

**Smelt Working Group  
Monday, May 5, 2014**

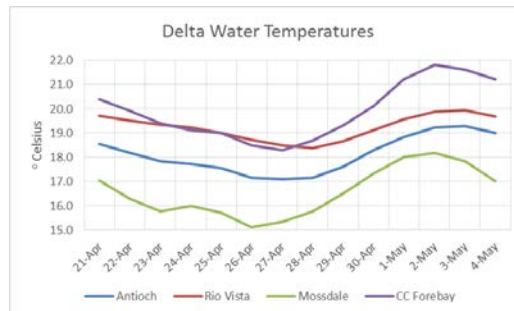
**Meeting Summary:**

The Working Group agreed that given their present distribution, current salvage, and Delta conditions, there was no indication that projected exports (potentially resulting in OMR flows as negative as approximately -2000 cfs daily average) need to be more restrictive for the protection of Delta Smelt adults and larvae. 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. The next scheduled SWG meeting will be Monday, May 12.

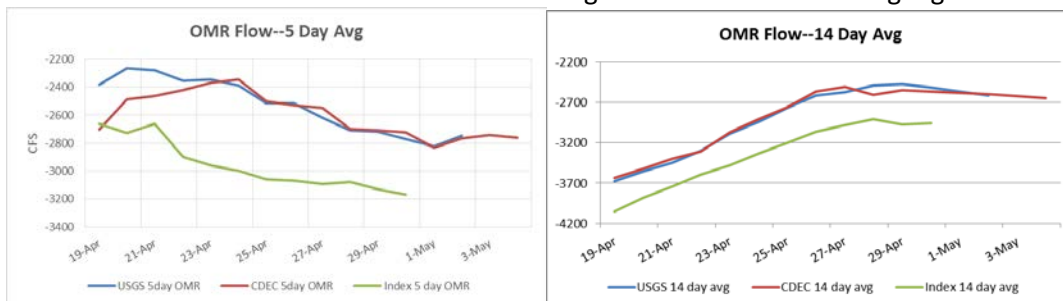
**Reported Data:**

**1. Current environmental data:**

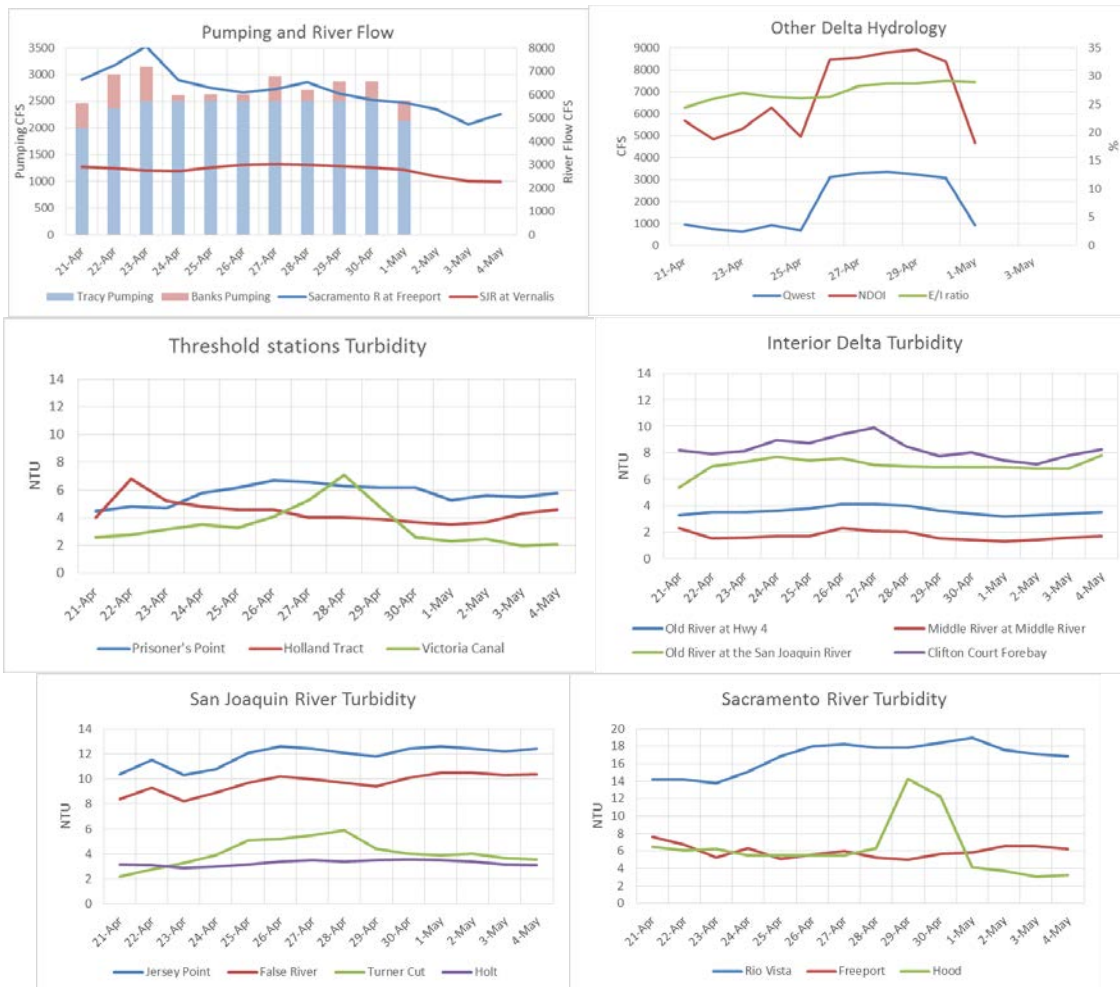
• **Temperature:**



- **OMR flow:** CDEC OMR flow 5-day and 14-day average for May 4 was -2763 cfs and -2645 cfs, respectively. The OMR Index value for May 4 was reported as -2900 cfs (5-day average) and -3000 cfs (14-day average). Operators indicated a comparison of OMR indexed values to gauge OMR values show that the Index value is tracking about -400 cfs over the gauge value.



- **Flow:** Sacramento River average daily flow for May 4 was approximately 5164 cfs and San Joaquin River average daily flow was 2275 cfs. X2 calculation from CDEC was upstream of Collinsville (81 km). Outflow was reported as approximately 4600 cfs, Qwest as 270 cfs, and E/I as 20% (14-day average).



- The weather forecast for this week indicates warming temperatures and only small amounts of rain.

## 2. Delta Fish Monitoring:

20-mm Survey #4 was in the field the week of April 28. Laboratory processing is 60% complete. So far 19 Delta Smelt larvae were observed in the samples processed, sizes ranging from 7 to 25 mm (average 18 mm). The majority of larvae were collected from stations in the Sacramento River. A total of 55 Longfin Smelt were collected, sizes ranging from 13 to 36mm (average 28 mm). 20-mm Survey #5 is in the field next week.

