

## SMELT WORKING GROUP Monday, May 7, 2012

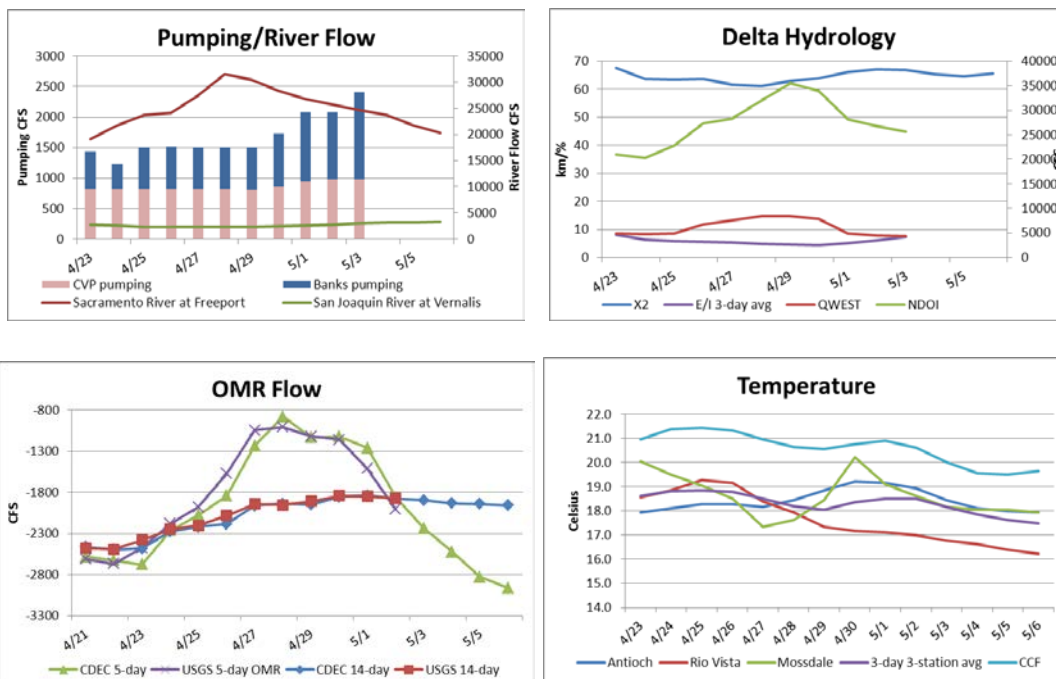
### Meeting Summary:

The Working Group agreed that given their present distribution, current salvage, and 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 May 14, 2012, at 10 am.

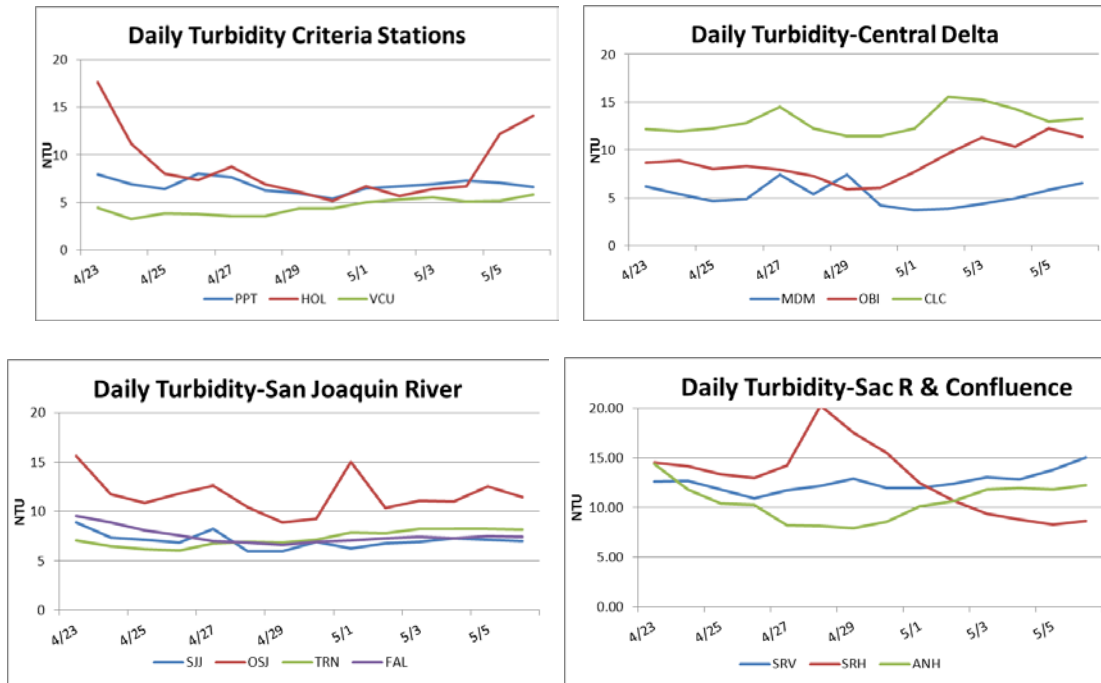
### Reported Data:

