SMELT WORKING GROUP
Monday, February 6, 2012

Meeting Summary:

The Working Group will continue to monitor salvage, survey data, and hydrological conditions and will reconvene February 13 at 10am, if conditions warrant. The Working Group agreed that given their present distribution, low levels of salvage from 1/24/12 to 2/3/2012, and turbidity levels remaining low for the north and south Delta, 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.

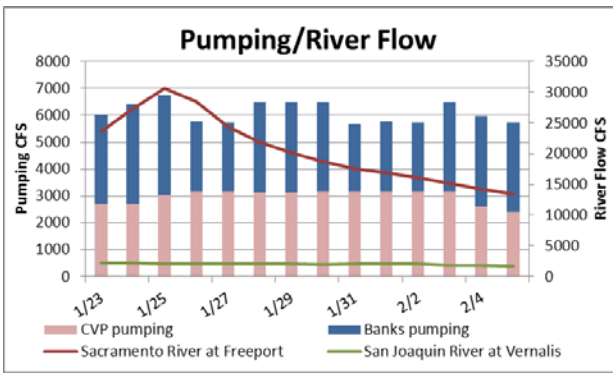
Reported Data:

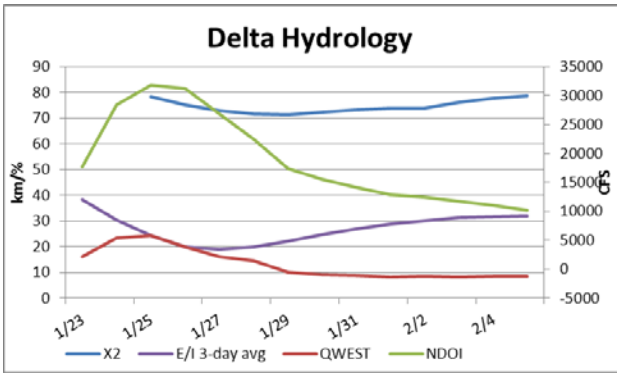
1) Current environmental data:

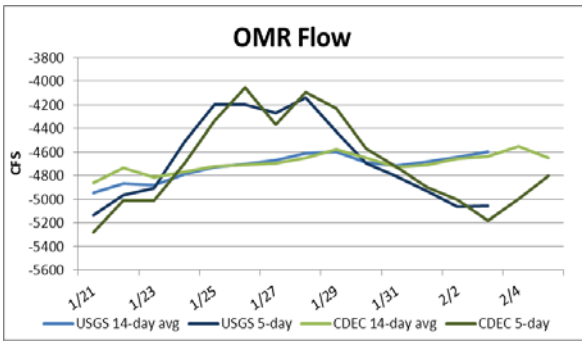
- **Water temperature** for the 3 station average is 10.7°C.

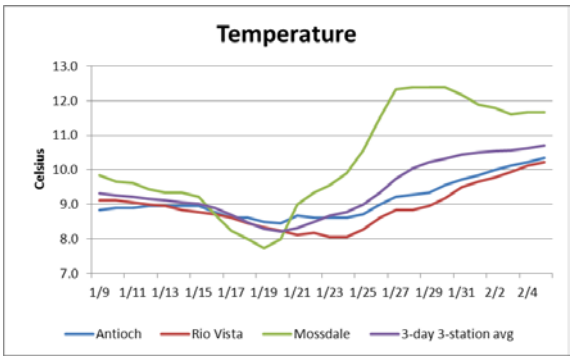
- **OMR:** USGS tidally-averaged OMR 5-day average for February 3 was -5,054cfs and the 14-day average was -4,596cfs. CDEC 5-day average on February 5 was -4,799cfs and the 14-day average was -4,651cfs.

- **Flow:** Sacramento River inflow is 13,418cfs and San Joaquin River is 1,679cfs. X_2 calculation from CDEC is 78.48km. The NDOI, Qwest, and E/I were 10,211cfs, -1,261cfs, and 32% as of February 5. The graphs below show the most recent trends in Delta hydrology and water quality that were evaluated by the Working Group.