SKT Survey # 5 (the final SKT of WY 2014) is in the field this week. Preliminary results from trawls completed this morning indicate three spent female Delta Smelt were collected at station 809 (2 collected using official protocol, 1 as a supplemental collection). Stations 812 and 815 did not collect Delta Smelt.

Jersey Point sampling concluded for the Service's Early Warning Study on April 10.

The 2013 Annual FMWT surveys concluded December 2013. 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](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:**

Reporting for the period of April 28 to May 4, an estimated 50 juvenile Delta Smelt were salvaged at the SWP and CVP (see Table 1). No adult Delta Smelt and no adult or juvenile Longfin Smelt were salvaged at either facility for the same period.

Table 1. Estimated SWP and CVP juvenile Delta Smelt and Longfin Smelt salvage (>20 mm) from the SWP and CVP for the reporting period of April 28 through May 4.

|               | SWP | CVP |
|---------------|-----|-----|
| Delta Smelt   | 46  | 4   |
| Longfin Smelt | 0   | 0   |

Larval Delta Smelt (<20mm) were observed in the larval collection at the SWP on April 28 and 30. Larval Delta Smelt (<20mm) were observed in the larval collection at the CVP on April 25.

Current Longfin Smelt and Delta Smelt salvage information can be downloaded from DFW's salvage FTP site at <ftp://ftp.dfg.ca.gov/salvage/Daily%20Smelt%20Summary/> or queried from DFW's salvage web page at <http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx>

**4. Expected Project Operations:**

Exports at the CVP are targeting 1000 cfs; exports at the SWP are at zero today and will target 200 to 500 cfs the remainder of the week. Combined exports should remain at these levels for the week. Operators indicated that the monthly outflow standard of 3000 cfs as well as Delta salinity levels are both controlling operations right now.

Operators estimated that daily OMR flow levels for this week will be approximately -2000 cfs.

The DCC gate is closed.