#### 1) Current environmental data:

- **Water temperature** for the 3 station average is 17.5°C.
- **OMR:** USGS tidally-averaged OMR 5-day and 14-day averages as of May 2 are -2,009 cfs and -1,872 cfs, respectfully. CDEC 5-day average and 14-day averages as of May 6 are -2,963 cfs and -1,958 cfs, respectively.
- **Flow:** Sacramento River inflow is 20,320 cfs and San Joaquin River is 3,195 cfs.  $X_2$  calculation from CDEC is 65.59 km. 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:

Spring Kodiak Trawl #5 was in the field last week. This was the final SKT Survey for the season. A total of 120 adult delta smelt were collected, none from the central and south Delta. 80% of the females were spent, with 54 females developing secondary ovaries. 20mm Survey #4 was in the field last week. A total of 43 delta smelt were collected, 12 of which were adults. The larvae ranged in size from 5-21mm. Two delta smelt larvae were collected in the central and southern Delta stations. A total of 377 longfin larvae were collected, the majority of which were 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/>.

## 3) Salvage:

The cumulative total for adult delta smelt for WY 2012 is 203. The table below details daily estimated adult delta smelt and juvenile longfin smelt salvage for the season:

Table 1: Estimated daily adult delta smelt and juvenile longfin smelt salvage ( $\geq 20$  mm) for WY2012

Delta Smelt (adults)				Longfin Smelt (YOY $\geq 20$ mm)			
Date	CVP	SWP	Total	Date	CVP	SWP	Total
January total	36	0	36	February total	8	0	8

<b>February total</b>	50	52	102	<b>March total</b>	257	1484	1741
<b>March total</b>	21	40	61	<b>April total</b>	605	1052	1657
<b>4/17</b>	4	0	4	<b>5/2</b>	8	0	8
<b>4/27</b>	6	0	6	<b>5/3</b>	4	16	20
<b>4/28</b>	4	0	4	<b>5/4</b>			4
<b>4/29</b>	8	0	8	<b>5/5</b>			24
<b>5/1</b>	4	0	4	<b>5/6</b>			24
<b>5/3</b>	4	2	6				
<b>5/4</b>			18				
<b>5/5</b>			18				
<b>5/6</b>			16				

Larval or prejuvenile (< 20 mm) longfin smelt and delta smelt were observed in daily larval fish samples. 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 3,000 cfs as of May 6. Combined exports are presently curtailed to comply with the SWRCB D-1641 requirement of no more than 1:1 ratio of pumping to San Joaquin River flow at Vernalis, which is in place April 15-May 15. As of May 8, combined exports will reduce to 1,500 cfs, to comply with the NMFS Stipulation Agreement. Sentinel steelhead detections exceeded the 24 fish threshold, which results in reduction of OMR flow to -1,250 cfs. Due to health and human safety issues, combined exports cannot drop below 1,500 cfs.

