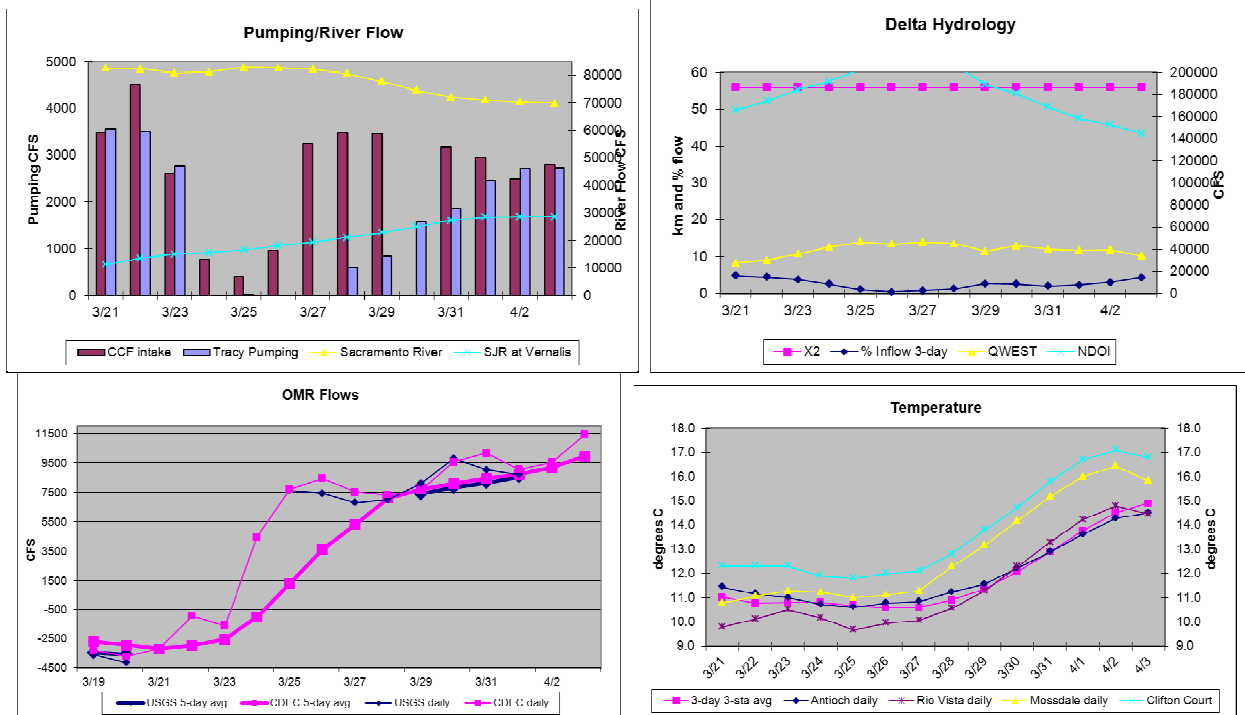


SMELT WORKING GROUP  
Monday, April 4, 2011

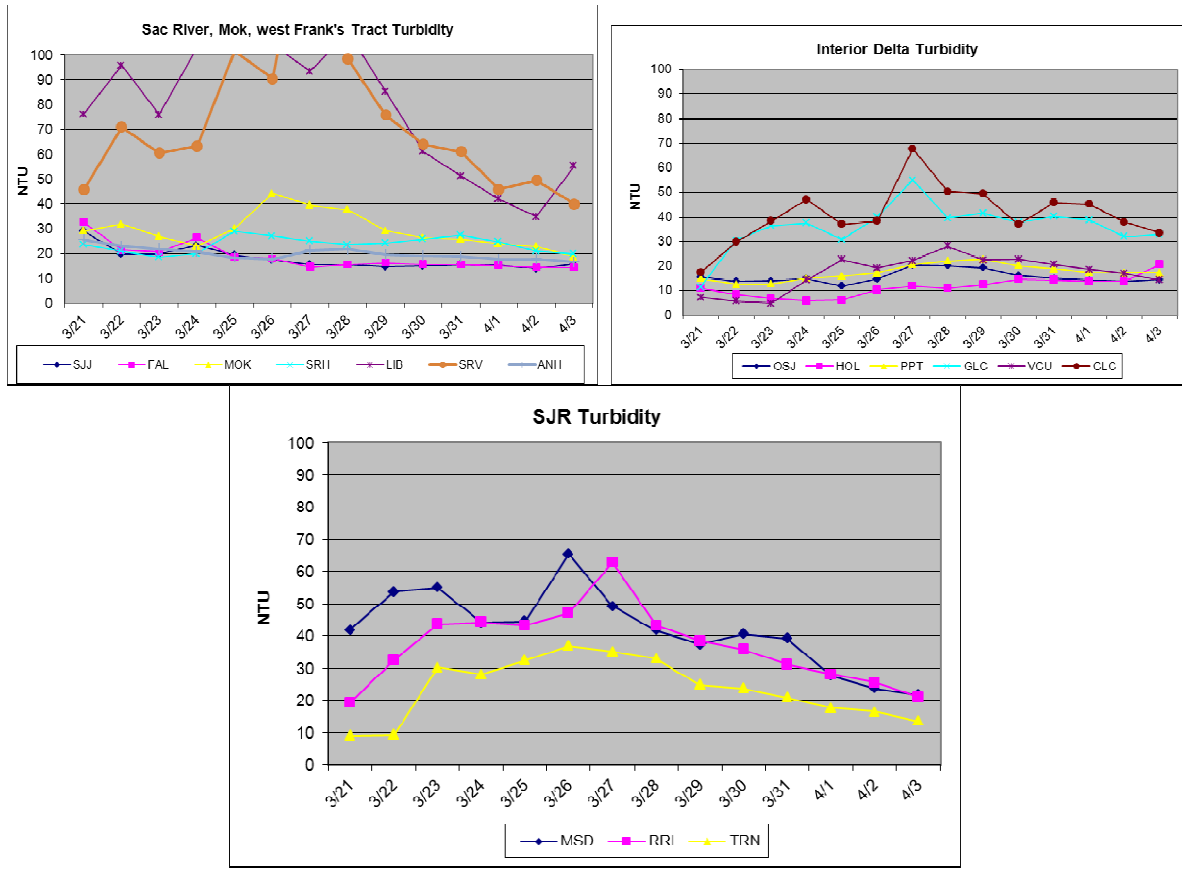
**The Working Group will continue to monitor salvage, survey data, and hydrological conditions and will reconvene April 4. No recommendations were made.**

1) Current environmental data.

- **Water temperature** for the 3 station average is 14.9°C.
- **OMR** USGS tidally-averaged OMR was 8,710 cfs on April 1, 2011. The 5-day average OMR was 8,526 cfs. The OMR average estimate from CDEC on April 3 was 11,419 cfs. The 5-day CDEC OMR is 9,950 cfs.
- **Flow** Sacramento River inflow is 69,827 cfs and San Joaquin 28,567 cfs. X<sub>2</sub> calculation from CDEC is less than 56km. For April 3, the E/I ratio was 4.4%, QWEST was 34,265 cfs, and NDOI was 145,164 cfs. The graphs below show the most recent trends in Delta hydrology and water quality that were evaluated by the Working Group.



- **Turbidity** Turbidities are generally trending down from highs following recent rains.



2) Delta fish monitoring:

20mm Survey #2 was in the field last week. Sample processing is ongoing. No longfin or delta smelt larvae were detected at the central and south delta stations. Stations 719 and 723 collected 1 delta smelt adult each. Spring Kodiak Trawl #4 is in the field this week. Smelt Larva Survey #5 was in the field the week of March 23. Processing is ongoing. 3 larval delta smelt were collected from the Sacramento River system, while 49 longfin smelt were collected. The final 2010 FMWT Index is 29 for delta smelt and 191 for longfin smelt. The 2010 Delta Smelt Recovery Index (based on September and October) is 11. 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 larval surveys, SKT, and 20mm Surveys are available online at: <http://www.delta.dfg.ca.gov/delta>

3) Salvage

No longfin smelt were salvaged from January 18 through March 20. Four adult delta smelt were salvaged at the CVP on January 15 and 17, February 24, and March 15, 19, and 20, and 12 were salvaged at the CVP on March 22, 8 on March 23, 4 on March 30, and 1.1 (revised to 2.1 following the call) on April 1 for a seasonal cumulative total of 49 (revised to 50) fish. No salvage has been reported for longfin smelt or delta smelt at the SWP since June 2010. Criteria for the implementation of an action were not met or exceeded.

