

# SMELT WORKING GROUP

## Monday, February 13, 2012

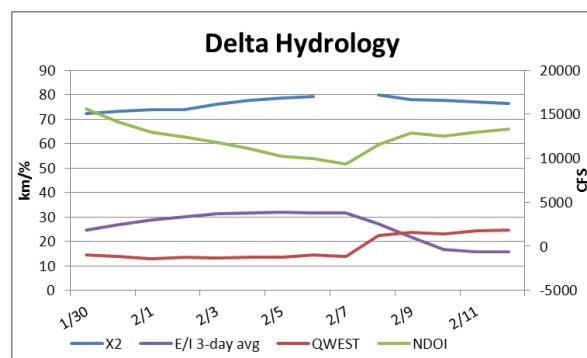
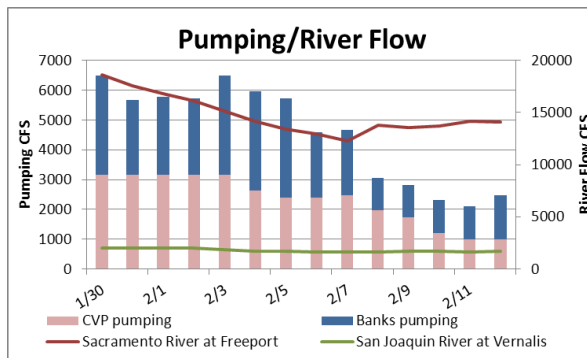
### Meeting Summary:

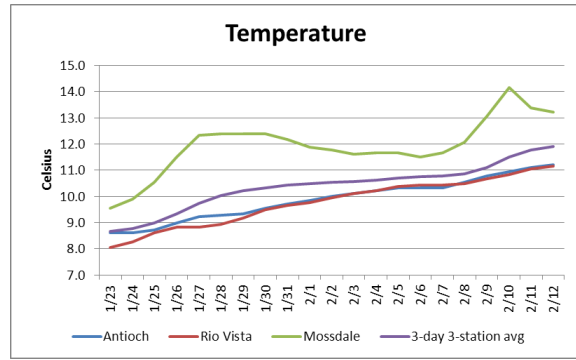
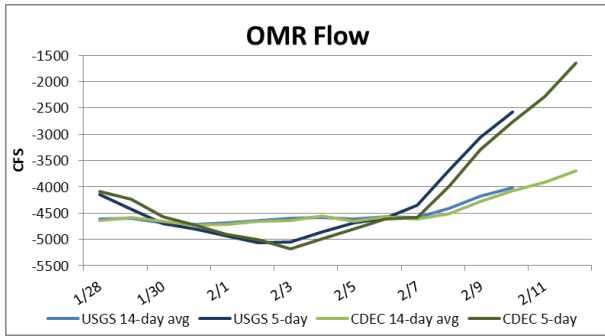
The Working Group will continue to monitor smelt salvage, adult and larval smelt survey data, and delta hydrological conditions and will reconvene February 21, 2012, at 10am. The Working Group agreed that given their present distribution, only one day of salvage since the last call (4 delta smelt on 2-10-2012), and turbidity levels remaining low, risk of entrainment of delta smelt remains low and therefore, no recommendation was made by the Working Group. The Working Group also agreed that given their present distribution, existing constraining conditions was sufficient to protect longfin smelt.

