

# SMELT WORKING GROUP

## Monday, March 19, 2012

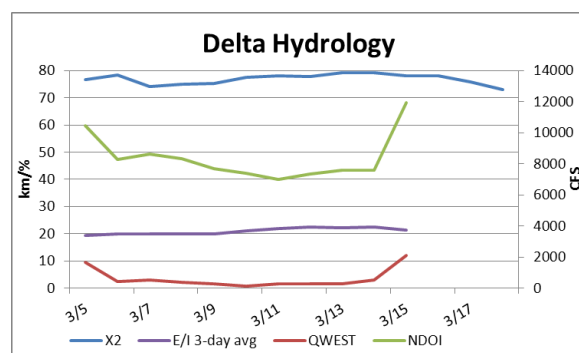
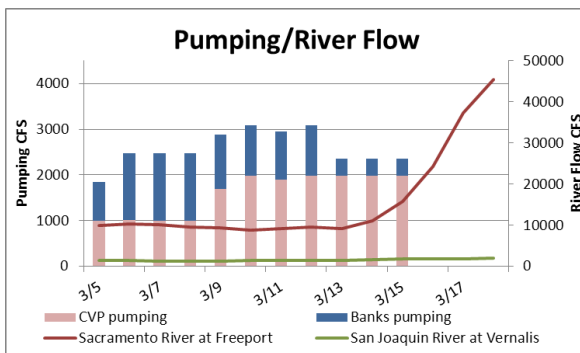
### Meeting Summary:

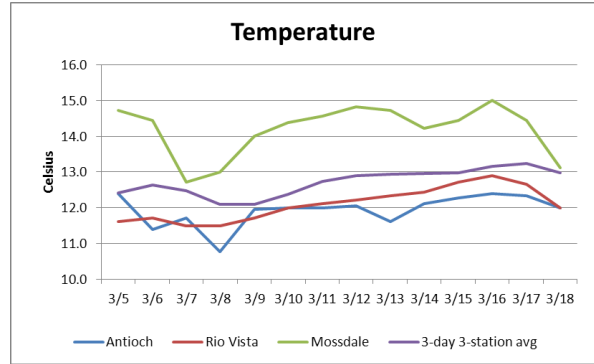
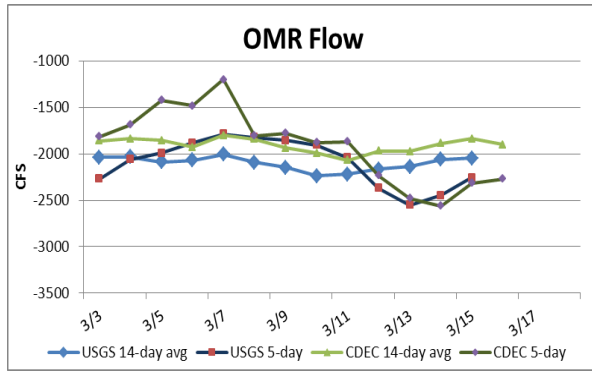
The Working Group agreed that given their present distribution, low levels of salvage, and current Delta conditions, risk of entrainment of delta smelt remains low and therefore, the Working Group recommends that no change in operations is necessary to adequately protect delta smelt from entrainment. 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 26, 2012, at 10am.