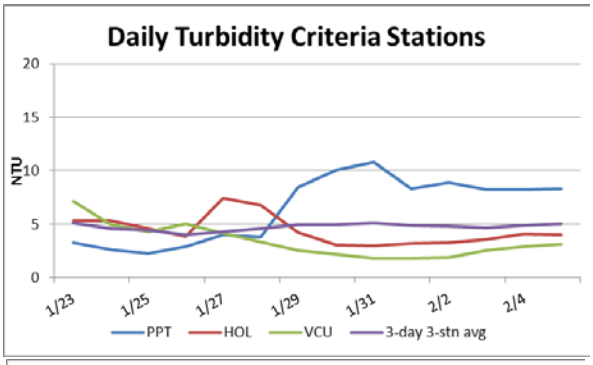


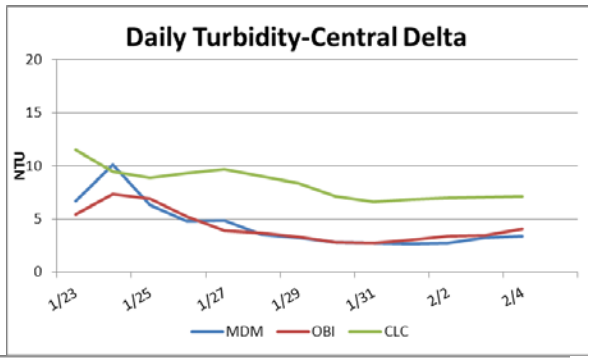


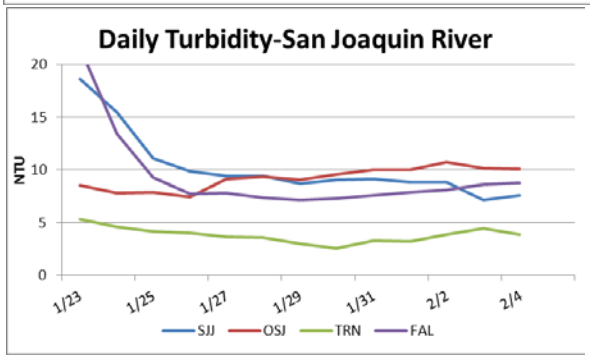


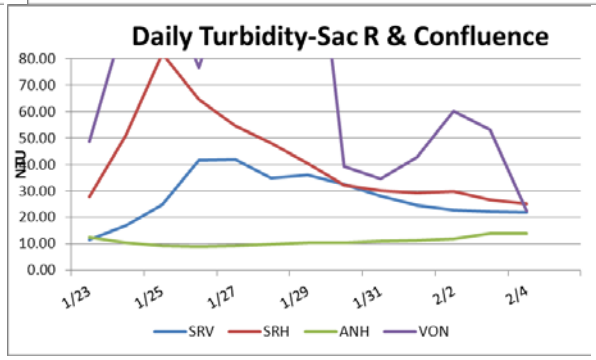


- **Turbidity**:









2) Delta Fish Monitoring:

Smelt Larval Survey #3 is in the field this week. Results will be available for next week. Results from Spring Kodiak Trawl #1 indicate the largest concentrations of adult delta smelt are in the Sacramento River and downstream of the confluence. SKT #2 is in the field the week of February 13. 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 have been salvaged in WY 2012. The cumulative total for adult delta smelt for WY 2012 as of February 5 is 43. The table below details adult delta smelt salvage for the season:

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

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

Expected Project Operations:

Combined CVP/SWP exports are approximately 5,700 cfs as of February 6. As of February 8, combined exports are anticipated to be 2,800 cfs to comply with the SWRCB February outflow standards.

4) Particle Tracking Modeling:

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

5) 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)

	Concern Level	**Auth. Take**
April	101	151
May	4,471	6,705
June	11,327	16,991
July	12,851	19,276

Discussion: The Working Group reviewed and discussed all relevant data from fish surveys, Delta monitoring, salvage, and planned Project operations. Although salvage has occurred from January 24 through February 5, the numbers have been relatively low (mostly 2-5 fish salvaged per day) and no salvage occurred for the past two days. The overall conditions and data indicate a low risk of entrainment.