The State Water Board's (Board) order from January 31, 2014 states that project operations must maintain a monthly net Delta outflow of no less than 3000 cfs and must not pump more than combined 1500 cfs. An addendum was submitted to the Board on February 7. This addendum allows the operators to revert to compliance with the monthly Outflow standard, and increase pumping above the 1500 cfs included in the Temporary Urgency Change Petition (TUCP). A request to extend the Board's January 31, 2014 order was approved through the end of March. An additional addendum was approved to modify the number of days required to meet an X2 at Chipps Island (11,400 cfs on a 3-day running average) for the remainder of March. The projects will continue to meet X2 at Collinsville (7,100 cfs on a 3-day running average) prescribed in the Board's plan. An addendum was submitted and approved on April 9, 2014 to

allow the projects to continue with their drought operations as approved by the Board through the month of April. An addendum submitted and approved on April 18, 2014 allows the projects to match the 1:1 Vernalis inflow to export pumping ratio (and exceed the 1500 cfs pumping restrictions as per earlier TUCP orders) during the NMFS RPA and D-1641 Stanislaus River pulse flow. An additional addendum was approved on May 2, allowing the monthly outflow standard to be reduced to 3000 cfs, however additional details were not available for the call.

**5. Particle Tracking Modeling:**

No modeling runs were discussed.

**6. Turbidity Modeling:**

No modeling runs were discussed.

**7. Assessment of Risk:**

**Background:**

The timing for RPA Component 1, Action 1 has passed. The SWG is following the guidance for RPA Component 1, Actions 2 and 3, as described below.

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 352).

RPA Component 2, Action 3: "The objective of this RPA component (which corresponds to Action 3 in Attachment B), is to improve flow conditions in the Central and South Delta so that larval and juvenile Delta Smelt can successfully rear in the Central Delta and move downstream when appropriate" (page 282).

"Upon completion of RPA Component 1 or when Delta water temperatures reach 12°C (based on a 3-station average of daily average water temperature at Mossdale, Antioch, and Rio Vista) or when a spent female Delta Smelt is detected in the trawls or at the salvage facilities, the projects shall operate to maintain OMR flows no more negative than -1,250 to -5000 cfs based on a 14-day running average with a simultaneous 5-day running average within 25 percent of the applicable 14-day OMR flow requirement. Depending on the extant conditions, the SWG shall make recommendations for the specific OMR flows within this range from the onset of implementing RPA Component 2 through its termination. The Service shall make the final determination regarding specific OMR flows. This action shall end June 30 or when the 3-day mean water temperature at Clifton Court Forebay reaches 25° C, whichever occurs earlier" (page 282).

**Discussion:**

The SWG reviewed and discussed all relevant data from Delta monitoring, salvage, field surveys, and planned Project operations. The adult incidental take limit is 155 with a concern level of 116 fish. The juvenile incidental take limit is 1007 with a concern level of 671 fish. These numbers

reflect the revised incidental take calculation, as reported in the Service's February 2013 memorandum.

Catch data from 20-mm Survey # 4 indicate that the majority of larval/juvenile Delta Smelt are located out of the south and central Delta. Delta Smelt young-of-year are starting to reach a size that is more optimal for recruitment to the 20-mm gear.

Salvage of Delta Smelt juveniles has increased this week; 50 juvenile Delta Smelt were salvaged from April 28 through May 4. As members indicated last week, the SWG anticipates that small numbers of juvenile Delta Smelt may continue to be salvaged over the next week. Members indicated that the 20-mm Survey #5 distribution may provide a more complete picture of Delta Smelt population distribution, as the young continue to reach a more optimal size for the gear. Some members did express some surprise as to the relative increase in salvage at the SWP facility compared to those at the CVP. A marked relative increase in salvage was not anticipated with the modest increase in exports from the forebay, although these salvage densities are still magnitudes lower than densities of juvenile Delta Smelt observed in the 20-mm Survey catches.

OMR flows are expected to remain around -2000 cfs on a daily basis for at least the remainder of the week, as projects are constrained by the monthly outflow standard of 3000 cfs and the interior Delta salinity standards. Additionally, Qwest is weakly positive at approximately 270 cfs.

Based on this review of the Delta Smelt distribution and salvage data, current Delta conditions and projected operations, the SWG agreed that no change in operations is necessary to adequately protect Delta Smelt from entrainment. The SWG will continue to monitor turbidity, salvage and survey data through this week, and will request a call to discuss Delta Smelt entrainment risk, should one be necessary.

**8. Framework for providing advice to the Service:**

No update was provided.

The SWG will have the next meeting on May 12.

