

SMELT WORKING GROUP
Friday, December 7, 2012

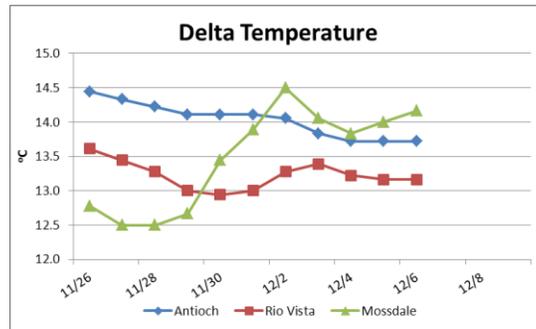
Meeting Summary:

The Working Group recommended no change in projected operations based on a review of delta smelt distribution, lack of salvage, current Delta conditions and projected operations. The Working Group will continue to monitor smelt salvage, smelt survey data, and delta hydrological conditions and reconvene on Monday, December 10, if necessary.

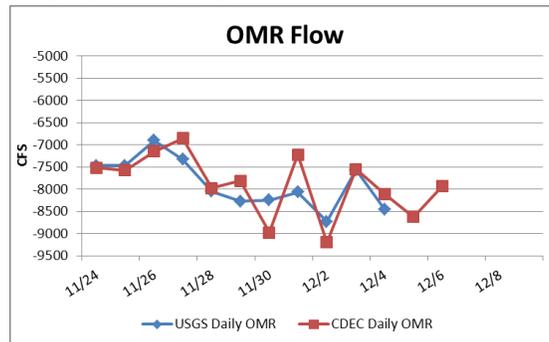
Reported Data:

1) Current environmental data:

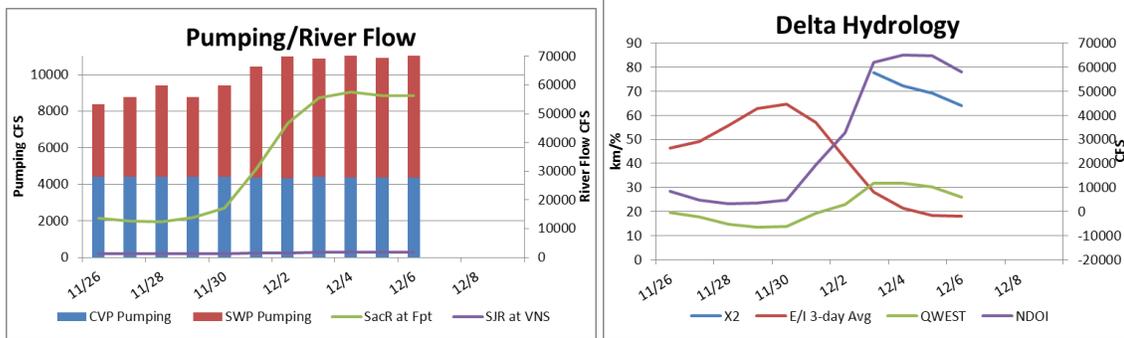
- Water temperatures are as follows:



- **OMR:** USGS tidally-averaged daily OMR as of December 4 is -8,450 cfs. CDEC daily OMR flow as of December 6 is -7937 cfs.



- **Flow:** Sacramento River inflow is 56,430 cfs and San Joaquin River is 1,808 cfs. X₂ calculation from CDEC was east of Collinsville (81km) until December 3. X₂ is now at 64km. 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:

Fall Midwater Trawl (FMWT) presently is in the field. The December survey (final FMWT survey) is anticipated to conclude field work next week. Results are expected to be available the following week. This month's survey has completed stations in the central and southern Delta as well as Suisun Bay. As of today, survey crews are sampling in the lower Sacramento River. Preliminary results indicate no detections of smelt in the interior Delta stations, and a few detections in Suisun Bay.

The 2012 Delta Smelt Recovery Index (based on September and October) is 35. 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:

There have been no detections of longfin smelt or delta smelt at either salvage facility since June 2012.

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 CVP/SWP exports are approximately 11,000 cfs as of December 6. Combined exports will be curtailed from Saturday, December 8 through Monday, December 10 to comply with NMFS RPA Action IV.3 (salmon density trigger). Operators anticipate an OMR flow of approximately -5,000 cfs in the next few days. SWP operators anticipate a return to 6,680 cfs pumping on Tuesday, December 11. CVP operators were not on the call.

Although excess conditions were stated on the call as excess since December first, the projects plan to declare excess conditions shortly and are currently reviewing data to determine which day.

5) Particle Tracking Modeling:

No PTM runs were requested for this week.

