

SMELT WORKING GROUP
Monday, February 27, 2012

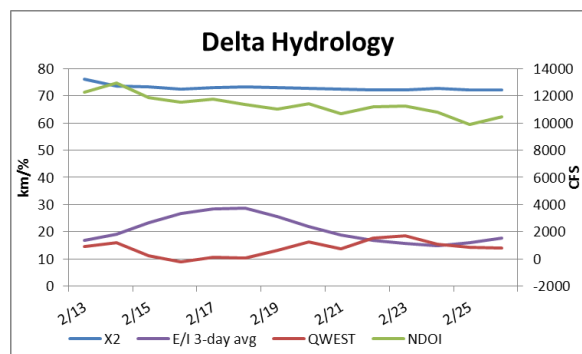
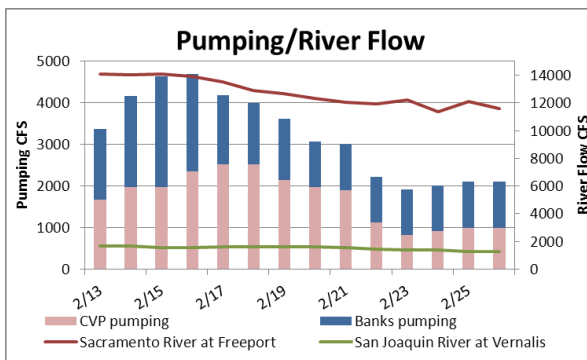
Meeting Summary:

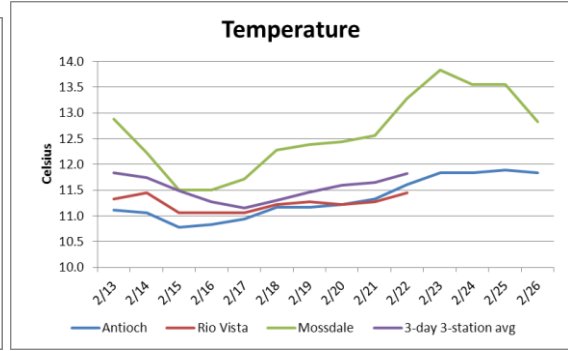
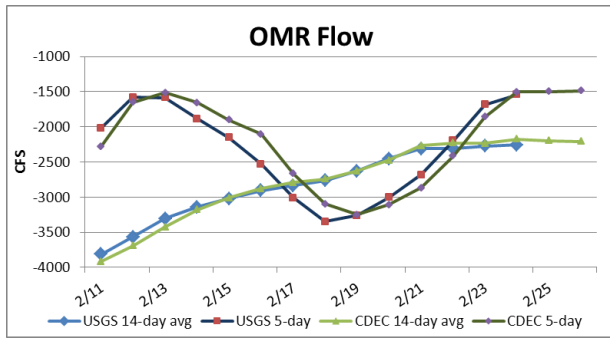
The Working Group agreed that given their present distribution, low levels of salvage, and current Delta conditions, risk of entrainment of delta smelt remains low and therefore, the Working Group recommends that no change in operations is necessary to adequately protect delta smelt from entrainment. The Working Group also agreed that given their present distribution, existing constraining conditions was 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 March 5, 2012, at 10am.

Reported Data:

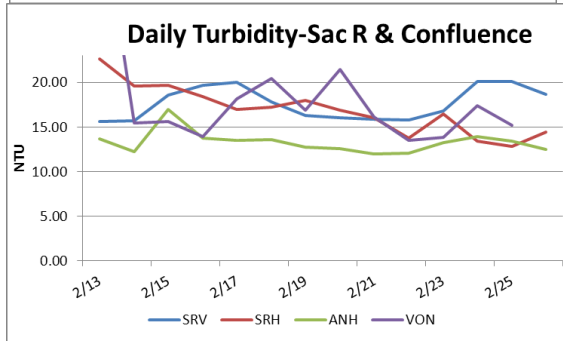
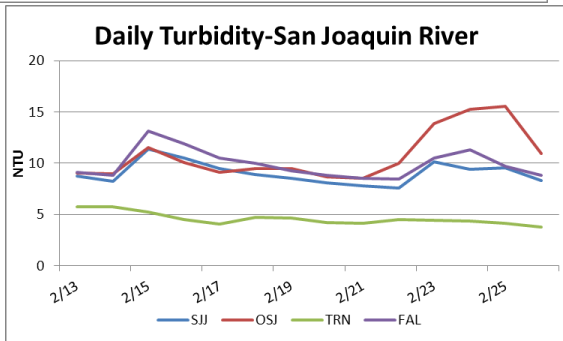
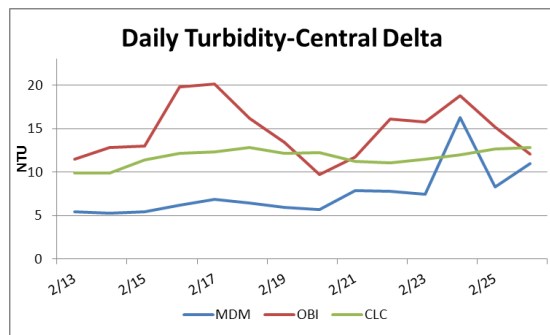
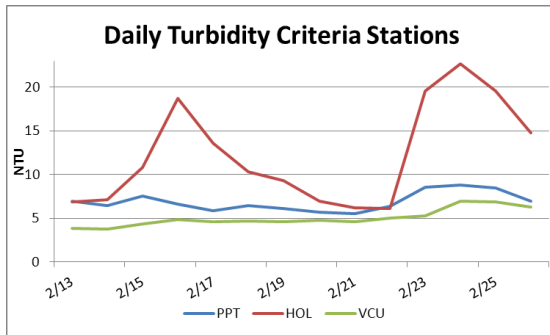
1) Current environmental data:

- **Water temperature** for the 3 station average is unavailable (Rio Vista Bridge station data unavailable). Water temperature for Antioch and Mossdale stations are 11.8°C and 12.8°C, respectively, for February 26.
- **OMR:** USGS tidally-averaged OMR 5-day average for February 24 was -1,540cfs and the 14-day average was -2,258cfs. CDEC 5-day average on February 26 was -1,487cfs and the 14-day average was -2,210cfs.
- **Flow:** Sacramento River inflow is 11,597cfs and San Joaquin River is 1,293cfs. X₂ calculation from CDEC is 72.05km. The NDOI, Qwest, and E/I were 10,443cfs, 800cfs, and 17.7% as of February 26. The graphs below show the most recent trends in Delta hydrology and water quality that were evaluated by the Working Group.





● **Turbidity:**



● **Delta Turbidity and Adult Delta Smelt Forecasting (Paul Hutton), February 16-March 1:**

Delta turbidity and adult delta smelt forecast covers the period Feb 16 – Mar 1. Delta inflows and watershed turbidity levels continue to be low; no significant storm events are expected. Therefore, the forecast anticipates neither a significant turbidity event nor smelt movement into the south Delta. The likelihood of a significant adult delta smelt salvage event is expected to be low for the rest of the season.

Additional information will be posted on the BayDeltaLive.com website. The consulting team will be preparing reports summarizing the 2011-12 forecasting effort.

2) Delta Fish Monitoring:

Smelt Larval Survey #4 was in the field last week. Catch from 26 of the 35 stations has been processed with a total of 878 larvae collected. Of these stations, no delta smelt were collected.

Low densities of longfin smelt larvae were collected in the central and southern Delta stations (90 larvae), with the largest densities in the Sacramento River and just downstream of the confluence. 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/>.

The Service is exploring means by which to minimize the effects of scientific take from all surveys that collect delta smelt. The Working Group was asked whether they believed that continuing the SKT into March, April, and May was essential for estimating the risk of entrainment of adults and/or larvae and juveniles. The consensus was that additional SKT data is not essential to estimate entrainment risk for the species.

3) Salvage:

No longfin smelt larger than or equal to 20 mm have been salvaged in water year 2012. The cumulative total for adult delta smelt for WY 2012 is 98. The table below details daily estimated adult delta smelt salvage for the season:

Table 1: Estimated daily adult delta smelt 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	12
1/31	1	0	1
2/1	3	0	3
2/3	4	0	4
2/10	4	0	4
2/13	4	0	4
2/14	4	0	4
2/15	1	0	1
2/17	2	0	2
2/18	4	0	4
2/20	4	0	4
2/21	4	0	4
2/22	8	0	8
2/23	0	4	4

2/24	0	12	12
2/25	0	4	4

Post-larvae or young juvenile (< 20 mm) longfin smelt were observed in daily larval fish samples from both facilities during February 19-21.

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 2,500cfs as of February 27. Exports are anticipated to increase to 3,000cfs tomorrow. Combined exports are presently curtailed to comply with the SWRCB February outflow standards.

The current OMR target is -2500cfs triggered by a NMFS action (second stage trigger in Action IV.2.3) on 2/24. This action is currently scheduled to end on 2/29 at which time the OMR target would go back to -5000cfs, pending potential restrictions for SWRCB March standards.