6) 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 #2, the risk is currently low. Longfin smelt detections in the central and south delta are anticipated to increase for the SLS #3, due to the anticipated February peak in hatching. Qwest turned negative on January 30 and Delta outflow has decreased; therefore newly hatched longfin in the Central Delta may persist longer in this area compared to larvae hatched earlier in the season.

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 13.

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

Advice for week of February 6, 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. Although larva densities are expected to increase in the central and south Delta based on historical results, 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. San Joaquin and Sacramento River flows have decreased and Delta export facilities have reduced their exports to meet E/I standards. Although decreasing Qwest and increasing X2 indicate reduced transport of larvae out of the Delta within the lower San Joaquin River, the currently targeted OMR of -5,000 cfs is protective of longfin. Barker Slough exports and criteria were not discussed, but exports dropped to near 0 cfs and pose no risk.

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 (>=80mm) 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 January 30, 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 2 (23 January 2012) detected increasing numbers of longfin smelt larvae in the central and south Delta criteria stations (c.f. #3 above and Table 1 below). This observation suggests increased risk to entrainment; however, at the time of the survey rainfall and runoff increased inflows in the eastern and southern Delta and created positive Qwest for at least 5 days.

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 1,679 cfs as of 6 February. OMR, estimated for 6 February, was -4,457 cfs (CDEC 14-day average). More importantly for larvae hatching in the central Delta, Qwest averaged about -900 cfs on 30 January and declining to about -1,300 cfs on 6 February indicating net upstream movement in the lower portion of the main San Joaquin River channel. Similarly, X2 has been increasing from 71 km on 30 January to 78 km on 6 February. Such flows will lessen the movement of longfin smelt larvae in the central Delta to move westward.

Barker Slough exports were not discussed, but 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 and dropped thereafter to 2 cfs on 29 January. Exports have dropped to zero as of 6 February. Even though larva densities increased during Smelt Larva Survey 2, 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 2.

Year	Survey	SLS Station	Sample Status	Species	Smelt Catch
2012	2	405	Processed	Longfin Smelt	61
2012	2	411	Processed	Longfin Smelt	163
2012	2	418	Processed	Longfin Smelt	278
2012	2	501	Processed	Longfin Smelt	205
2012	2	504	Processed	Longfin Smelt	166
2012	2	508	Processed	Longfin Smelt	618
2012	2	513	Processed	Longfin Smelt	348
2012	2	519	Processed	Longfin Smelt	608
2012	2	520	Processed	Longfin Smelt	475
2012	2	602	Processed	Longfin Smelt	221
2012	2	606	Processed	Longfin Smelt	27
2012	2	609	Processed	Longfin Smelt	35
2012	2	610	Processed	Longfin Smelt	25
2012	2	703	Processed	Longfin Smelt	90
2012	2	704	Processed	Longfin Smelt	54
2012	2	705	Processed	Longfin Smelt	193
2012	2	706	Processed	Longfin Smelt	114
2012	2	707	Processed	Longfin Smelt	104
2012	2	711	Processed		No Smelt Catch
2012	2	716	Processed	Longfin Smelt	74
2012	2	723	Processed	Longfin Smelt	45
2012	2	723	Processed	Delta Smelt*	1
2012	2	801	Processed	Longfin Smelt	340
2012	2	804	Processed	Longfin Smelt	418
2012	2	809	Processed	Longfin Smelt	54
2012	2	812	Processed	Longfin Smelt	32
2012	2	815	Processed	Longfin Smelt	2
2012	2	901	Processed	Longfin Smelt	122
2012	2	902	Processed	Longfin Smelt	23
2012	2	906	Processed	Longfin Smelt	8
2012	2	910	Processed		No Smelt Catch
2012	2	912	Processed		No Smelt Catch
2012	2	914	Processed	Longfin Smelt	9
2012	2	915	Processed	Longfin Smelt	9
2012	2	918	Processed	Longfin Smelt	2
2012	2	919	Processed	Longfin Smelt	2

