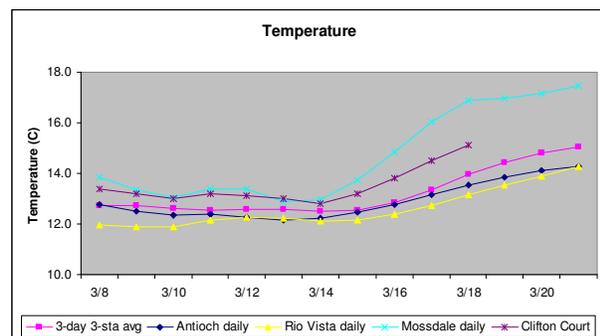
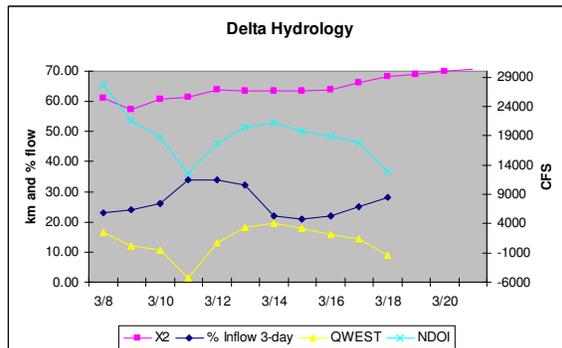
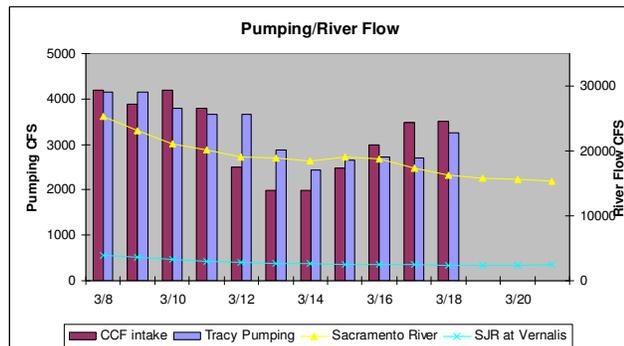
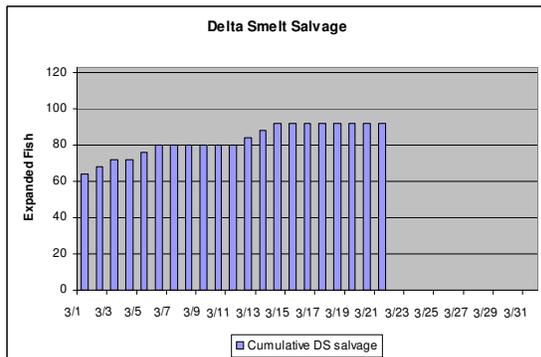


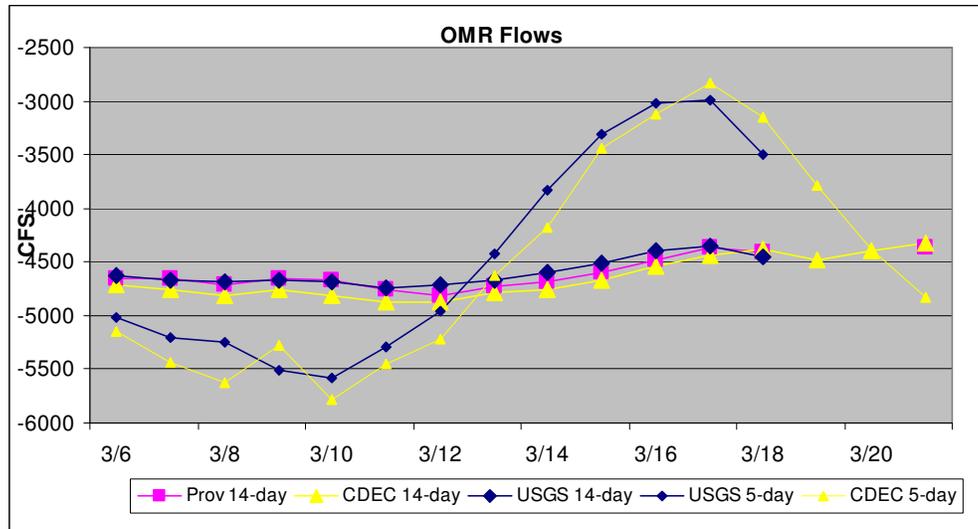
Recommendation for the week of March 22, 2010:

The SWG recommended OMR flows no more negative than -5,000 cfs. The Working Group agreed that the level of risk to adult delta smelt was reduced this week as compared to last week, given that no salvage has occurred since March 14 and the latest SKT survey suggests that the greatest densities of delta smelt are in the Sacramento River and outside the influence of the pumps. The Working Group will continue to monitor salvage, survey data, and hydrological conditions and reconvene March 29 or earlier if deemed necessary.