#### **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 temperature criterion of 12°C was confirmed on February 28. 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. The first larval delta smelt were salvaged at the CVP on April 26 and the SWP on April 24. An adult was observed in salvage at the CVP on April 17. This is the first salvage of an adult delta smelt at either facility since March 27. With a positive Qwest, X2 at 65.6km, 5-day OMR flow at -2,963 cfs, low levels of salvage and near absence of detection in the 20mm Survey #4 for the central and southern Delta data indicates a low risk of entrainment. Following the adaptive process parameters in the RPA for Action 3, with the majority of the 20mm Survey detections downstream of the central Delta, risk of entrainment is low.

**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 -1,250 and -5,000 cfs as the range to select from in determining a level adequately protective of longfin larvae. A near absence of detections in the central and south Delta for 20-mm Survey #4 and a decreasing salvage trend, the risk is currently low. Qwest remains positive and Delta outflow is now 20,000 cfs, which should assist the remaining larvae in moving downstream and out of the central Delta.

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

**Advice for week of May 7, 2012:**

The Smelt Working Group believes that the current target of exports -1,250 cfs OMR or 1500 cfs combined exports will be protective for larvae and juveniles remaining in the lower San Joaquin River.

**Summary of risk:** Risk of additional entrainment into the south Delta is currently very low. Larva catches were very low in the central and south Delta in 20-mm Survey #4. At the fish facilities detection of larvae and salvage of juveniles are dropping. Recent runoff has maintained a strong positive Qwest, (currently 3,363 cfs). This will provide some westward transport of larvae in the central Delta. Starting on May 8 and continuing through May 12, the facilities will

coordinate to achieve -1,250 OMR or 1,500 cfs combined exports, whatever is larger based on the NMFS BO and triggers tripped by experimental steelhead moving into the south Delta. Subsequently, water exports will be managed per D-1641 at 1:1 with Vernalis flows, currently 3,200 cfs.

**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 20-mm 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 through March 31 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 March 5, 2012, no  $\geq 80$  mm longfin smelt have been salvaged for the water year, but larva sampling began at both facilities on February 16, and longfin smelt larvae were detected by the State on February 19 and at both facilities on 20 February. The Fall Midwater Trawl longfin smelt annual abundance index for 2011 is 477. The total adult salvage level threshold for advice is 2,385 (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: The fourth 20-mm Survey (April 23-25) detected only 3 longfin smelt larvae in the central and south Delta (Table 1), so densities appear very low, resulting in very low risk of additional entrainment into the south Delta. Qwest remains positive at 3,363 cfs. Longfin smelt juveniles were salvaged in slightly higher numbers over the weekend but salvage remains in the low double digits. The increase in south Delta water temperatures to 18°C likely means the end of longfin smelt spawning. Nonetheless a few small larvae remain in the south Delta (Table 1).

Combined State and federal exports will be coordinated May 8-12 to achieve -1250 OMR or a combined export of 1,500 cfs, whichever is larger based on the NMFS BO. On May 12, the flow criteria will revert back to D-1641 where combined exports can be 1:1 with Vernalis flows. On May 16 NMFS will conduct a 3<sup>rd</sup> experimental fish release, which may affect exports if fish movement into the south Delta surpasses trigger levels. Vernalis flows are currently 3,200 cfs. OMR as of May 6 was estimated at -2,963 cfs (CDEC 5-day) and -1,958 (CDEC 14-day).

The longfin smelt incidental take permit restrictions for Barker Slough exports concluded for 2012 on March 31. Although longfin smelt larvae remain in the vicinity, exports remain sporadic and low, and should not entrain larvae.

Table 1. Longfin smelt catch per station from 20mm Survey #4, 2012.