### Reported Data:

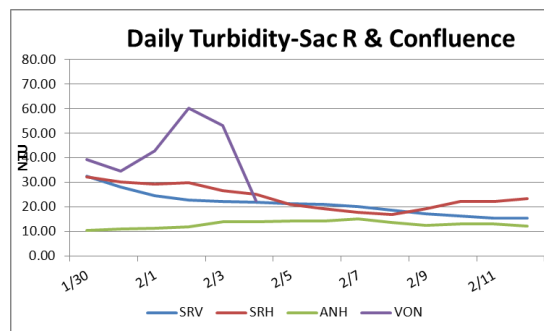
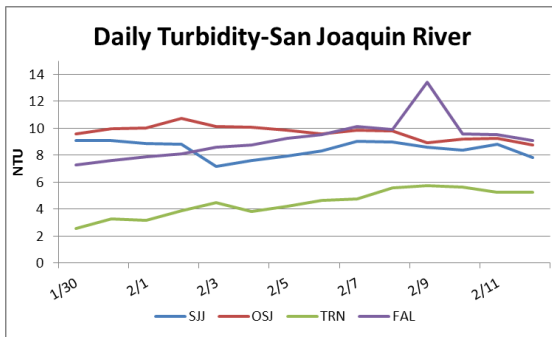
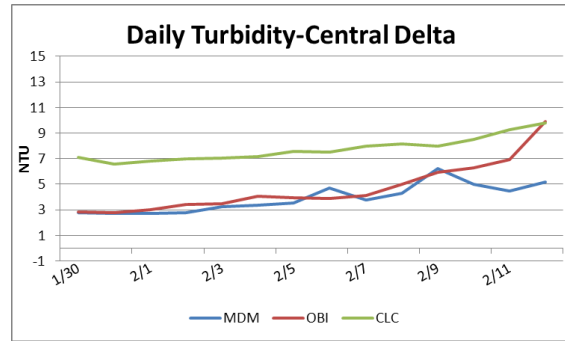
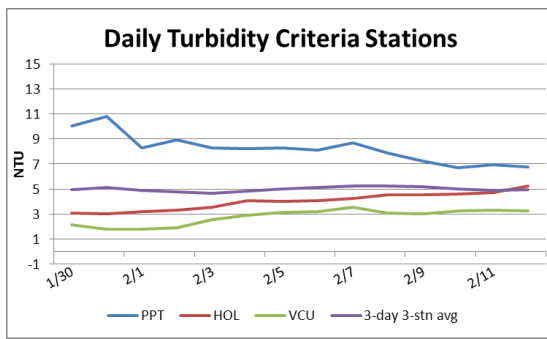
#### 1) Current environmental data:

- **Water temperature** for the 3 station average is 11.9°C.
- **OMR:** USGS tidally-averaged OMR 5-day average for February 10 was -2,578cfs and the 14-day average was -4,011cfs. CDEC 5-day average on February 12 was -1,649cfs and the 14-day average was -3,690cfs.
- **Flow:** Sacramento River inflow is 14,095cfs and San Joaquin River is 1,675cfs.  $X_2$  calculation from CDEC is 76.36km. The NDOI, Qwest, and E/I were 13,335cfs, 1,808cfs, and 15.7% as of February 12. The graphs below show the most recent trends in Delta hydrology and water quality that were evaluated by the Working Group.





● **Turbidity:**



**2) Delta Fish Monitoring:**

With 29 of 35 stations analyzed, Smelt Larval Survey #3 collected longfin smelt larvae in the central and southern Delta, but the greatest densities occurred in the Sacramento River, confluence, and downstream. One adult delta smelt was collected at station 716; no larval delta smelt were seen. An additional six stations remain to be processed, all downstream of the confluence. Spring Kodiak Trawl #2 is in the field this week. Results will be available for next week's call. See "WEEKLY ADVICE FOR THE DEPARTMENT OF FISH AND GAME FOR LONGFIN SMELT" for additional details. The annual FMWT Delta Smelt Index for 2011 is 343 (sum of all four months). The 2011 Delta Smelt Recovery Index (based on September and October) is 55. More information on the Recovery Index can be found on the Bay-Delta Office's web site at <http://www.fws.gov/sfbaydelta/> under "hot topics." Results from CDFG surveys are available online at: <http://www.dfg.ca.gov/delta/>

### 3) Salvage:

No longfin smelt has been salvaged in water year 2012. The cumulative total for adult delta smelt for WY 2012 is 47. The table below details daily estimated adult delta smelt salvage for the season:

Table 1: Estimated daily adult salvage for WY 2012

Date	CVP	SWP	Total
1/18	4	0	4
1/24	4	0	4
1/25	4	0	4
1/26	5	0	5
1/27	2	0	2
1/28	4	0	4
1/30	12	0	9
1/31	4	0	4
2/1	3	0	3
2/3	4	0	4
2/10	4	0	4

Reclamation will begin larval sampling protocols at the CVP fish salvage facility soon.

Current delta and longfin 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 CVP/SWP exports are approximately 4,000cfs as of February 13. Combined exports are presently curtailed to comply with the SWRCB February outflow standards.

### 5) Particle Tracking Modeling:

The Working Group did not request PTM runs for this week.