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

**Advice for week of May 5, 2014:**

The Smelt Working Group believes that current and planned export rates are protective of Longfin Smelt at this time.

Barker Slough operations advice terminated for the year as of March 31.

**Basis for advice:**

The 2009 State Water Project 2081 for Longfin Smelt states that advice to WOMET and the DFW Director shall be based on:

1. Adult Salvage – total adult ( $\geq 80$ 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 April 20, 2014, no age-1 or adult 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.

On February 24, the first Longfin Smelt larva was detected at the SWP and larvae were detected almost daily for about a week before declining (CVP started sampling for larvae as of March 13 on a day-time work-week schedule). On February 28, the first juvenile (age-0) Longfin Smelt was detected at the SWP. From April 21 and through May 4, no juvenile Longfin Smelt were collected at either facility. Only a single Longfin Smelt larvae was collected at the CVP on April 21; that's been the only the second Longfin Smelt larvae detected at either facility since early April. This information is not related to a criterion and does not have a direct effect on advice.

2. December Fall Midwater Trawl and Bay Study sampling in December through March 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 forth 20mm Survey of 2014 was conducted April 28 – May 5. Longfin Smelt larvae were detected at only 3 central and south Delta stations and 2 of 3 detections involved only a single larvae (Table 1). Larva density at station 809 declined compared to survey 3. Together these data indicate low risk of entrainment.

5. The Barker Slough concern period ended for the water year on March 31. No additional advice will be given for this water year.

**Current conditions:** Outflow declined from 8,804 on April 28 to 2,694 on May 4. Combined State and federal exports have been declining since April 28 from just under 3,000 cfs to about 2,200 cfs. Combined exports will target about 1,500 cfs remain stable. Positive Qwest flows declined sharply on May 1, when flows shifted from modestly positive (>3,000 cfs) to weakly

positive (900-200cfs). CDEC 5-day OMR index was -3,130 May 4. Currently, Vernalis flows are about 2,300 cfs.

**Summary of Risk:** Qwest trended from modestly positive to slightly positive. OMR flows will be approximately -2,000 for the next week. Exports will be adjusted to balance outflow and salinity for the coming weeks. These hydrodynamics though improved will continue to put larvae in central and south Delta at some risk of entrainment; however, few Longfin Smelt larvae have been detected in the region (Table 1) and no additional larvae are expected to hatch this season, so the overall risk is low.

The concern period for Barker Slough exports ended for the water year on March 31.

Table 1. Longfin Smelt catch per station from 2014 20mm Survey, Survey 4. These data are preliminary and subject to change.