SWP ITP Criteria Stations

*Adult Delta Smelt (Fork Length = 67 mm)

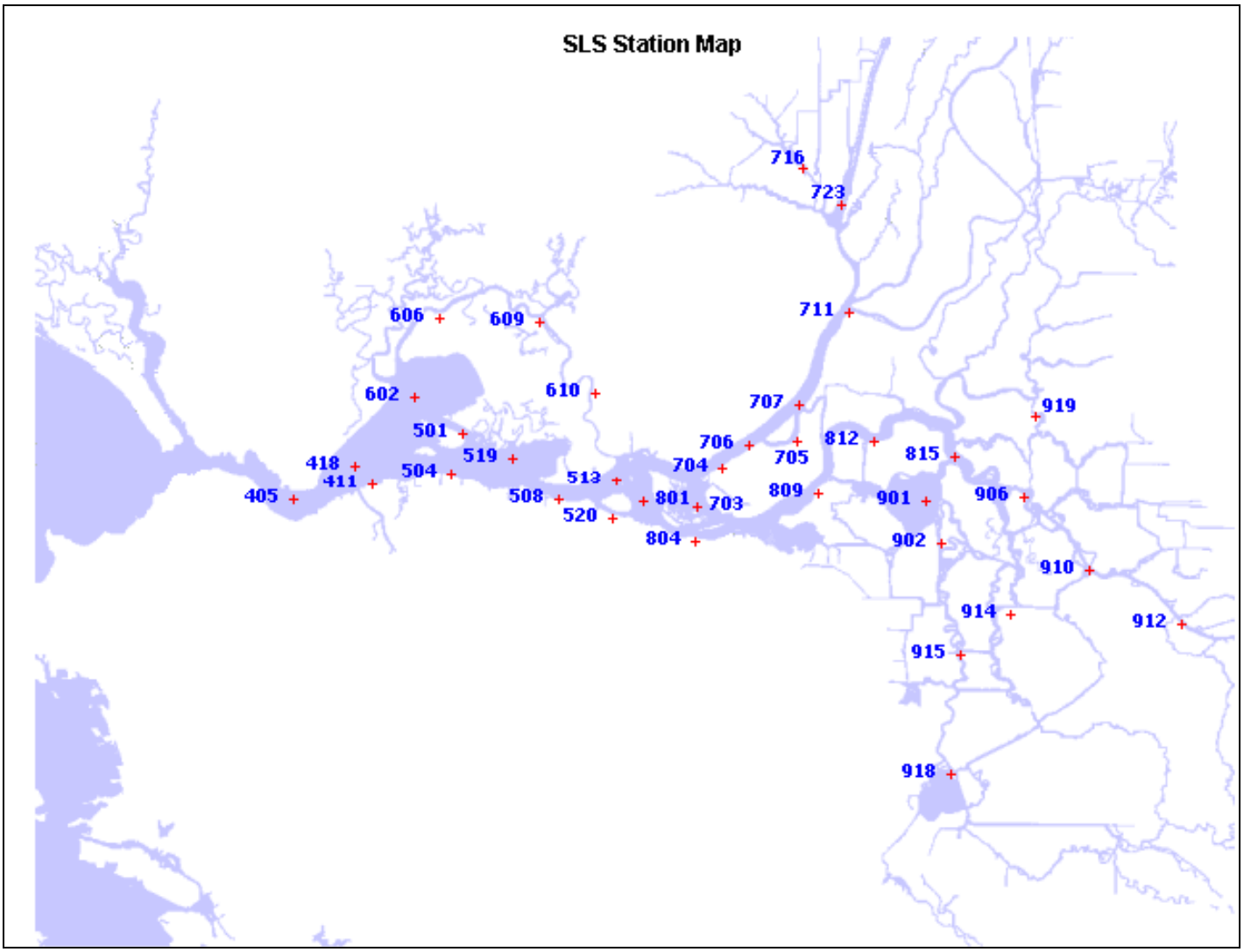


Figure 1. DFG's Smelt Larva Survey station locations.