### 6) Assessment of Risk:

**Background:** The period covered by RPA Component 1, protection for pre-spawning adult delta smelt, Action 1(a) (pp 280-282 in the B.O. and Attachment B, pp 329-351), is December 1 through 20. Historic salvage patterns indicate that an entrainment event is unlikely during this period. The Working Group may recommend an action during this period based upon examination of turbidity and salvage data, as well as parameters such as the location of X2, apparent abundance, and river flows. The historic likelihood of an entrainment event increases after December 20, the period covered by Component 1, Action 1(b). If turbidity criteria are met

or exceeded after December 20, Action 1(b), setting average daily OMR flow no more negative than -2000 cfs for a 14-day period, will begin. The salvage criteria for initiating an action are three consecutive days of salvage or a one-time salvage of 343 delta smelt (estimated). Component 1, Action 2 (pp 280-281 and Attachment B, pp 352-356) is implemented following the conclusion of Action 1.

Combined incidental take levels for State and federal fish facilities are based on the most recent FMWT abundance index. The 2011 FMWT index for delta smelt is 343. This means that the authorized incidental take of adults is 2,487 (estimated) and the concern level is 1,862 (estimated), cumulative for the December through March period. Irrespective of Delta conditions, Action 1 would be initiated if salvage at the export facilities occurs on three consecutive days, or exceeds 343 on any given day (B.O. pp 281 & 329).

Table 2: Incidental Take Levels for the Larval/Juvenile life stage (cumulative)

	<b>Concern Level</b>	<b>Take Limit</b>
<b>April</b>	101	151
<b>May</b>	4,471	6,705
<b>June</b>	11,327	16,991
<b>July</b>	12,851	19,276

**Discussion:** The Working Group reviewed and discussed all relevant data from fish surveys, Delta monitoring, salvage, and planned Project operations. The low level of salvage from January 24 through February 5 has decreased, with only one delta smelt salvaged over the last week. The overall Delta conditions, low salvage and preliminary survey data indicate a low risk of entrainment.

The Working Group discussed the current Delta temperatures and how this impacts discussions and recommendations. Collection of a spent female in surveys or salvage, or a three-day, three-station average water temperature of at least 12°C is an indicator of the onset of spawning. Once spawning has begun, the Working Group will begin discussing the risk of entrainment for larval delta smelt, and any recommendations made would be intended to protect larval delta smelt (B.O., p 282). The 3-day, 3-station average is 11.9°C as of 2-12-2012. The Service clarified that should environmental conditions, survey data, or salvage warrant the need for a recommendation, the Working Group would follow the guidance for Action 3 of the B.O. (pp. 357-368).

**7) Longfin Smelt:**

Longfin smelt larval distribution (Smelt Larva Survey 1, January 9-10) exceeded the criteria for advice from the SWG under the SWP’s 2081 permit; CDFG therefore requested that the Working Group discuss entrainment risk for longfin smelt. The 2081 identifies OMR flow between -1250 and -5000cfs as the range to select from in determining a level adequately protective of longfin larvae. Because relatively few larvae were collected in the central and south

Delta for SLS #3 (and less than anticipated, given the hydrology from the previous week), the risk is currently low. Longfin smelt detections in the central and south delta were anticipated to increase for the SLS #3, due to the anticipated February peak in hatching, but this increase did not occur. Qwest has returned to a positive flow as of February 8 and Delta outflow also has increased, all of which should assist larvae in moving downstream and out of the central and south Delta.

See “WEEKLY ADVICE FOR THE DEPARTMENT OF FISH AND GAME FOR LONGFIN SMELT” for additional details regarding this discussion.

The Working Group will hold the next call on February 21.

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

##### **Advice for week of February 13, 2012:**

The Smelt Working Group believes that OMR no more negative than -5,000 cfs is protective of longfin smelt at this time.

**Summary of risk:** Risk of entrainment is currently low. Larva densities did not increase in the central and south Delta for Smelt Larva Survey 3 as expected based on historical results, but may later in February. OMR constraints by the Salmonid BO and current hydraulic conditions in the interior Delta will likely minimize larvae entrainment at the south Delta export facilities. Smelt Larva Survey 1 information triggered the distribution criterion and a request for advice on 17 January. Smelt Larva Survey 2 revealed increased hatching of larvae in criteria stations as expected based on past catch densities, but was followed by slightly declining densities in Survey 3. Qwest turned positive on 8 February and has remained positive (1200-1800 cfs) since that date, which indicates slow net transport of larvae out of the Delta from within the lower San Joaquin River. The currently targeted OMR of -5,000 cfs is protective of longfin smelt. Barker Slough exports and criteria were briefly discussed, but exports dropped to near 0 cfs and pose no risk to longfin smelt larvae in the vicinity.

##### **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 ( $\geq 80$ 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 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).

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: After January 15 of critically dry or dry water years (Sacramento River), based on abundance and distribution and detection at Station 716.