Incidental take for juvenile delta smelt at least 20mm in size is as follows:

	<b>Concern Level</b>	<b>Authorized Take</b>
<b>April</b>	9	13
<b>May</b>	378	567
<b>June</b>	958	1436
<b>July</b>	1086	1630

Numbers are estimated (formerly termed “expanded”) salvage for the SWP and the CVP combined. The monthly numbers are cumulative. For example, the authorized take for July includes the salvage from April, May, and June.

#### 4) Expected Project Operations

Combined CVP/SWP exports are around 5,800 cfs as of April 4. The CVP and SWP have filled their shares of San Luis Reservoir.

#### 5) Particle Tracking Modeling

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

#### 6) Discussion for Recommendation

The Working Group reviewed and discussed all relevant data from fish surveys, Delta monitoring, salvage, and planned Project operations. No recommendation was made.

RPA Component 1, Action 1 is intended to protect pre-spawning adults during the first flush, as they move into their spawning areas. The WY 2011 first flush has likely passed through the Delta. Component 1, Action 2 (pp 280-281 and Attachment B, pp 352-356) may be implemented following the conclusion of Action 1, or the first flush. Criteria for the implementation of Action 2 are more varied and more flexible than those for Action 1. Action 3 is intended to minimize the entrainment of larval delta smelt. Criteria for the implementation of Action 3 are based upon the onset of spawning or the presence of larvae in the system. Risk of entrainment is estimated based upon survey data, Delta conditions, and the occurrence of salvage.

The 2010 FMWT index for delta smelt is 29. This means that the authorized incidental take of adults is 210 (estimated) and the concern level is 157 (estimated), cumulative for the December through March period. Under the low-entrainment risk scenario for the implementation of Action 2, the salvage criterion is a Daily Salvage Index greater than or equal to 1 (i.e., 29, estimated; B.O. p 338).

The Working Group will continue to evaluate the risk of entrainment according to the guidance provided in the RPA, as in previous years. The recent OCAP settlement does not change any of the parameters that the Working Group is required to discuss (B.O., pp 358-368). However, the

newly-created Delta Condition Team (DCT) may provide additional information for the Working Group's consideration. The settlement additionally provides that the Service may set OMR flows more negative than -5,000 cfs; flows as negative as -6,100 cfs are allowed on an experimental basis if the "best available science and consideration of all factors...indicate that such flows would be adequately protective" of delta smelt. This rate of flow could apply if the risk of entrainment is believed to be low, based upon evaluation of physical and biological monitoring results.

The 3-day, 3-station average water temperature surpassed 12°C on March 10, 2 spent female delta smelt were detected in SKT survey 3, and 1 delta smelt larva was collected during the 20mm Survey #1, any of which meet or exceed the criteria for the implementation of Action 3, entrainment protection for larval smelt. The temperature criterion may indicate that protections are needed based upon the assumption that delta smelt spawning is in progress, whereas the observation of spent females and/or larvae provides direct evidence of spawning. Peak daily adult salvage exceeding a one:one ratio to the FMWT Index may also indicate that the risk of entrainment is unacceptably high (B.O., pp 346-347).

The Working Group discussed the salvage events from March 15 through April 1, but did not feel this small level of salvage elevated concern for entrainment into the high-risk scenario described in the B.O. Additionally, outflow as of April 3 was estimated to be 145,000 cfs and San Joaquin River flow was above 28,000 cfs.

The Working Group estimated that the overall risk of entrainment for larvae and adults was low given the distributional data from recent surveys. Turbidity has decreased in the last few days throughout the delta. Hydrology remains favorable, indicating a low level of risk for entrainment. Apparent abundance remains very low, which raises the concern level for the species into the moderate range. The risk of delta smelt entering the central and south Delta is expected to remain low, due to anticipated export pumping and flows for the San Joaquin and Sacramento Rivers. However, the fact that adults continue to be salvaged despite the present very favorable hydrology may be an indicator of future larval salvage.

The Working Group did not receive any advice from the DCT.

