

SMELT WORKING GROUP

Tuesday, February 21, 2012

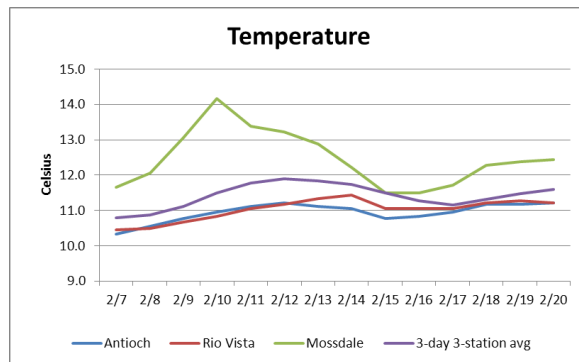
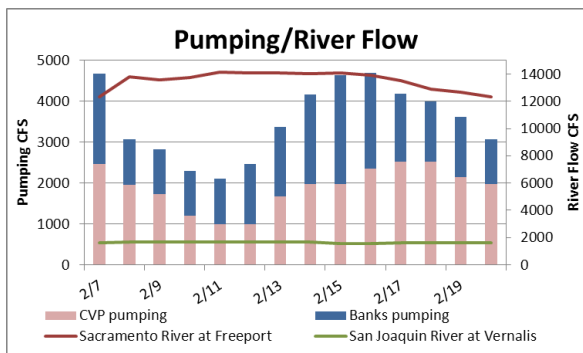
Meeting Summary:

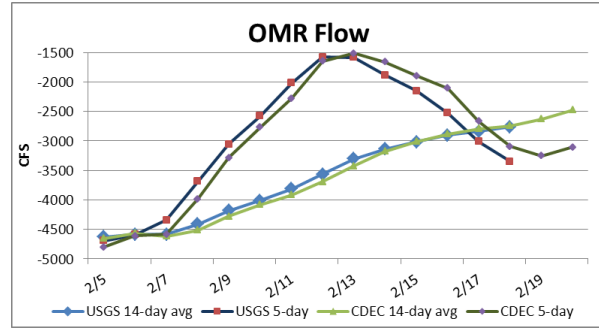
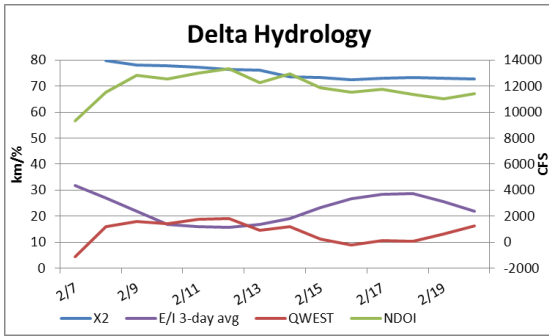
The Working Group will continue to monitor smelt salvage, adult and larval smelt survey data, and delta hydrological conditions and will reconvene February 27, 2012, at 10am. The Working Group agreed that given their present distribution, low levels of salvage, and current delta conditions, risk of entrainment 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.

Reported Data:

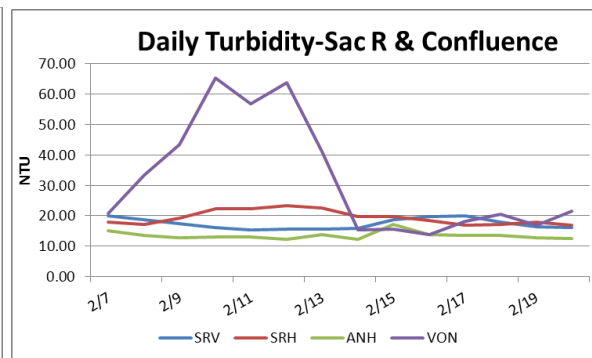
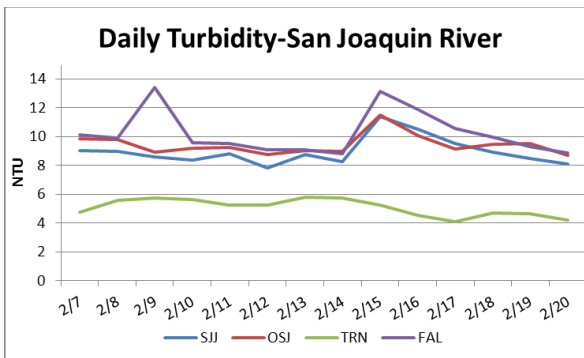
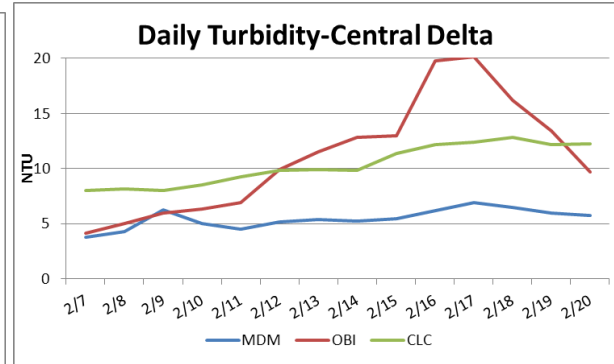
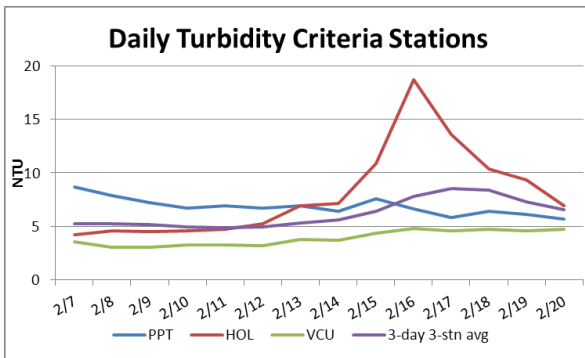
1) Current environmental data:

- **Water temperature** for the 3 station average is 11.6°C.
- **OMR:** USGS tidally-averaged OMR 5-day average for February 18 was -3,350cfs and the 14-day average was -2,765cfs. CDEC 5-day average on February 20 was -3,109cfs and the 14-day average was -2,474cfs.
- **Flow:** Sacramento River inflow is 12,315cfs and San Joaquin River is 1,612cfs. X_2 calculation from CDEC is 72.69km. The NDOI, Qwest, and E/I were 11,436cfs, 1,231cfs, and 21.9% as of February 20. 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 9-28:**

Delta inflows and watershed turbidity levels continue to be low; no significant storm events are expected. The forecast anticipates neither a significant turbidity event nor smelt movement into the south Delta. Forecast results are summarized in the attached document (not distributed to the Working Group). Additional information will be posted on the BayDeltaLive.com website.

2) Delta Fish Monitoring:

Spring Kodiak Trawl #2 was in the field last week. Three delta smelt were collected at station 812 and 15 at station 809, both in the central Delta. The remaining 269 adult delta smelt were collected in the Sacramento River, confluence and downstream. Five spent females and two spent males were collected, as well as three ripe females and seven ripe males. With all 35

stations analyzed, Smelt Larval Survey #3 collected longfin smelt larvae in the central and southern Delta, but the greatest densities occurred at the confluence and downstream. Three and one adult delta smelt were collected at station 609 and 716, respectively; no larval delta smelt were seen. SLS#4 is in the field this week. Data will be available for the call next week. 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 66. 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
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

Reclamation has begun larval sampling protocols at the CVP fish salvage facility. No delta smelt or longfin smelt larvae have been reported as yet.

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 2,800cfs as of February 21, although exports are anticipated to drop to 1,800cfs as of February 22. 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 collection of a spent female in the SKT Survey #2 on February 15 indicates that delta smelt spawning has begun. The Working Group began discussing 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

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. 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 #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 been positive for 12 of the last 13 days and Delta outflow also has been maintained above 11,000cfs, 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 February 27.

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

Advice for week of February 21, 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 mostly positive since that date beginning with a week period when it ranged between 900 and 1800 cfs. Such values indicate slow net transport of larvae within the lower San Joaquin River out of the Delta. The currently targeted OMR of -5,000 cfs is protective of longfin smelt (targeted OMR may change to less negative -3500). 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 (≥ 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 20 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 and has remained mostly positive since (1 day of -191 cfs, 16 February), 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 (may be less negative based on recent salmon salvage information). San Joaquin River flow has decreased about 1,600 cfs as of 20 February. OMR, estimated for 20 February, was -2542 cfs (CDEC 14-day average). More importantly for larvae hatching in the central Delta, on 8 February Qwest switched to positive flows and has since remained positive through 20 February, except 1 day noted above. 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, 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 or zero 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	Processed	Longfin Smelt	12
2012	3	411	Processed	Longfin Smelt	31
2012	3	418	Processed	Longfin Smelt	70
2012	3	501	Processed	Longfin Smelt	1358
2012	3	504	Processed	Longfin Smelt	103
2012	3	508	Processed	Longfin Smelt	210
2012	3	513	Processed	Longfin Smelt	105
2012	3	519	Processed	Longfin Smelt	313
2012	3	520	Processed	Longfin Smelt	325
2012	3	602	Processed	Longfin Smelt	288
2012	3	606	Processed	Longfin Smelt	51
2012	3	609	Processed	Longfin Smelt	98
2012	3	609	Processed	Delta Smelt*	3
2012	3	610	Processed	Longfin Smelt	32
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	Processed	Longfin Smelt	131
2012	3	801	Processed	Longfin Smelt	436
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