### **Discussion of Criteria and Conditions**

Review of past information: Longfin smelt larvae were collected in the Smelt Larva Survey #1 (January 9-10, 2012), so adult salvage and distribution are now informational and can be viewed as suggestive possible future larvae distribution. As of 12 February 2012, no longfin smelt have been salvaged for the water year. The Fall Midwater Trawl longfin smelt annual abundance index for 2011 is 477. The total salvage level threshold for advice is 2385 (see criterion in #1).

December Fall Midwater Trawl and Bay Study surveys collected adult longfin smelt in the San Joaquin River just downstream and just upstream of the Antioch Bridge. In early January, Bay Study collected adult longfin smelt as far upstream as San Andreas Shoals on the San Joaquin River. The first Smelt Larva Survey of 2012 caught longfin smelt larvae at 9 of 12 criteria stations in the central and south Delta (c.f. #3, Figure 1) triggering the need for advice. Larva catches (densities) were very low during survey 1 and hydraulic conditions at the time posed little risk to longfin smelt larvae.

Review of new and current information: Smelt Larva Survey 3 (6 February 2012) detected decreasing numbers of longfin smelt larvae in the central and south Delta criteria stations (c.f. #3 above and Table 1 below). This observation suggests decreased risk to entrainment. Also, within a couple days of Survey 3 sampling Qwest changed from weakly negative to weakly positive, which would tend to move larvae downstream away from the area of entrainment.

Combined State and federal exports are being coordinated to achieve -5,000 cfs OMR stipulated by the Salmonid BO. San Joaquin River flow has decreased about 1,676 cfs as of 12 February. OMR, estimated for 12 February, was -3690 cfs (CDEC 14-day average). More importantly for larvae hatching in the central Delta, Qwest ranged between about -900 cfs and -1400 cfs from 30 January through 7 February indicating net upstream movement in the lower portion of the main San Joaquin River channel, but by 8 February Qwest switched to positive flows and has since remained positive through 12 February. Such flows will lessen the movement of longfin smelt larvae into the central Delta and tend to move larvae westward to the confluence, lowering risk.

Barker Slough exports were discussed briefly, but are close to zero and do not pose a risk to longfin smelt larvae. Barker Slough exports can pose a risk to longfin smelt larvae (concern period 15 January through 31 March) during critically dry and dry water years, and the SWP Longfin Smelt ITP stipulates an export limit of 50 cfs when larva abundance and distribution, and other factors. Although the DWR's Compliance Standards page (<http://www.water.ca.gov/swp/operationscontrol/docs/delta/DeltaWQ.pdf>) indicates the current Sacramento River conditions fall into the below normal category, DFG asked for voluntary compliance with a 50 cfs export limit after results of Smelt Larva Survey 1 indicated modest

densities of larvae in Cache Slough and the Sacramento Deepwater Ship Channel. Exports dropped to 39 cfs on 19 January to below 10 cfs on 24 January and have remained below 10 cfs since. Even though larva densities increased slightly during Smelt Larva Survey 3, such low exports pose no risk to longfin smelt larvae.

Table 1. Delta and longfin smelt catch per station from 2012 Smelt Larva Survey, Survey 3.

Year	Survey	SLS Station	Sample Status	Species	Smelt Catch
2012	3	405	Not yet processed		
2012	3	411	Not yet processed		
2012	3	418	Not yet processed		
2012	3	501	Not yet processed		
2012	3	504	Not yet processed		
2012	3	508	Not yet processed		
2012	3	513	Processed	Longfin Smelt	105
2012	3	519	Not yet processed		
2012	3	520	Not yet processed		
2012	3	602	Not yet processed		
2012	3	606	Not yet processed		
2012	3	609	Not yet processed		
2012	3	610	Not yet processed		
2012	3	703	Processed	Longfin Smelt	152
2012	3	704	Processed	Longfin Smelt	74
2012	3	705	Processed	Longfin Smelt	71
2012	3	706	Processed	Longfin Smelt	32
2012	3	707	Processed	Longfin Smelt	143
2012	3	711	Processed	Longfin Smelt	6
2012	3	716	Processed	Longfin Smelt	80
2012	3	716	Processed	Delta Smelt*	1
2012	3	723	Not yet processed		
2012	3	801	Not yet processed		
2012	3	804	Processed	Longfin Smelt	64
2012	3	809	Processed	Longfin Smelt	1
2012	3	812	Processed	Longfin Smelt	80
2012	3	815	Processed	Longfin Smelt	10
2012	3	901	Processed	Longfin Smelt	17
2012	3	902	Processed	Longfin Smelt	10
2012	3	906	Processed	Longfin Smelt	9
2012	3	910	Processed	Longfin Smelt	7
2012	3	912	Processed		No Smelt Catch
2012	3	914	Processed	Longfin Smelt	2
2012	3	915	Processed	Longfin Smelt	9
2012	3	918	Processed	Longfin Smelt	2
2012	3	919	Processed		No Smelt Catch