The Working Group believes that, based upon what is known of Delta conditions and delta smelt distribution, a modification of Project operations to protect delta smelt is not yet warranted.

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

##### **Recommendation for week of April 4, 2011:**

The Smelt Working Group does not have any advice based on longfin smelt information. San Joaquin River at Vernalis flows and Sacramento River flows at Rio Vista are both above levels that indicate virtually no risk entrainment.

##### **Basis for recommendation:**

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 (State Water Project + Central Valley Project) 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, and 919).
4. Larva catch per tow exceeds 15 longfin smelt larvae or juveniles in 4 or more of the 12 survey stations listed.

As of April 3, no longfin smelt have been salvaged since the first longfin smelt of the season was salvaged on January 14, 2011 and none have been collected in the central or south Delta in fish surveys in March. No advice is warranted based on this criterion.

Longfin smelt larvae were detected during the Smelt Larva Survey #1 (January 18-19), providing evidence of spawning, which initiated SWP Longfin Smelt ITP section 5.2 to protect larval and juvenile longfin smelt. However, OMR restrictions under section 5.2 are not required when river flows are: 1) greater than 55,000 cfs on the Sacramento River at Rio Vista; or 2) greater than 8,000 cfs on the San Joaquin River at Vernalis.

San Joaquin River flow at Vernalis surpassed 8,000 cfs flow criterion on February 19<sup>th</sup> and has remained above it since (Figure 1). Sacramento River flow at Rio Vista surpassed the 55,000 cfs flow criterion about March 18 and has remained above it since (Figure 2). As of April 3, Qwest was above 34,000 cfs (Delta Hydrologic Conditions), indicating strong westward flows and little risk of entrainment for longfin smelt larvae.

The most recent Smelt Larva Survey data available (#5, March 22-23) indicate that recently hatched larvae were transported westward out of the central Delta, though larvae continue to hatch within the Delta (Table 1). The subsequent 20mm Survey results show very few larvae within the Delta (Table 2). No additional advice to protect larvae is warranted at this time based on criteria 3 and 4.



### USGS 11303500 SAN JOAQUIN R NR VERNALIS CA

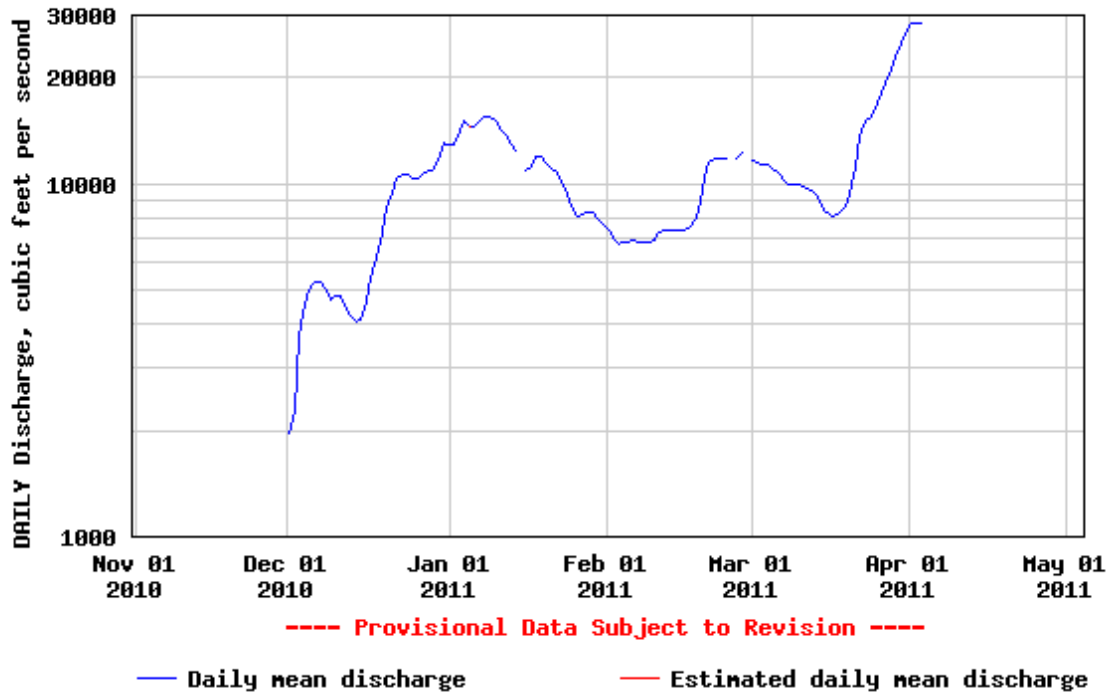


Figure 1. Tidally averaged San Joaquin River flow measured near Vernalis, December 1, 2010 through April 3, 2011.



