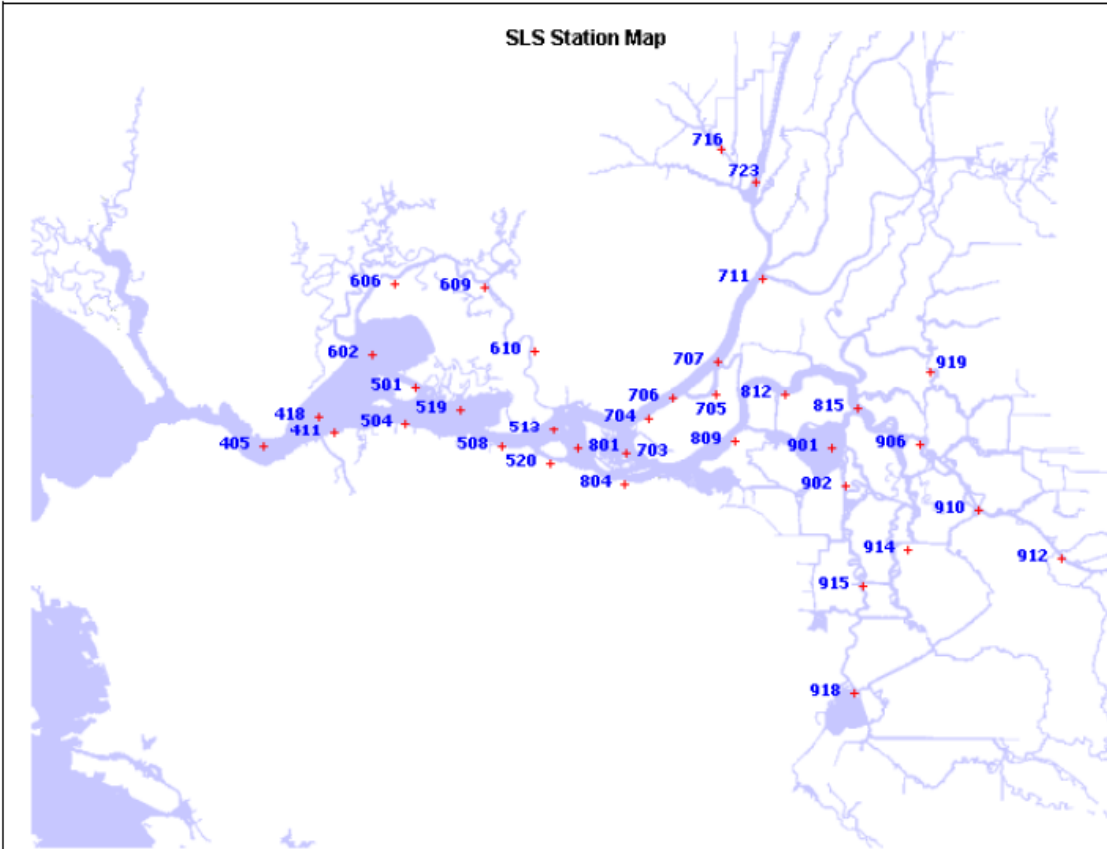


Figure 1. DFG's Smelt Larva Survey station locations.