

**Smelt Working Group
Monday, January 27, 2014**

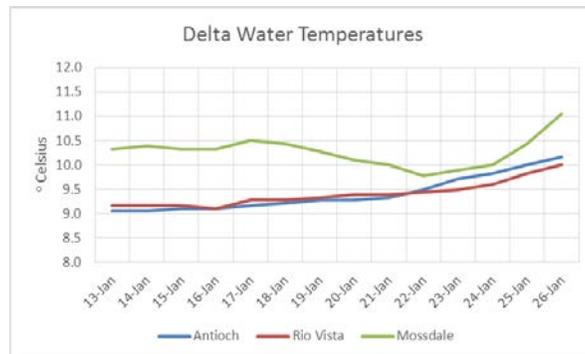
Meeting Summary:

The Working Group agreed that given their present distribution, current salvage, and Delta conditions, the 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 were sufficient to protect longfin smelt from entrainment in the southern Delta. Barker Slough operations advice was requested by CDFW and provided by the Smelt Work Group. Operations are to target 50 cfs exports at Barker Slough, as the longfin smelt larva density increased substantially at station 716. The Working Group will continue to monitor salvage, turbidity, and other conditions and reconvene February 3.

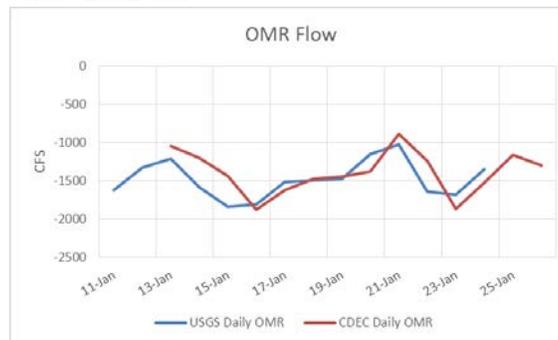
Reported Data:

1. Current environmental data:

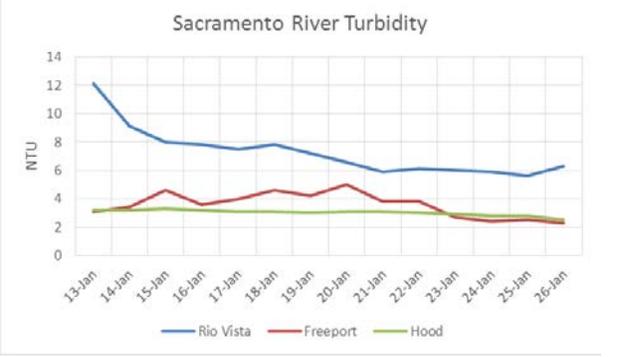
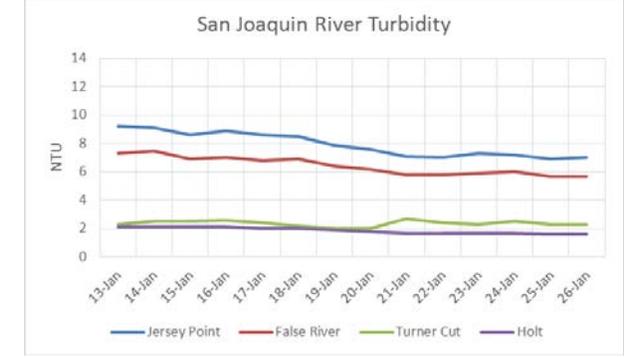
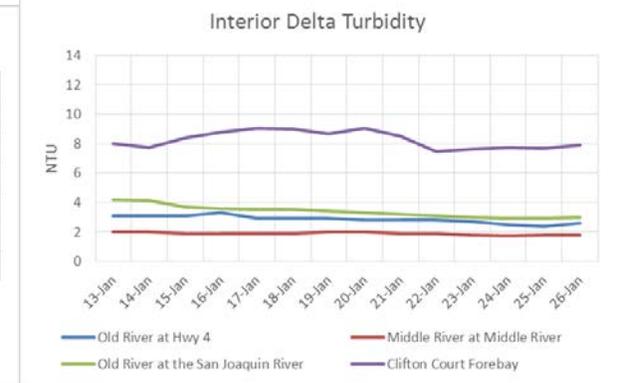
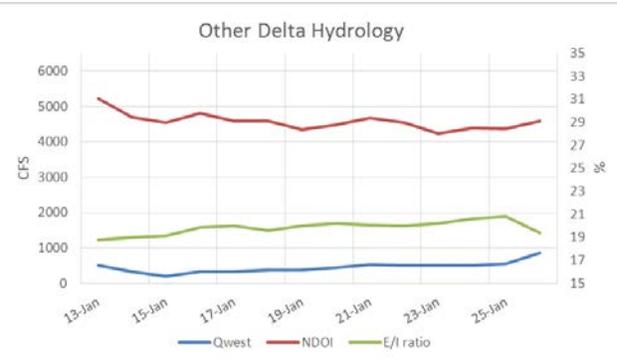
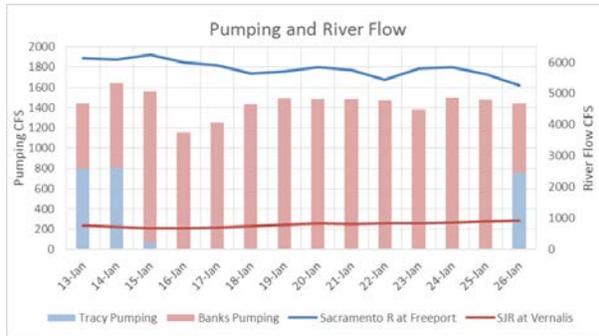
- **Water temperatures:**



- **OMR flow:** USGS tidally averaged daily OMR flow on January 24 was -1350 cfs. CDEC daily OMR flow as of January 26 was -1302 cfs.



