

SMELT WORKING GROUP
Monday, May 18, 2009

Recommendation for the week of May 18, 2009:

Maintain a 14-day average OMR no more negative than -1250 cfs. Concurrently, maintain the 5-day average OMR no more negative than -1562 cfs.

The recommendation is based on a review of active risk factors:

1. Salvage. Delta smelt salvage at the export facilities increased over the past weekend, with 8 on 5/15, 9 on 5/16 and 26 on 5/17, all at the CVP. The cumulative juvenile salvage for 2009 is 86. The Concern Level for May outlined in the 2008 biological opinion is 299, and the cumulative juvenile Incidental Take limit for May is 449. Both the Concern Level and the Incidental Take limit could be met by the end of the month at the current salvage rates, considering that the end of May is historically a period of high entrainment. Another concern of the group is that all of the recent salvage has occurred at the CVP. Historically, large salvage events at the facilities often begin at the CVP and then SWP salvage occurs several days later. This lag period may suggest that entrainment into the Clifton Court Forebay may be occurring concurrently with significant CVP salvage events at the CVP but not expressed as salvage at the SWP until a later date. Therefore, the group recommends keeping OMR flows at the same level they have been over the past week.

2. Size of the population. Delta smelt densities at most locations (with the exception to higher densities at the SDWSC) are similar to what they were during a similar juncture last year, which produced the lowest index ever recorded. The low abundance of delta smelt warrants conservative measures be taken to protect the population.

3. Distribution. Delta smelt are broadly distributed in the delta with detections at several south and central Delta stations in recent 20 mm Surveys. Larvae and young juvenile delta smelt distributed in the south and central Delta have a high risk of entrainment.

4. Life stage risk. Delta smelt observed to date have been relatively small (20 mm Survey's mean length for delta smelt = 15 mm) This suggests that they are just starting to attain sizes that enable them to be detected in sampling programs-particularly the fish salvage facilities, and that weakly-swimming larvae and young juveniles are still in the water column. These young fish, especially those distributed in the Central and South Delta, are at high risk of entrainment at the export facilities.

Environmental, Survey, Modeling, and Facilities Data Considered:

1) Current environmental data.

Temperature for the 3 station average is 20.9 C. The provisional OMR estimate by the projects as of May 17 is -1304 cfs for 14 day average, -1221 cfs for 5 day average. Sacramento River

inflow into the Delta is currently 12,363 cfs. X2 is at 69.6 km as of May 18.

2) Delta fish monitoring:

20mm Survey 5 ran from May 4 through 8. Data are available, with all of the tows processed for all stations. 106 delta smelt larvae were collected at stations 508, 513, 703, 704, 705, 711, 716, 719, 723, 804, 812, 815, and 901. Sizes ranged from 6 to 27 mm, with 16.5 mm as the average. Spring Kodiak Trawl #5 results are also posted. A total of only 10 delta smelt were collected at two stations, stations 719 and 606. Three male and 7 female delta smelt were collected. One note on the SKT results; even though the results show that there were pre-spawned female delta smelt caught, these fish had already spawned, but since there was evidence of the development of a second clutch of eggs, these fish were posted as pre-spawn. However, given current water temperatures, it is not likely that these fish will be able to produce another viable cohort. Results from previous larval surveys, 20mm surveys and the SKT are available online at:

<http://www.delta.dfg.ca.gov/data/projects/?ProjectID=SLS>

<http://www.delta.dfg.ca.gov/data/projects/?ProjectID=20mm>

<http://www.delta.dfg.ca.gov/data/projects/?ProjectID=SKT>.