### Reported Data:

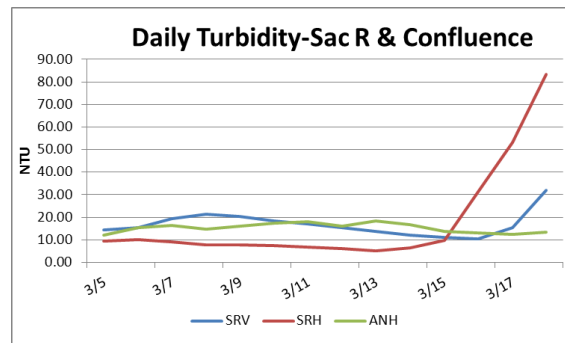
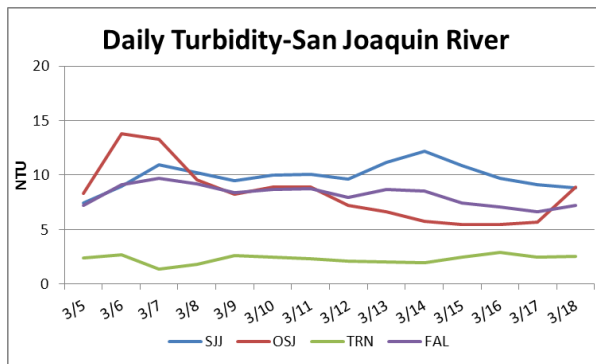
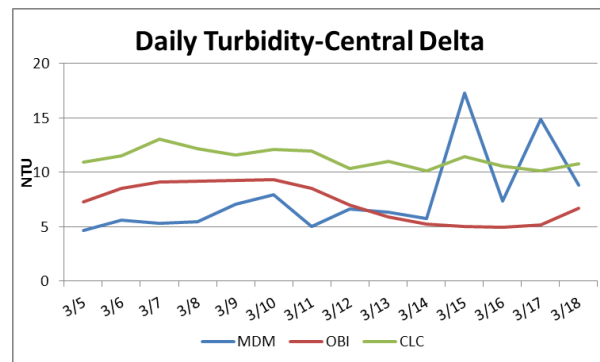
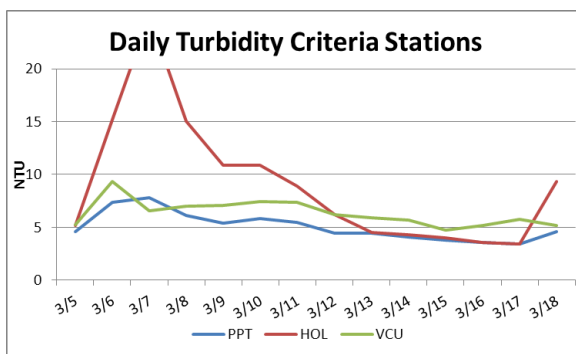
#### 1) Current environmental data:

- **Water temperature** for the 3 station average is 13°C.
- **OMR:** USGS tidally-averaged OMR 5-day average for March 15 was -2,258cfs and the 14-day average was -2,047cfs. CDEC 5-day average on March 16 was -2,271cfs and the 14-day average was -1,903cfs.
- **Flow:** Sacramento River inflow is 45,428cfs and San Joaquin River is 2,030cfs.  $X_2$  calculation from CDEC is 73.13km. 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:**

20-mm Survey #1 was in the field last week. No larval delta smelt were collected in the southern Delta. 38 longfin smelt larvae were collected from central and southern Delta stations. Data from other stations are being processed and will be available later in the week. Smelt Larval Survey #6 is in the field this week. Spring Kodiak Trawl #4 is in the field April 2. 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:

The cumulative total for adult delta smelt for WY 2012 is 194. The table below details daily estimated adult delta smelt salvage for the season:

Table 1: Estimated daily adult delta smelt salvage and estimated daily juvenile longfin smelt salvage (>20 mm) for WY2012

Delta Smelt (adults)				Longfin Smelt (YOY>20 mm)			
Date	CVP	SWP	Total	Date	CVP	SWP	Total
1/18	4	0	4	2/29	8	0	8
1/24	4	0	4	3/3	4	0	4
1/25	4	0	4	3/5	4	4	8
1/26	5	0	5	3/6	32	0	32
1/27	2	0	2	3/7	0	8	8
1/28	4	0	4	3/9	0	8	8
1/30	12	0	12	3/11	0	48	48
1/31	1	0	1	3/12	0	8	8
2/1	3	0	3	3/13	8	16	24
2/3	4	0	4	3/14	4	8	12
2/10	4	0	4	3/15	0	28	28
2/13	4	0	4	3/16	4	24	28
2/14	4	0	4	3/17	0	34	34
2/15	1	0	1	3/18	4	16	20
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				
2/27	4	18	22				
2/28	4	4	8				
2/29	0	10	10				
3/1	0	2	2				
3/2	0	6	6				
3/5	0	4	4				
3/6	4	20	24				
3/9	4	0	4				
3/11	4	4	8				
3/13	0	4	4				
3/17	4	0	4				

Post-larvae or young juvenile (< 20 mm) longfin smelt were observed in daily larval fish samples from both facilities during February 28 – March 17.

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 4,300cfs as of March 19. Combined exports are presently curtailed to comply with the NMFS RPA OMR restriction of -3,500cfs to protect winter-run Chinook salmon.

The current OMR limit of -3,500 cfs was triggered by Delta export facilities loss densities greater than 2.5 unclipped older juvenile Chinook salmon (considered to be comprised mainly of winter-run sized fish by date) / TAF on March 18, 2012. Based on loss density over the weekend and made available Monday afternoon (3/19/2012), OMR flows will be held at -3,500 cfs until at least Thursday, March 22, 2012. Relaxation of the OMR flow restrictions at that time will be based on loss density data collected during the next 3 days. Relaxation of the OMR flow restrictions require 3 consecutive days below the loss density trigger point of 2.5 fish/TAF to go to -5,000cfs.