1) Current environmental data.

- **Water temperature** for the 3 station average is 15.1°C.
- **OMR** USGS 14-day and 5-day tidally-averaged OMR as of March 18 is, respectively, -4,446 cfs and -3,492 cfs. The 14-day and 5-day OMR average estimate from CDEC as of March 21 is, respectively, -4,327 cfs and -4,831 cfs. The 14-day and 5-day provisional estimate of OMR flow as of March 21 is, respectively, -4,367 cfs and -4,831 cfs.
- **Flow** Sacramento River inflow is 15,259 cfs and San Joaquin 2,505 cfs. X₂ is 70.53km. As of March 18, E/I ratio is 28%, QWEST is -1363 cfs and NDOI is 12,902 cfs. The graphs below show the most recent trends in delta smelt salvage, Delta hydrology, and water quality that were evaluated by the Working Group.





2) Delta fish monitoring:

20mm Survey 1 was in the field March 15 through 18. No larval delta smelt were collected. Two adult delta smelt were collected in the SDWSC. The highest densities of longfin smelt larvae were west of the confluence in the Montezuma Slough complex and Suisun Bay. Smelt Larval Survey #6 is in the field this week. The Spring Kodiak Trawl #4 will be in the field the week of April 5. Results from larval surveys, SKT, and 20mm Surveys are available online at: <http://www.delta.dfg.ca.gov/delta>.

3) Salvage

As of March 14, adult salvage has reached the concern level of 92. Since March 14, no additional delta smelt salvage has occurred at either the SWP or CVP. The season total of expanded salvage remains at 92. The total authorized take for adults under the Biological Opinion is 123, cumulative, for the season.

Larval sampling is ongoing at the CVP and SWP facilities. No longfin or delta smelt larvae have thus far been salvaged this season.

4) Expected Project Operations

The Projects expect to manage exports to maintain an OMR flow no more negative than -5,000 cfs. Combined exports are at 7,000 cfs today and are expected to drop to 6,500 cfs tomorrow. Operators noted OMR levels are being watched and pumping levels will be adjusted as needed to maintain -5,000 cfs OMR. Operators additionally noted that they will adjust pumping levels to maintain an E/I ratio of 35% as conditions warrant (D-1641).

5) Particle Tracking Modeling

A possible request for PTM was discussed for next week. However, since no larval delta smelt have as yet been detected, insertion points would be arbitrary, and results would not be very

different from results of previous PTM modeling of entrainment risk for central and south Delta stations. The Working Group requested that a historical PTM run with stations and hydrological parameters appropriate to expected conditions be made available for review and discussion during next week's call.

6) Discussion for Recommendation

The Working Group reviewed and discussed all relevant data from fish surveys, Delta monitoring, salvage, and planned Project operations.

Delta temperatures have exceeded 12⁰C since February 14 and egg size in salvage- and survey-collected females is approximately 1 mm in diameter. Spent females were collected in SKT #3. Therefore, the juvenile protective phase of the biological opinion (RPA Component 2; Action 3 in Attachment B) is in effect. This action will continue until June 30 or when the 3-day mean water temperature at Clifton Court Forebay reaches 25⁰C, whichever occurs earlier.

Component 2, Action 3 of the biological opinion, which is intended to protect larvae and juvenile delta smelt, includes a range of OMR flow from -1,250 cfs to -5,000 cfs. The BO provides guidance for the assessment of the risk of entrainment of larvae and juveniles and for determining the appropriately-protective OMR flows within that range for any given week. The BO (pp 353-354) specifies that if entrainment risk is low, OMR flows could be expected to remain as negative as -5,000 cfs, but if entrainment risk is higher, OMR flows would be set so as to reduce that risk. The risk factors are (1) evidence (i.e., from survey data) that delta smelt are present in the South or Central Delta, and (2) evidence of ongoing entrainment. Because the Working Group believes hatching is still in its early stages and that relatively few larvae are as yet present in the system, combined with the current hydrological conditions, it remains appropriate to consider the low-entrainment risk scenario.