- **Flow:** Sacramento River average daily flow for January 26 was 5268 cfs and San Joaquin River average daily flow was 937 cfs. X2 calculation from CDEC is upstream of Colinsville (81 km). The graphs below show the most recent trends in Delta hydrology and water quality that were evaluated by the Working Group.



2. Delta Fish Monitoring:

Smelt Larval Survey #2 was in the field last week. A total of 44 stations were sampled. Processing is ongoing. A total of 768 juvenile longfin smelt were collected. Sizes range from 5 to 10mm, with an average length of approximately 6mm. Of the sampled processed so far, longfin smelt were collected from the lower Sacramento River stations and confluence. Additional longfin smelt juveniles are expected from the samples further downstream. SLS #3 will be in the field next week.

Spring Kodiak Trawl #2 is in the field the week of February 10.

The 2013 Annual FMWT surveys have concluded. The Annual FMWT Index (based on all four months) for delta smelt is 18, the second lowest on record, and statistically indistinguishable from the lowest, 17 from 2009.

The 2013 Delta Smelt Recovery Index (based on September and October) is 4. More information on the Recovery Index can be found on the Bay-Delta Office's web site at http://www.fws.gov/sfbaydelta/species/delta_smelt.cfm. Results from CDFG surveys are available online at: <http://www.dfg.ca.gov/delta/>.

3. Salvage:

No delta smelt or longfin smelt have been salvaged in WY2014 thus far.

Tracy Fish Collection Facility is experiencing technical problems with bypass gate #4 again after having presumably been repaired (previously malfunction indicated in Working Group notes from January 6). Working Group members requested that Reclamation notify represented federal and state agencies that repair work is being conducted as expeditiously as possible. There is no estimated conclusion as yet for the repairs.

Current longfin smelt and delta 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 SWP/CVP exports are expected to be approximately 450 cfs this week. Currently, exports are controlled by salinity intrusion into the central and south Delta and the monthly outflow standard as set by the State Water Resources Control Board.

Although not presently controlling operations, NMFS RPA IV.2.3 is in effect as of January 1, 2014, which restricts OMR flow to no more negative than -5,000 cfs.

5. Particle Tracking Modeling:

No PTM runs were requested for this week.

6. Turbidity Modeling:

No modeling runs were discussed this week.

7. Assessment of Risk:

Background:

RPA Component 1, Action 2: "An action implemented using an adaptive process to tailor protection to changing environmental conditions after action 1. As in Action 1, the intent is to protect pre-spawning adults from entrainment and, to the extent possible, from adverse hydrodynamic conditions."

"The range of net daily OMR flows will be no more negative than -1,250 to -5,000 cfs. Depending on extant conditions (and the general guidelines below) specific OMR flows within this range are recommended by the SWG from the onset of Action 2 through its termination..." (page 35).

Discussion:

The Working Group reviewed and discussed all relevant data from Delta monitoring, salvage, field surveys, and planned Project operations. Adult take limit is 155 with a concern level of 116

fish. Juvenile take limit is 1007 with a concern level of 671 fish. These numbers reflect the revised take estimate produced last February.

The Working Group agreed there was no need to modify exports at this time to benefit delta or longfin smelt.

8. Framework for providing advice to the Service:

No update was provided to the Working Group.

The SWG will have the next meeting on February 3.

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

Advice for week of January 27, 2014:

The Smelt Working Group does not have any advice for Longfin Smelt based on recent information.

Barker Slough operations advice is provided by the Smelt Work Group to target 50 cfs exports, because the larva density increased substantially at station 716 (see #5 below in Discussion of Criteria).

Basis for advice:

The 2009 State Water Project 2081 for Longfin Smelt states that advice to WOMT and the DFW 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; see Figure 1).
4. Larva catch per tow exceeds 15 Longfin Smelt larvae or juveniles in 4 or more of the 12 survey stations listed.
5. During the period January 15 through March 31 of a dry or critically dry water year only, advice for Barker Slough pumping plant operations may be warranted if larval Longfin Smelt are detected at station 716 and other information indicates risk of entrainment.

Discussion of Criteria

1. As of January 26, 2014, no Longfin Smelt have been salvaged for the water year. The Fall Midwater Trawl Longfin Smelt annual abundance index was 164. The total salvage level threshold for advice is > 820 (see criterion in #1). No advice is warranted based on this criterion.