5) Particle Tracking Modeling:

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

6) Assessment of Risk:

Background:

The collection of a spent female in the SKT Survey #2 on February 15 indicates that delta smelt spawning has begun. The Working Group discussed the risk of entrainment for larval delta smelt and any discussion of a recommendation was intended to protect larval delta smelt (B.O., p 282). The Working Group will follow the guidance for Action 3 of the B.O. (pp. 357-368).

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.

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

	Concern Level	Take Limit
April	101	151
May	4,471	6,705
June	11,327	16,991

July	12,851	19,276
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Discussion: The Working Group reviewed and discussed all relevant data from fish surveys, Delta monitoring, salvage, and planned Project operations. Low levels of salvage continue at the CVP and have begun at the SWP. The overall Delta conditions, low salvage and preliminary survey data indicate a low risk of entrainment.

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 #4 (and less than SLS #3) the risk is currently low. Qwest remains positive and Delta outflow also has generally been maintained above 10,000cfs, 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 March 5.

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

Advice for week of February 27, 2012:

The Smelt Working Group believes that OMR no more negative than -5,000 cfs is protective of longfin smelt at this time. Currently, OMR is targeted at -2,500, which will be more protective.

Summary of risk: Risk of entrainment is currently low. Larva densities decreased slightly in the central and south Delta for the second consecutive survey (Smelt Larva Survey 4). This decline took place sooner than expected. 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 at criteria stations as expected based on past catch densities, but was followed by slightly declining densities in both Surveys 3 and 4. Qwest turned positive on 8 February and has remained mostly positive since that date to present. Positive Qwest values reported results in slow net transport westward out of the Delta for larvae hatching within the lower San Joaquin River. An OMR of -5,000 cfs is protective of longfin smelt and currently OMR is targeted at -2500 to protect winter-run salmon for 5 days (24-29 February). Barker Slough exports and criteria were not discussed, but exports have been low, 8-12 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 ($\geq 80\text{mm}$) 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 26 February 2012, no $\geq 80\text{mm}$ longfin smelt have been salvaged for the water year, but larva sampling began at both facilities 16 February, and longfin smelt larvae were detected by the State on 19 February and at both facilities 20 February. The Fall Midwater Trawl longfin smelt annual abundance index for 2011 is 477. The total adult 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 4 (21-22 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, Qwest has remained weakly positive for the past 10 days and will likely remain so through the end of February, which would tend to move larvae downstream away from the area of entrainment.

Combined State and federal exports are being coordinated to achieve -2,500 cfs OMR for the period 24-29 February to protect winter-run Chinook salmon. San Joaquin River flow declined to just below 1,300 cfs as of 26 February. OMR, estimated for 26 February, was -2278 cfs (CDEC 14-day average). 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 not discussed, but have been zero or close to zero over the past week 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 when longfin smelt larvae are present. Exports dropped to 39 cfs on 19 January to below 10 cfs on 24 January and have remained below 10 cfs or zero since then before moving up to 12 cfs on 26 February. Even though larva densities remained relatively high during Smelt Larva Survey 4, such low exports pose no risk to longfin smelt larvae.

Table 1. Longfin smelt and delta smelt catch per station from 2012 Smelt Larva Survey, Survey 4.

Year	Survey	SLS Station	Sample Status	Species	Smelt Catch
2012		405	Not yet processed		
2012		411	Not yet processed		
2012		418	Not yet processed		
2012		501	Not yet processed		
2012		504	Not yet processed		
2012	4	508	Processed	Longfin Smelt	158
2012	4	513	Processed	Longfin Smelt	68
2012	4	519	Processed	Longfin Smelt	52
2012	4	520	Processed	Longfin Smelt	49
2012		602	Not yet processed		
2012		606	Not yet processed		
2012		609	Not yet processed		
2012		610	Not yet processed		
2012	4	703	Processed	Longfin Smelt	47
2012	4	704	Processed	Longfin Smelt	89
2012	4	705	Processed	Longfin Smelt	12
2012	4	706	Processed	Longfin Smelt	50
2012	4	707	Processed	Longfin Smelt	42
2012	4	711	Processed	Longfin Smelt	5
2012	4	716	Processed	Longfin Smelt	39
2012	4	723	Processed	Longfin Smelt	31
2012	4	801	Processed	Longfin Smelt	84
2012	4	804	Processed	Longfin Smelt	62
2012	4	809	Processed	Longfin Smelt	26
2012	4	812	Processed	Longfin Smelt	15
2012	4	815	Processed	Longfin Smelt	2
2012	4	901	Processed	Longfin Smelt	22
2012	4	902	Processed	Longfin Smelt	5
2012	4	906	Processed	Longfin Smelt	5
2012	4	910*	Processed	Longfin Smelt	1
2012	4	912	Processed		No Smelt Catch
2012	4	914	Processed	Longfin Smelt	3
2012	4	915	Processed	Longfin Smelt	5
2012	4	918	Processed	Longfin Smelt	6
2012	4	919	Processed		No Smelt Catch