SWP ITP Criteria Stations

\*Adult delta smelt (Fork Length = 66 mm)  
Processing is complete through 2/8/12



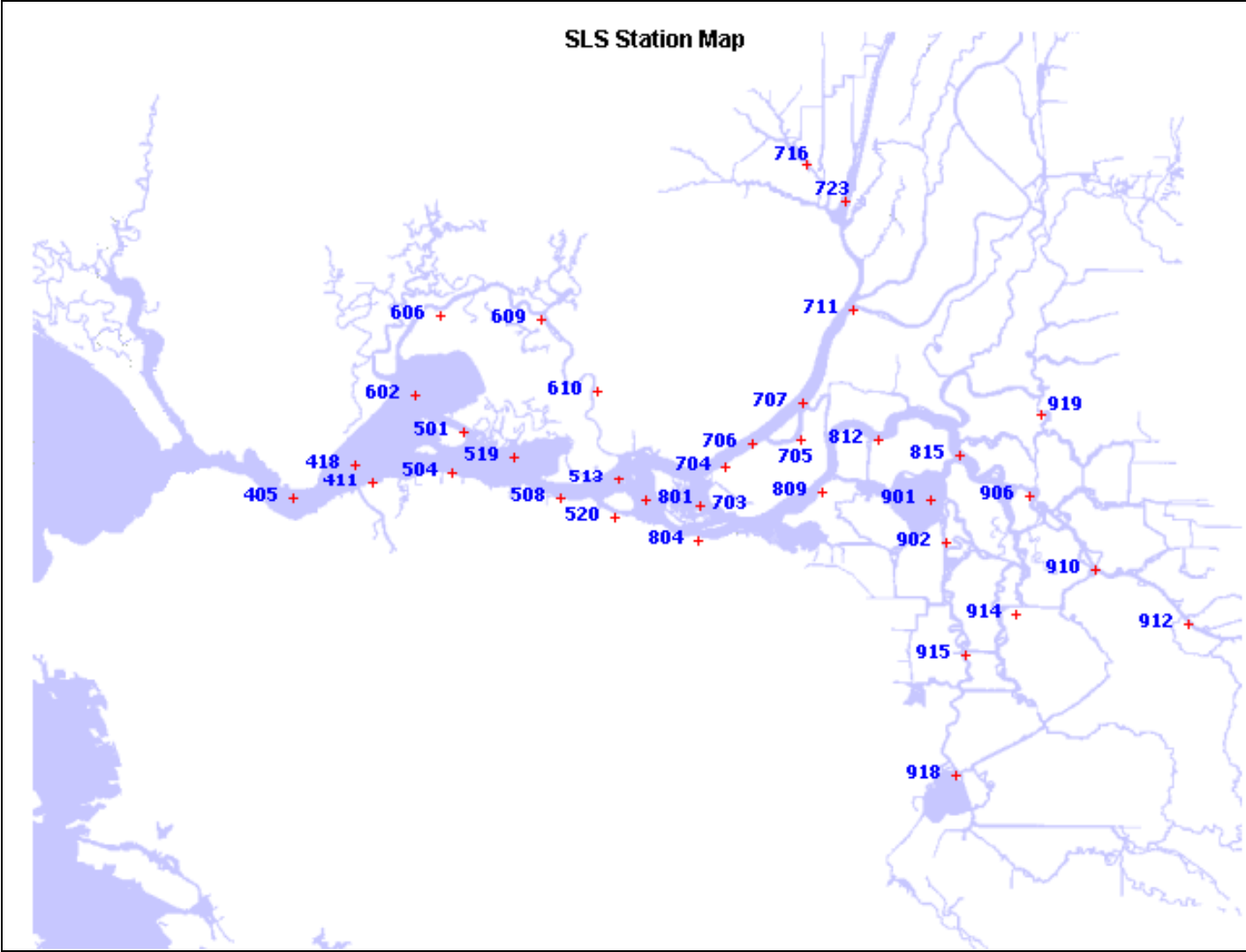


Figure 1. DFG's Smelt Larva Survey station locations.