#### **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)

	<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. Low levels of salvage continue at both the CVP and SWP. The overall Delta conditions, low salvage and survey data indicate a low risk of entrainment.

The Working Group noted the increased turbidity on the mainstem Sacramento and Mokelumne Rivers. As the turbidity plume spreads over the next few days, the Working Group will monitor conditions closely for indications the turbidity may encroach into the Old River or Middle River corridors. However, the Working Group does not expect an increased risk of entrainment from increasing turbidity alone. Historically, salvage has been reasonably predicted by combinations of high turbidity and OMR's more negative than -5000cfs. The SWG will monitor DFG 20 mm distribution data as it becomes available to determine if entrainment risk for juvenile delta smelt will be a concern in later spring months.

#### **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 few larvae were collected in the central and south Delta for 20mm #1 (39 total) the risk is currently low. With the recent rains, Qwest is increasingly positive and Delta outflow has increased to 51,000 today, which should assist the remaining 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 26.

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

##### **Advice for week of March 19, 2012:**

The Smelt Working Group believes that OMR no more negative than -5000 cfs is protective of longfin smelt at this time.

**Summary of risk:** Risk of entrainment is currently low. Larva densities decreased substantially in the central and south Delta in Smelt Larva Survey 5 and preliminary numbers from 20mm Survey 1 also were low for the central and south Delta. Though larvae and small juveniles continue to be salvaged in low numbers, salvage has increased. Currently, OMR restrictions

remain at -3500 cfs through 22 March, possibly longer. Barker Slough exports and criteria were not discussed, but exports recently dropped to 0 cfs, and now pose no risk of entrainment 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 5 March 2012, no  $\geq 80$  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 (criterion #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. Larvae numbers increased in Smelt Larva Survey 2, and then declined slightly in survey 3 and again in survey 4 followed by a substantial drop in survey 5.

Review of new and current information: Smelt Larva Survey 5 (6 March 2012 - partial) detected substantially decreased numbers of longfin smelt larvae in the central and south Delta criteria

stations (criterion #3 and Table 1 below) and 20mm Survey 1 (12 March – not yet posted) also detected low numbers of longfin smelt larvae and juveniles in the central and south Delta. This observation indicates continued low risk of entrainment. Also, Qwest increased in the positive direction as of 15 March and will likely become more positive during the week of 19 March, which would tend to move larvae and juveniles downstream away from the area of entrainment. Nonetheless, longfin smelt larvae or small juveniles have been detected regularly at the SWP and CVP. These larger larvae and small juveniles have been in the south Delta for weeks to months prior to detection at the facilities.

Combined State and federal exports were recently coordinated to achieve -3500 cfs OMR for the period 19-22 March to protect winter-run Chinook salmon; these flows may become less negative and may continue beyond 22 March with additional winter-run salvage or based on updated salvage information. OMR was estimated at -2671 cfs (5-day) and -1903 (CDEC 14-day average). Such flows will not strongly draw longfin smelt larvae or juveniles into the south Delta.

Barker Slough exports were not discussed, but have dropped to 0 cfs on 10 March and remained 0 since, so exports do not currently 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. Even though larva densities remained relatively high during Smelt Larva Survey 5, there is no current risk to longfin smelt larvae.

Table 1. Longfin smelt and delta smelt catch per station from 2012 Smelt Larva Survey, survey 5.

Year	Survey	SLS Station	Sample Status	Species	Smelt Catch
2012	5	405	Not Sampled		
2012	5	411	Not Sampled		
2012	5	418	Not Sampled		
2012	5	501	Not Sampled		
2012	5	504	Not Sampled		
2012	5	508	Processed	Longfin Smelt	147
2012	5	513	Processed	Longfin Smelt	268
2012	5	519	Not Sampled		
2012	5	520	Not Sampled		
2012	5	602	Not Sampled		
2012	5	606	Not Sampled		
2012	5	609	Not Sampled		
2012	5	610	Not Sampled		
2012	5	703	Processed	Longfin Smelt	101
2012	5	704	Processed	Longfin Smelt	253
2012	5	705	Processed	Longfin Smelt	7
2012	5	706	Processed	Longfin Smelt	68
2012	5	707	Processed	Longfin Smelt	32
2012	5	711	Processed		No Smelt Catch
2012	5	716	Processed	Longfin Smelt	31
2012	5	723	Processed	Longfin Smelt	22
2012	5	801	Processed	Longfin Smelt	178
2012	5	804	Processed	Longfin Smelt	144
2012	5	809	Processed	Longfin Smelt	13
2012	5	812	Processed	Longfin Smelt	1
2012	5	815	Processed		No Smelt Catch
2012	5	901	Processed	Longfin Smelt	3
2012	5	902	Processed	Longfin Smelt	3
2012	5	906	Processed		No Smelt Catch
2012	5	910	Processed	Longfin Smelt	1
2012	5	912	Processed		No Smelt Catch
2012	5	914	Processed	Longfin Smelt	1
2012	5	915	Processed	Longfin Smelt	2
2012	5	918	Processed		No Smelt Catch
2012	5	919	Processed	Longfin Smelt	1