NMFS provided an update on the anticipated flows and pumping to begin April 1, 2010. As required in RPA action IV.2.1, minimum Vernalis flows from April 1 through May 31 will be 3,000 cfs based on the New Melones Reservoir Index (page 642 of the June 2009, NMFS Biological Opinion). Vernalis flows will increase to 3,200 cfs for the VAMP period (April 22 through May 21) based on current projections. Combined pumping for the CVP and SWP will be 1,500 cfs during the 60-day implementation of the RPA action. The action is designed to protect emigrating steelhead smolts from the San Joaquin River Basin during the 60-day period of implementation.

The Working Group noted that the lack of adult delta smelt salvage since March 14 and the apparent distribution as exhibited by the SKT #3 survey indicate that the risk of entrainment of adult delta smelt is likely low. The Working Group did not think that the available data warranted continuing the previous week's recommendation of -3,000 cfs OMR flow and agreed that -5,000 cfs OMR flow would be adequately protective for both adult and larval delta smelt for the next week. However, the Working Group cautions the Service that should additional salvage occur, any corresponding change in OMR flow likely would not occur fast enough to avoid further salvage, and could result in the Projects' exceeding the authorized take limit of 123 fish.

Historical data show that salvage of adult delta smelt often tapers off significantly by mid-March, but this pattern is highly variable, and adult salvage has often continued into early April. Should additional salvage occur prior to March 29, the Group will reconvene to discuss a potential change to the recommendation.

Next Meeting: Monday, March 29, 2010 at 10 am

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

Advice for week of March 22:

The Smelt Working Group provides no advice for longfin smelt and believes that OMR advice of - 5,000 cfs or more positive for delta smelt will provide protection for longfin smelt.

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 expanded 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 at 4 or more of the 12 survey stations listed.

Current Information

No adult longfin smelt were salvaged in the past week and none have been salvaged since the Dec. 1, 2009 criterion period for salvage began. Adult longfin smelt have only rarely been salvaged after mid-February.

No adult longfin smelt were collected upstream of the confluence by Bay Study in March.

On March 15-18, longfin smelt larvae were found at only 1 of 12 south and central Delta criteria stations during the first 20mm Survey, and only single longfin smelt was caught at station 809 (Table 1). The 20mm Survey net mesh will not retain all longfin smelt larvae; many remain too small to be completely retained by the mesh. Most longfin smelt were in Suisun Marsh and Suisun Bay. Downstream locations have not been processed. Since March 2, delta outflow has declined and as of March 18 Qwest became negative (see Delta Hydrologic Conditions March 22; <http://www.water.ca.gov/swp/operationscontrol/deltaops.cfm>). Few longfin smelt larvae and juveniles remain in the Delta and rivers at risk of entrainment in Delta diversions.

Discussion

The distribution information above was used to develop OMR flow advice. 20 mm Survey #1 data (partial) indicates a continued reduction in longfin smelt larva numbers in the Delta, and only 1 was caught in a central or south Delta criteria station (Table1). Increasing water temperatures signal further reduction in longfin smelt spawning. Qwest has been positive through February except for a few days from February 19 through the 23 and March 10-11, and has been positive until March 18 (Delta Hydrologic Conditions March 22; <http://www.water.ca.gov/swp/operationscontrol/deltaops.cfm>). After March 18, Qwest was likely negative. A positive Qwest indicates net flow was likely to transport of longfin smelt larvae from the San Joaquin River and Franks Tract portion of the south Delta westward toward the confluence, reducing their risk of entrainment.

Few longfin smelt larvae appear to remain in the Delta. The SLS survey conducted during the week of March 22 will provide better distribution information for small longfin smelt larvae (<10 mm) than the 20mm Survey. Longfin smelt larva center of density based on partial 20mm Survey data was well west of the confluence (http://www.dfg.ca.gov/delta/data/sls/CPUE_map.asp).

Particle tracking model output was not reviewed for this advice.

Figure 1. Tidally averaged discharge for Sacramento River at Rio Vista, posted as of March 22, 2010.