*Adult Delta Smelt (Fork Lengths 64-68mm)

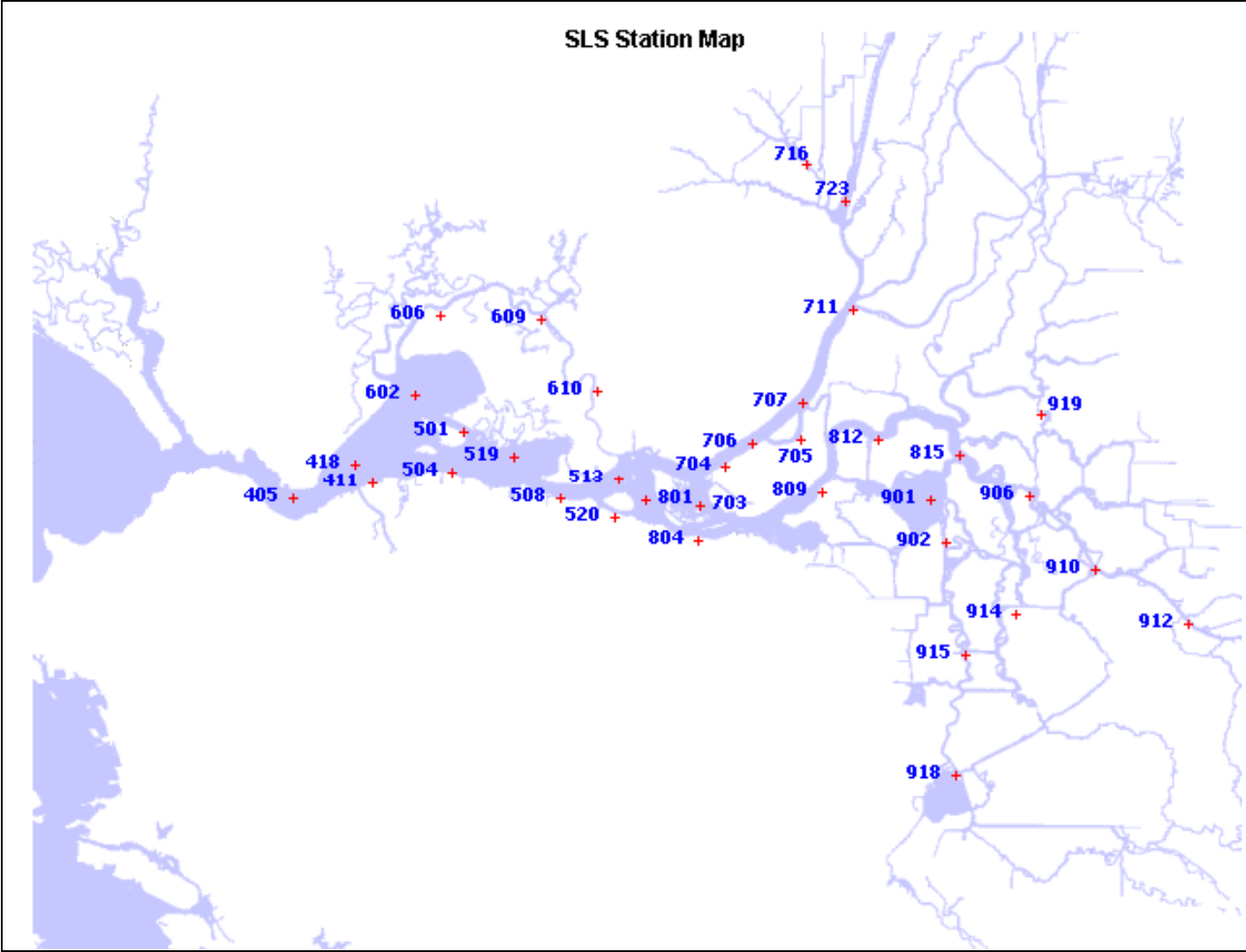


Figure 1. DFG's Smelt Larva Survey station locations.