SWP ITP Criteria Stations

Processing complete through 03/8/2012



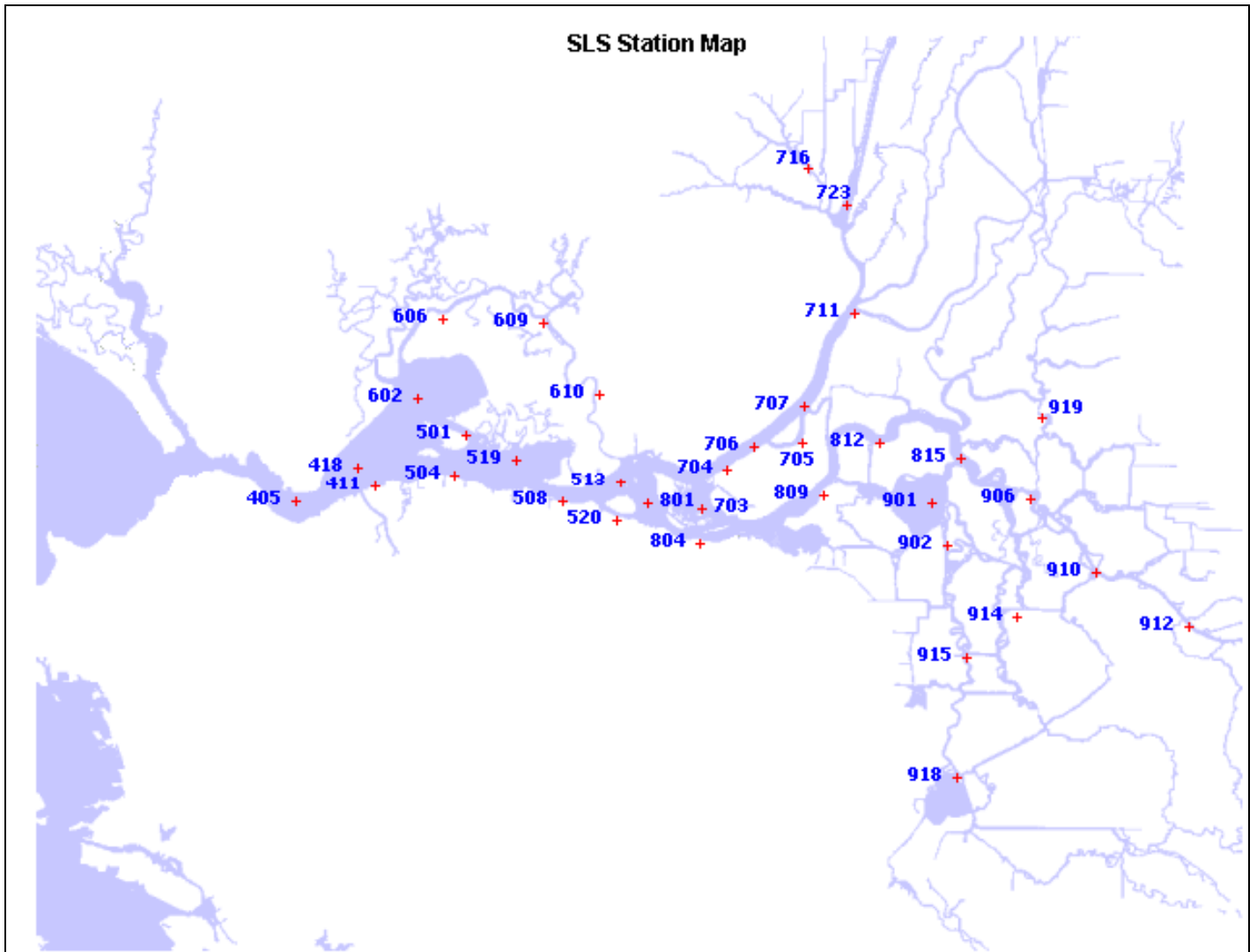


Figure 1. DFG's Smelt Larva Survey station locations.