2. December Fall Midwater Trawl and December and January Bay Study sampling collected no Longfin Smelt in the central or south Delta, suggesting limited or no recent proximity to the export pumps. Distribution information does not indicate advice is warranted based on this criterion.

3 & 4. The second Smelt Larva Survey (SLS) of 2014 was conducted January 21-23. Longfin Smelt larvae were collected in the central or south Delta, but neither larva criterion was met (cf., Table 1 and Basis for Advice #s 3 & 4 above). During SLS 2, Longfin Smelt larvae were collected at 7 criteria stations (collection at 8 of 12 criteria stations is the advice threshold). Coincidentally, density exceeded 15 larvae per tow at 2 of 12 stations and reached 14 at a third (collection of 15 larvae per tow at 4 of 12 criteria stations is the advice threshold).

5. Water year 2014 has been classified as critically dry and 62 Longfin Smelt larva were collected at 716 (Table 1) and a similar number at 723. Barker Slough exports varied from 50-77 cfs daily (January 20-26). The criterion target if larval smelt are present is an export pumping limit of 50 cfs. The SWG provides advice because larval densities exceeded the criterion and recent exports have surpassed the export target.

Current conditions: Net Delta outflow has been low (about 4,200 -6,000 cfs) since January 1. X2 has been >81 in January. Combined State and federal export are at 450 cfs and will remain there into early February unless there is a change in runoff. Qwest has been weakly positive since January 3rd. OMR has been weakly negative in January (ca. -1,000 to -2,000).

Summary of Risk:

Risk of entrainment is very low due to very low exports.

No adult Longfin Smelt have been detected to date in the central or south Delta by fish surveys or by salvage. This suggests limited spawning in the central or south Delta. The small to modest numbers of larvae collected in the central and south Delta supports this conclusion, though it is too early in the hatching season to predict this will be the case throughout. The current and predicted exports will result in a -1,300 OMR or less negative OMR flows. Currently, X2 located in the lower Sacramento and San Joaquin rivers, which suggests that some adult Longfin Smelt might move into the central and south Delta to spawn. Qwest, though positive, has been of insufficient magnitude to move larvae downstream much. These circumstances all support the conclusion of very low risk of entrainment.

Table 1. Longfin smelt catch per station from 2014 Smelt Larva Survey, Survey 2.

Study Year	Survey #	SLS Station	Sample Status	Species	Smelt Catch	Minimum Length (mm)	Maximum Length (mm)	Average Length (mm)
2014	2	340	Not yet processed					
2014	2	342	Not yet processed					
2014	2	343	Not yet processed					
2014	2	344	Not yet processed					
2014	2	345	Not yet processed					
2014	2	346	Not yet processed					
2014	2	347	Not yet processed					
2014	2	348	Not yet processed					
2014	2	349	Not yet processed					
2014	2	405	Not yet processed					
2014	2	411	Not yet processed					
2014	2	418	Processed		No Smelt Catch			
2014	2	501	Not yet processed					
2014	2	504	Processed	Longfin Smelt	1	7	7	7.0
2014	2	508	Processed	Longfin Smelt	39	5	9	7.2
2014	2	513	Processed	Longfin Smelt	39	5	9	6.9
2014	2	519	Not yet processed					
2014	2	520	Processed	Longfin Smelt	52	5	9	7.1
2014	2	602	Processed	Longfin Smelt	31	6	9	7.7
2014	2	606	Not yet processed					
2014	2	609	Not yet processed					
2014	2	610	Processed	Longfin Smelt	28	5	9	7.7
2014	2	703	Processed	Longfin Smelt	19	6	8	6.8
2014	2	704	Processed	Longfin Smelt	99	5	10	7.4
2014	2	705	Processed	Longfin Smelt	106	6	9	7.1
2014	2	706	Not yet processed					
2014	2	707	Not yet processed					
2014	2	711	Processed	Longfin Smelt	36	5	8	6.9
2014	2	716	Processed	Longfin Smelt	62	5	7	5.9
2014	2	723	Processed	Longfin Smelt	51	5	8	5.7
2014	2	801	Processed	Longfin Smelt	25	6	8	6.8
2014	2	804	Processed	Longfin Smelt	19	5	8	6.9
2014	2	809	Processed	Longfin Smelt	84	6	8	7.0
2014	2	812	Processed	Longfin Smelt	46	5	8	6.1
2014	2	815	Processed	Longfin Smelt	9	5	8	7.1
2014	2	901	Processed	Longfin Smelt	14	6	7	6.6
2014	2	902	Processed	Longfin Smelt	7	6	7	6.6
2014	2	906	Processed		No Smelt Catch			
2014	2	910	Processed		No Smelt Catch			
2014	2	912	Processed		No Smelt Catch			
2014	2	914	Processed		No Smelt Catch			
2014	2	915	Processed	Longfin Smelt	1	8	8	8.0
2014	2	918	Processed	Longfin Smelt	2	8	9	8.5
2014	2	919	Processed		No Smelt Catch			

Processing is complete through 1/24/14.

SWP ITP Criteria Stations

Figure 1. DFW's Smelt Larva Survey/20-mm Survey station locations.