6) Assessment of Risk:

Background:

RPA Component 1: “Beginning in December of each year, the Service shall review data on flow, turbidity, salvage, and other parameters that have historically predicted the timing of delta smelt migration into the Delta. On an ongoing basis, and consistent with the parameters outlined... [in the BO]...the SWG shall recommend to the Service OMR flows that are expected to minimize entrainment of adult delta smelt” (page 280).

RPA Component 1, Action 1, Part A: “Low-entrainment risk period: delta smelt salvage has historically been low between December 1 and December 19, even during periods when first flush conditions (i.e., elevated river inflow and turbidity) occurred. During the low-entrainment risk period, the SWG shall determine if the information generated by physical (i.e. turbidity and river inflow) and biological (e.g., salvage, DFG trawls) monitoring indicates that delta smelt are vulnerable to entrainment or are likely to migrate into a region where future entrainment events may occur. If this occurs, the Service shall require initiation of Action 1 as described in Attachment B [of the BO]. Action 1 shall require the Projects to maintain OMR flows no more negative than -2,000 cfs (14-day average) with a simultaneous 5-day running average flow no more negative than -2,500 cfs to protect adult delta smelt for 14 days” (page 281).

Discussion: The Working Group reviewed and discussed all relevant data from fish surveys, Delta monitoring, salvage, and planned Project operations. X2 was eastward of Collinsville (81 km) until Monday, December 3. X2 as of Thursday, December 6 is 64km. NDOI is 57,919 cfs and the daily OMR flow is at -7,937 cfs. Preliminary data from the December FMWT indicates low levels of detection in Suisun Bay and no detections in the central and southern Delta (as of December 3). However, it was pointed out that the FMWT sampling in the central and southern Delta took place prior to the most recent storms.

The SWG discussed the spread of the turbidity plume associated with the increased river flows. Sacramento River turbidity had increased dramatically from upstream of Sacramento to the confluence area. Interior Delta stations had not recorded increased turbidity as yet, while some lower San Joaquin River stations indicated some increase in turbidity, although higher levels were somewhat sporadic. The data show that most of the turbidity is coming from the Sacramento side, resulting in a potential turbidity corridor on the Sacramento that isn't apparent on the San Joaquin. If OMR flows were in the -8000 to -9000 cfs, it could potentially draw that turbidity into the San Joaquin. However, we don't expect to see this because project operations are expected to reduce pumping resulting in an OMR of approximately -5000 cfs and QWEST is highly positive at between 10000 and 6000 cfs.

The SWG discussed historical context that a small fraction of the delta smelt population migrates to spawning areas early in December. Also that these early high flows and turbidity conditions

causes many fish species to move around, but this movement may not always be a “migration” to spawning areas. It was also discussed that a current hypothesis is that much of the population will not begin to migrate until later in the season, even with current hydrology.

Sommer and others (2011) was mentioned. Based on this paper, it can be inferred that given the current X2 value (64km), the majority of the delta smelt population are likely downstream of the confluence and well out of their spawning areas.

The SWG agreed that current conditions did not warrant a recommendation to change operations at this time. Combined exports are curtailed to 6,000 cfs from Saturday, December 8 through Monday, December 10 to comply with the NMFS RPA Action IV.3 salmon density trigger. The OMR flow is anticipated to be approximately -5,000 cfs in response to this decrease in pumping.

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

Advice for week of December 3-7, 2012:

The Smelt Working Group does not have any longfin smelt advice at this time.

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.

Discussion of Criteria

1. As of December 5, 2012, no longfin smelt have been salvaged for the water year. The Fall Midwater Trawl longfin smelt annual abundance index for September through October 2012 is 8. The total salvage level threshold for advice is >40 (see criterion in #1). No advice is warranted based on this criterion.
2. December Fall Midwater Trawl collected no longfin smelt in the San Joaquin River or the south Delta, suggesting no current proximity to the export pumps. Bay Study has not completed the San Joaquin River portion of its survey. Distribution information does not indicate advice is warranted based on this criterion.

3 & 4. No information is available yet. The first Smelt Larva Survey of 2013 begins in early January. Information should be available for discussion about 1 week after sampling is completed.

Current conditions: Net Delta outflow achieved about 65,000 cfs on December 5 and X2 moved from >81 on December 1 to about 65 on December 6. This will reduce the adult longfin smelt migration into the Delta and their risk of entrainment. Combined State and federal exports are currently over 10,000 cfs, but will decline to 6000 beginning 8 December and continue at that level through December 10, based on NMFS BO criteria. Qwest was over 10,000 cfs December 4-5 and has now dropped to above 6000 cfs, which will limit any longfin smelt that might enter the lower San Joaquin River from being drawn into the south Delta.

The collection of no adult longfin smelt in the San Joaquin River or south Delta to date suggests very low risk. The current eminent reductions in exports coupled with X2 in Suisun Bay and Qwest >6000 cfs bolster support for extremely low risk of entrainment.