Year	Survey	Station	Date	# Tows Processed	Species	Total Catch	Min. Length	Max. Length	Avg. Length	
2012	4	323	25-Apr-12	3	Longfin Smelt	3	14	27	20.6667	Suisun Bay & West
2012	4	340	25-Apr-12	3	Longfin Smelt	6	12	24	16	
2012	4	342	25-Apr-12	3	Longfin Smelt	12	11	21	15.25	
2012	4	343	25-Apr-12	3	Longfin Smelt	44	10	20	15.0909	
2012	4	344	25-Apr-12	3	Longfin Smelt	12	10	20	14.4167	
2012	4	345	25-Apr-12	3	Longfin Smelt	27	10	18	14.4074	
2012	4	346	25-Apr-12	3	Longfin Smelt	5	13	17	15.2	
2012	4	405	26-Apr-12	3	Longfin Smelt	9	7	16	12.7778	
2012	4	411	26-Apr-12	3	Longfin Smelt	1	11	11	11	
2012	4	418	26-Apr-12	3	Longfin Smelt	2	14	16	15	
2012	4	501	24-Apr-12	3	Longfin Smelt	41	7	30	14.6829	
2012	4	504	24-Apr-12	3	Longfin Smelt	9	7	25	14.6667	
2012	4	519	24-Apr-12	3	Longfin Smelt	3	11	24	15.3333	
2012	4	602	24-Apr-12	3	Longfin Smelt	14	8	29	20.5	
2012	4	606	24-Apr-12	3	Longfin Smelt	98	8	31	16.2791	
2012	4	609	24-Apr-12	3	Longfin Smelt	13	11	23	16.3077	
2012	4	610	24-Apr-12	3	Longfin Smelt	8	12	21	14.25	
2012	4	508	25-Apr-12	3	Longfin Smelt	20	9	29	14.75	
2012	4	513	25-Apr-12	3	Longfin Smelt	8	11	16	13.625	
2012	4	520	25-Apr-12	3	Longfin Smelt	5	7	15	9.8	
2012	4	801	25-Apr-12	3	Longfin Smelt	14	7	16	10.8571	
2012	4	804	25-Apr-12	3	No Longfin Catch	0				Confluence
2012	4	703	25-Apr-12	3	No Longfin Catch	0				
2012	4	704	25-Apr-12	3	Longfin Smelt	1	6	6	6	Sac. River System
2012	4	705	24-Apr-12	3	No Longfin Catch	0				
2012	4	706	24-Apr-12	3	No Longfin Catch	0				
2012	4	707	24-Apr-12	3	No Longfin Catch	0				
2012	4	711	23-Apr-12	3	No Longfin Catch	0				
2012	4	716	23-Apr-12	3	Longfin Smelt	2	19	29	24	
2012	4	718	23-Apr-12	3	Longfin Smelt	13	11	24	16.7692	
2012	4	719	23-Apr-12	3	Longfin Smelt	1	27	27	27	
2012	4	720	23-Apr-12	3	Longfin Smelt	1	32	32	32	
2012	4	723	23-Apr-12	3	Longfin Smelt	2	14	30	22	
2012	4	724	23-Apr-12	3	No Longfin Catch	0				
2012	4	726	23-Apr-12	3	No Longfin Catch	0				
2012	4	809	23-Apr-12	3	Longfin Smelt	2	7	7	7	Central & South Delta
2012	4	812*	24-Apr-12	3	No Longfin Catch	0				
2012	4	815	24-Apr-12	3	No Longfin Catch	0				
2012	4	901	23-Apr-12	3	No Longfin Catch	0				
2012	4	902*	23-Apr-12	3	Longfin Smelt	1	8	8	8	
2012	4	906	24-Apr-12	3	No Longfin Catch	0				
2012	4	910	23-Apr-12	3	No Longfin Catch	0				
2012	4	912	23-Apr-12	3	No Longfin Catch	0				
2012	4	914	23-Apr-12	3	No Longfin Catch	0				
2012	4	915	23-Apr-12	3	No Longfin Catch	0				
2012	4	918	23-Apr-12	3	No Longfin Catch	0				
2012	4	919	24-Apr-12	3	No Longfin Catch	0				

\*5 minute tows