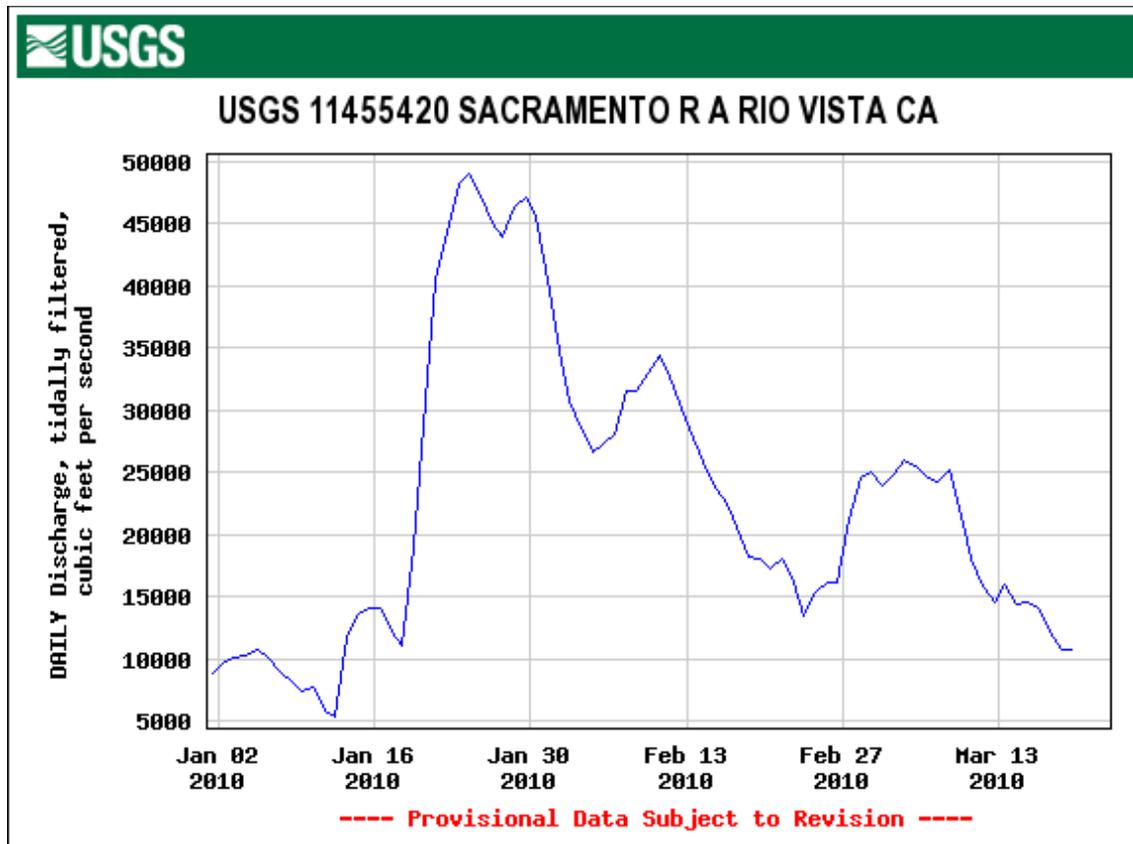


Table 1. Longfin smelt catch per 10,000 cubic meters filtered by station for 20mm Survey #1, March 15-18, 2010; samples processed through Thursday March 18 only. Criteria stations for the State Water Project ITP are shaded. See web site for complete data--

http://www.dfg.ca.gov/delta/data/20mm/CPUE_Map3.asp

| | | | | | |
|------|---|-----|---|---------------|----|
| 2010 | 1 | 609 | 1 | Longfin Smelt | 80 |
| 2010 | 1 | 610 | 2 | Longfin Smelt | 3 |
| 2010 | 1 | 703 | 2 | Longfin Smelt | 2 |
| 2010 | 1 | 704 | 1 | Longfin Smelt | 1 |
| 2010 | 1 | 705 | 3 | Longfin Smelt | 1 |
| 2010 | 1 | 706 | 3 | Longfin Smelt | 2 |
| 2010 | 1 | 707 | 3 | Longfin Smelt | 4 |
| 2010 | 1 | 711 | 3 | | |
| 2010 | 1 | 716 | 3 | | |
| 2010 | 1 | 718 | 3 | Longfin Smelt | 1 |
| 2010 | 1 | 719 | 3 | | |
| 2010 | 1 | 720 | 3 | | |
| 2010 | 1 | 723 | 3 | | |
| 2010 | 1 | 724 | 3 | | |
| 2010 | 1 | 726 | 3 | | |
| 2010 | 1 | 801 | 1 | Longfin Smelt | 6 |
| 2010 | 1 | 804 | 2 | Longfin Smelt | 1 |
| 2010 | 1 | 809 | 3 | Longfin Smelt | 1 |
| 2010 | 1 | 812 | 3 | | |
| 2010 | 1 | 815 | 3 | | |
| 2010 | 1 | 901 | 3 | | |
| 2010 | 1 | 902 | 3 | | |
| 2010 | 1 | 906 | 3 | | |
| 2010 | 1 | 910 | 2 | | |
| 2010 | 1 | 912 | 3 | | |
| 2010 | 1 | 914 | 3 | | |
| 2010 | 1 | 915 | 3 | | |
| 2010 | 1 | 918 | 3 | | |
| 2010 | 1 | 919 | 3 | | |