3) Particle Tracking Modeling

No new particle tracking was done for this week's recommendation since the hydrologic conditions did not change. The group requested 4 PTM scenarios for May 11. Scenario A was a negative 1500 cfs OMR flow. Scenario B was negative 2500 cfs OMR flow. Scenario C was negative 3500 cfs OMR flow. Scenario D was negative 4000 cfs OMR flow. Results suggest that at negative 1500 cfs OMR flows, the 31-day entrainment risk for smelt larvae would be 1.5% at station 812 and 3.8% for station 815, but the ultimate fates of more than 50% of the particles would still be unaccounted for after 31 days. For Scenario B, the 31-day entrainment risk for smelt larvae would be 4.6% for station 812 and 11.8% for station 815. For Scenario C, the 31-day entrainment risk for smelt larvae would be 6.1% for station 812 and 14.3% for station 815. For Scenario D, the 31-day entrainment risk for smelt larvae would be 12.9% for station 812 and 21.1% for station 815. Particles were injected on May 8.

4) Salvage

Adult delta smelt have not been salvaged at either facility since March 11. Delta smelt larvae or post-larvae were first observed at the CVP on April 10 and April 20 at the SWP. Salvage of delta smelt (< 20 mm FL) occurred on May 4 at the SWP and May 5, 7, 8, 10, 11, 14, 15, 16, and 17 at the CVP. More significant salvage has occurred at the CVP with salvages of 8 on the 15th, 9 on the 16th, and 26 on the 17th. For the month of May, delta smelt larvae or post-larvae were detected at the CVP on May 5, 6, 7, 8, 11, 13 and 14 at the SWP on May 4 and 6.

5) Delta Water Temperatures.

The three station average water temperature is 20.9° C. This likely means that opportunities for new delta smelt larval cohorts to hatch are at an end for this season. The water temperature at Clifton Court Forebay (CCF) is 23.7° C. Once the CCF water temperature reaches 25° C for

three consecutive days, the actions under the RPA of the biological opinion end. This temperature criterion is based on published laboratory studies that documented the temperature at which delta smelt lose equilibrium, which would render them non-viable in the wild. The group is concerned that as temperatures increase, delta smelt will be moving to leave the delta and during these movements it is important to keep exports low to maximize the chance that fish inhabiting the Central Delta can leave quickly.

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

Advice for week of May 11:

The Smelt Working Group provides no new advice.

Basis for advice:

Our concern level for **longfin smelt** is based on:

- (1) longfin smelt juvenile and adult abundance remained low last fall;
- (2) no longfin smelt larvae or juveniles were collected in the central or south Delta during the May 4-8 20mm Survey and hatching is assumed to be over for the year;
- (3) no longfin smelt larvae or juveniles have been salvaged by either facility since May 14, and prior to that salvage was sporadic and low;
- (4) Delta water temperatures are approaching or surpassed 18°C, which is believed to be approaching the threshold to stimulate emigration;
- (5) longfin smelt juveniles remaining in the Delta are located in the Cache Slough and lower Sacramento River areas and not vulnerable to into the central Delta until OMR levels surpass - 3500 cfs.

The Smelt Working Group longfin smelt advice is based on the following information:

1. Water temperatures. Water temperatures are currently above the range believed suitable for longfin smelt spawning and incubation at about 16°C. Emigration is believed to trigger when Delta water temperatures increase above 18°C, which is happening in the central and south Delta, and soon to happen in the Cache Slough area.
2. Recent salvage. Although the CVP salvage facility collected a juvenile longfin smelt on May 14, prior salvage at both facilities were sporadic and low.
3. Adult distribution. No new adult information
4. Larva and juvenile distribution. The May 4-8 20mm Survey did not detect longfin smelt larvae or juveniles in the central or south Delta. Only a few longfin smelt were detected in the

Cache Slough area; Barker Slough and Miner Slough stations were not sampled. Most larvae were located in the lower Sacramento River near Sherman Island and locations farther west.

5. Particle tracking results. New PTM runs were made and investigated the scenarios that included (a) remaining at -1500 OMR (no increase in exports beginning on May 18; total exports remain at 2000 cfs), (b) exports ramp to -3000 on May 18 and -3500 on May 28, (c) exports ramp up to -4000 on May 18 and (d) exports ramp up to -5000 on May 18. PTM runs could not distinguish differences in effects of changing OMR on particles from the Sacramento River injection locations 707, 705 and 703. Flux points at south Delta channel entrances were not included in this run to evaluate far-field entrainment potential.