### USGS 11455420 SACRAMENTO R A RIO VISTA CA

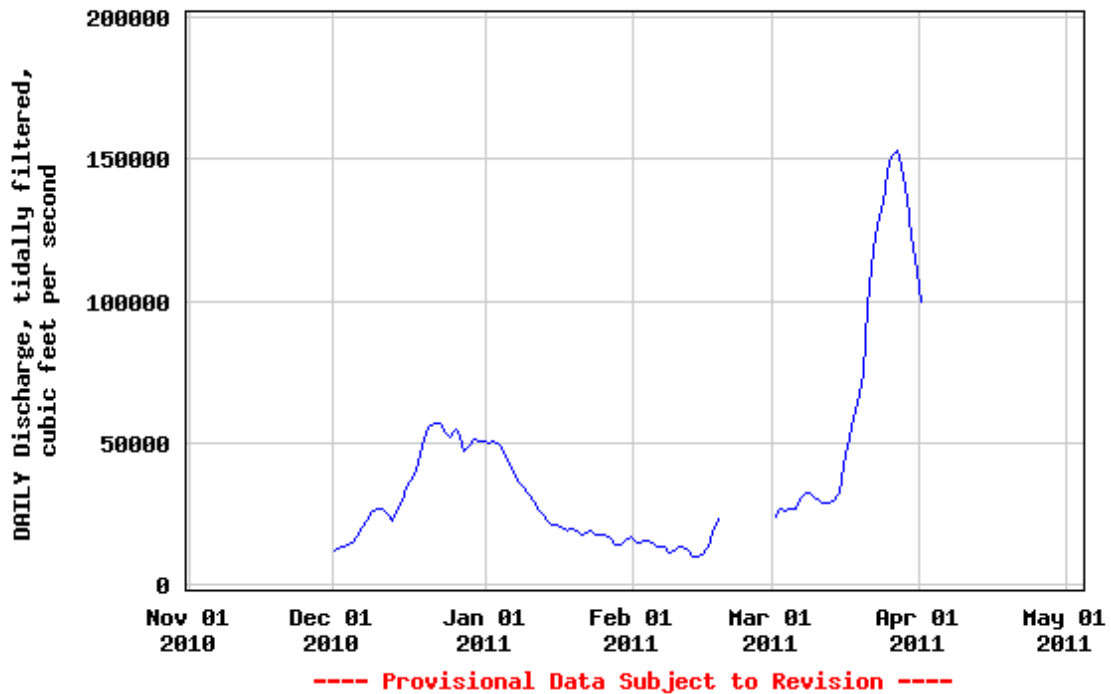


Figure 2. Tidally averaged Sacramento River flows measured at Rio Vista, December 1, 2010 through April 1, 2011.

Table 1. Longfin smelt catch per station from 2011 Smelt Larva Survey, Survey 5, March 22-23, 2011 (sample processing incomplete).