*5 Minute tow (standard is 10 minutes)
 Processing complete through 02/24/2012

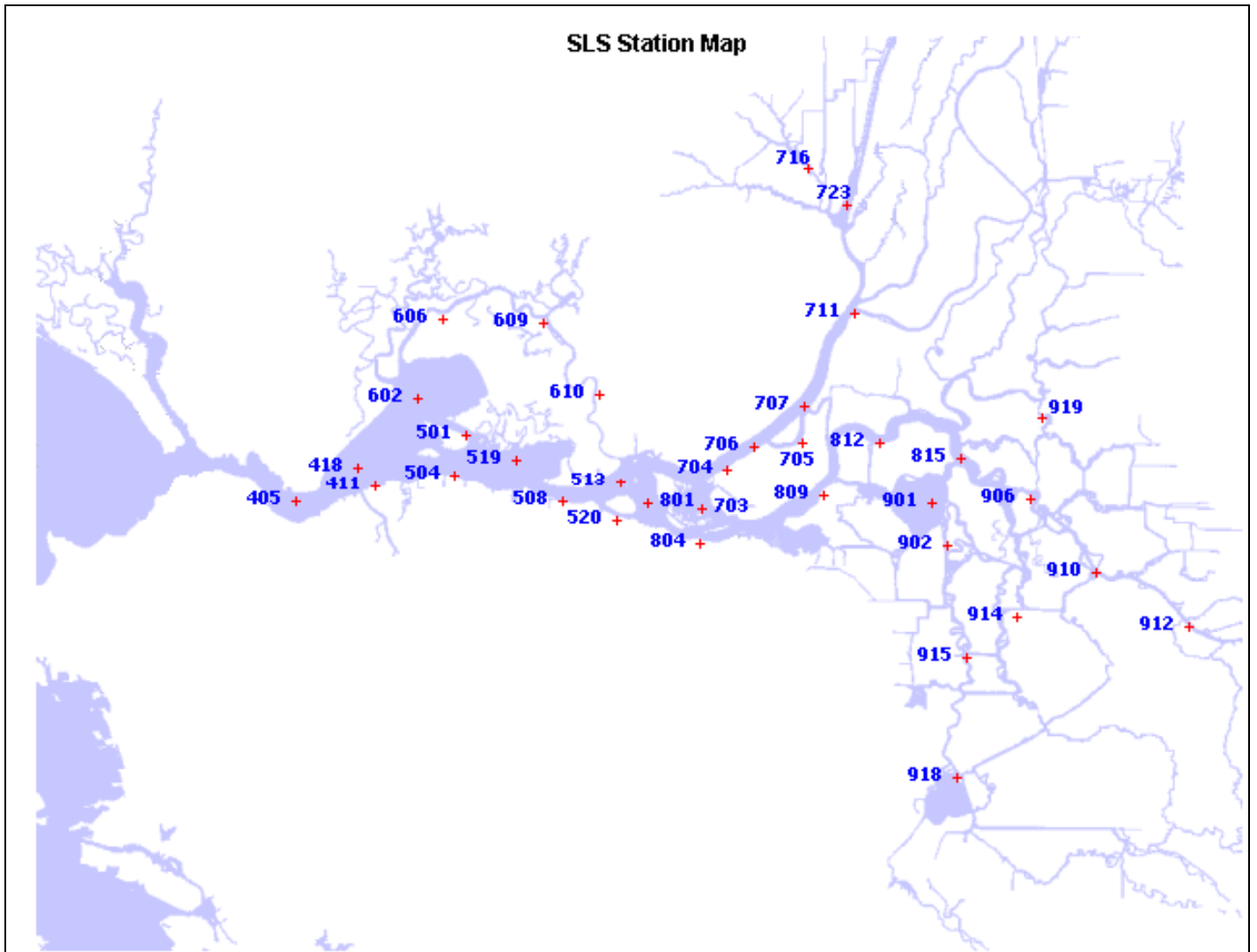


Figure 1. DFG's Smelt Larva Survey station locations.