Year	Survey	SLS Station	Sample Status	Species	Smelt Catch
2011	5	405	Processed	Longfin Smelt	8
2011	5	411	Processed	Longfin Smelt	8
2011	5	418	Not yet processed		
2011	5	501	Not yet processed		
2011	5	504	Not yet processed		
2011	5	508	Processed	Longfin Smelt	2
2011	5	513	Processed		No Smelt Catch
2011	5	519	Processed	Longfin Smelt	5
2011	5	520	Processed	Longfin Smelt	2
2011	5	602	Not yet processed		
2011	5	606	Not yet processed		
2011	5	609	Not yet processed		
2011	5	610	Processed	Longfin Smelt	2
2011	5	703	Processed	Longfin Smelt	3
2011	5	703	Processed	Delta Smelt	1
2011	5	704	Processed	Longfin Smelt	4
2011	5	705	Processed	Longfin Smelt	1
2011	5	706	Processed		No Smelt Catch
2011	5	707	Processed		No Smelt Catch
2011	5	711	Processed	Longfin Smelt	1
2011	5	716	Processed		No Smelt Catch
2011	5	723	Processed	Longfin Smelt	2
2011	5	723	Processed	Delta Smelt	2
2011	5	801	Processed	Longfin Smelt	1
2011	5	804	Processed	Longfin Smelt	2
2011	5	809	Processed	Longfin Smelt	1
2011	5	812	Processed	Longfin Smelt	2
2011	5	815	Processed		No Smelt Catch
2011	5	901	Processed	Longfin Smelt	1
2011	5	902	Processed	Longfin Smelt	1
2011	5	906	Processed		No Smelt Catch
2011	5	910	Processed	Longfin Smelt	1
2011	5	912	Processed		No Smelt Catch
2011	5	914	Processed		No Smelt Catch
2011	5	915	Processed	Longfin Smelt	1
2011	5	918	Processed		No Smelt Catch
2011	5	919	Processed		No Smelt Catch

SWP ITP Criteria Stations

Processing through 4/1/11



Table 2. Longfin smelt catch per station from 2011 20mm Survey, Survey 2 (sample processing incomplete).

Year	Survey	Station	Date	# Tows Processed	Species	Total Catch
2011	2	323	30-Mar-11	0		
2011	2	340	30-Mar-11	0		
2011	2	342	30-Mar-11	0		
2011	2	343	30-Mar-11	0		
2011	2	344	30-Mar-11	0		
2011	2	345	30-Mar-11	0		
2011	2	346	30-Mar-11	0		
2011	2	405	01-Apr-11	0		
2011	2	411	01-Apr-11	0		
2011	2	418	01-Apr-11	0		
2011	2	501	29-Mar-11	0		
2011	2	504	29-Mar-11	0		
2011	2	519	29-Mar-11	0		
2011	2	602	29-Mar-11	0		
2011	2	606	29-Mar-11	0		
2011	2	609	29-Mar-11	0		
2011	2	610	29-Mar-11	0		
2011	2	508	30-Mar-11	1	No Longfin Catch	0
2011	2	513	30-Mar-11	0		
2011	2	520	30-Mar-11	0		
2011	2	801	30-Mar-11	3	No Longfin Catch	0
2011	2	804	30-Mar-11	3	No Longfin Catch	0
2011	2	703	29-Mar-11	3	No Longfin Catch	0
2011	2	704	29-Mar-11	3	No Longfin Catch	0
2011	2	705	29-Mar-11	3	No Longfin Catch	0
2011	2	706	29-Mar-11	3	No Longfin Catch	0
2011	2	707	29-Mar-11	3	No Longfin Catch	0
2011	2	711	28-Mar-11	3	No Longfin Catch	0
2011	2	716	28-Mar-11	0		
2011	2	718	28-Mar-11	3	No Longfin Catch	0
2011	2	719	28-Mar-11	3	Longfin Smelt	2
2011	2	720	28-Mar-11	0		
2011	2	723	28-Mar-11	3	No Longfin Catch	0
2011	2	724	28-Mar-11	2	No Longfin Catch	0
2011	2	726	28-Mar-11	3	No Longfin Catch	0
2011	2	809	28-Mar-11	3	No Longfin Catch	0
2011	2	812	29-Mar-11	3	No Longfin Catch	0
2011	2	815	29-Mar-11	3	No Longfin Catch	0
2011	2	901	28-Mar-11	3	No Longfin Catch	0
2011	2	902	28-Mar-11	3	No Longfin Catch	0
2011	2	906	29-Mar-11	3	No Longfin Catch	0
2011	2	910	28-Mar-11	3	No Longfin Catch	0
2011	2	912	28-Mar-11	3	No Longfin Catch	0
2011	2	914	28-Mar-11	3	No Longfin Catch	0
2011	2	915	28-Mar-11	3	No Longfin Catch	0
2011	2	918	28-Mar-11	3	No Longfin Catch	0
2011	2	919	29-Mar-11	3	No Longfin Catch	0

Processing through 4/1/11.

The Smelt Working Group will reconvene on Monday, April 11 at 10 am to review the updated environmental, salvage, and survey data.