| Year | Survey | Station | Date      | # Tows Processed | Species           | Total Catch | Min Length | Max Length | Avg Length |                       |
|------|--------|---------|-----------|------------------|-------------------|-------------|------------|------------|------------|-----------------------|
| 2014 | 4      | 323     |           | 0                | Not Yet Processed | 0           |            |            |            | Suisun Bay & West     |
| 2014 | 4      | 340     |           | 0                | Not Yet Processed | 0           |            |            |            |                       |
| 2014 | 4      | 342     |           | 0                | Not Yet Processed | 0           |            |            |            |                       |
| 2014 | 4      | 343     |           | 0                | Not Yet Processed | 0           |            |            |            |                       |
| 2014 | 4      | 344     |           | 0                | Not Yet Processed | 0           |            |            |            |                       |
| 2014 | 4      | 345     |           | 0                | Not Yet Processed | 0           |            |            |            |                       |
| 2014 | 4      | 346     |           | 0                | Not Yet Processed | 0           |            |            |            |                       |
| 2014 | 4      | 405     | 01-May-14 | 1                | Longfin Smelt     | 2           | 27         | 32         | 29.50      |                       |
| 2014 | 4      | 411     | 01-May-14 | 1                | No Longfin Catch  | 0           |            |            |            |                       |
| 2014 | 4      | 418     | 01-May-14 | 1                | Longfin Smelt     | 1           | 33         | 33         | 33.00      |                       |
| 2014 | 4      | 501     | 29-Apr-14 | 1                | No Longfin Catch  | 0           |            |            |            |                       |
| 2014 | 4      | 504     | 29-Apr-14 | 1                | No Longfin Catch  | 0           |            |            |            |                       |
| 2014 | 4      | 519     | 29-Apr-14 | 1                | Longfin Smelt     | 1           | 31         | 31         | 31.00      |                       |
| 2014 | 4      | 602     | 29-Apr-14 | 1                | Longfin Smelt     | 1           | 29         | 29         | 29.00      |                       |
| 2014 | 4      | 606     | 29-Apr-14 | 1                | Longfin Smelt     | 8           | 17         | 34         | 23.13      |                       |
| 2014 | 4      | 609     | 29-Apr-14 | 1                | Longfin Smelt     | 3           | 21         | 24         | 22.67      |                       |
| 2014 | 4      | 610     | 29-Apr-14 | 1                | No Longfin Catch  | 0           |            |            |            |                       |
| 2014 | 4      | 508     | 30-Apr-14 | 1                | Longfin Smelt     | 2           | 22         | 25         | 23.50      | Confluence            |
| 2014 | 4      | 513     | 30-Apr-14 | 1                | Longfin Smelt     | 2           | 31         | 33         | 32.00      |                       |
| 2014 | 4      | 520     | 30-Apr-14 | 1                | Longfin Smelt     | 8           | 22         | 30         | 25.00      |                       |
| 2014 | 4      | 801     | 30-Apr-14 | 3                | Longfin Smelt     | 9           | 22         | 35         | 29.00      |                       |
| 2014 | 4      | 804     | 30-Apr-14 | 3                | Longfin Smelt     | 2           | 14         | 28         | 21.00      |                       |
| 2014 | 4      | 703     | 30-Apr-14 | 1*               | Longfin Smelt     | 1           | 26         | 26         | 26.00      | Sac. River System     |
| 2014 | 4      | 704     | 30-Apr-14 | 1                | Longfin Smelt     | 6           | 25         | 36         | 30.00      |                       |
| 2014 | 4      | 705     | 29-Apr-14 | 3                | No Longfin Catch  | 0           |            |            |            |                       |
| 2014 | 4      | 706     | 29-Apr-14 | 2                | Longfin Smelt     | 3           | 24         | 32         | 26.67      |                       |
| 2014 | 4      | 707     | 29-Apr-14 | 1                | Longfin Smelt     | 1           | 27         | 27         | 27.00      |                       |
| 2014 | 4      | 711     | 28-Apr-14 | 1                | No Longfin Catch  | 0           |            |            |            |                       |
| 2014 | 4      | 716     | 28-Apr-14 | 1                | No Longfin Catch  | 0           |            |            |            |                       |
| 2014 | 4      | 718     | 28-Apr-14 | 1                | No Longfin Catch  | 0           |            |            |            |                       |
| 2014 | 4      | 719     | 28-Apr-14 | 2                | No Longfin Catch  | 0           |            |            |            |                       |
| 2014 | 4      | 720     | 28-Apr-14 | 2                | No Longfin Catch  | 0           |            |            |            |                       |
| 2014 | 4      | 723     | 28-Apr-14 | 2                | No Longfin Catch  | 0           |            |            |            |                       |
| 2014 | 4      | 724     | 28-Apr-14 | 1                | No Longfin Catch  | 0           |            |            |            |                       |
| 2014 | 4      | 726     | 28-Apr-14 | 2                | No Longfin Catch  | 0           |            |            |            |                       |
| 2014 | 4      | 809     | 28-Apr-14 | 3                | Longfin Smelt     | 3           | 18         | 28         | 23.33      | Central & South Delta |
| 2014 | 4      | 812     | 29-Apr-14 | 3                | Longfin Smelt     | 1           | 13         | 13         | 13.00      |                       |
| 2014 | 4      | 815     | 29-Apr-14 | 3                | No Longfin Catch  | 0           |            |            |            |                       |
| 2014 | 4      | 901     | 28-Apr-14 | 3                | Longfin Smelt     | 1           | 20         | 20         | 20.00      |                       |
| 2014 | 4      | 902     | 28-Apr-14 | 3                | No Longfin Catch  | 0           |            |            |            |                       |
| 2014 | 4      | 906     | 29-Apr-14 | 2                | No Longfin Catch  | 0           |            |            |            |                       |
| 2014 | 4      | 910     | 28-Apr-14 | 3                | No Longfin Catch  | 0           |            |            |            |                       |
| 2014 | 4      | 912     | 28-Apr-14 | 3                | No Longfin Catch  | 0           |            |            |            |                       |
| 2014 | 4      | 914     | 28-Apr-14 | 3                | No Longfin Catch  | 0           |            |            |            |                       |
| 2014 | 4      | 915     | 28-Apr-14 | 3                | No Longfin Catch  | 0           |            |            |            |                       |
| 2014 | 4      | 918     | 28-Apr-14 | 3                | No Longfin Catch  | 0           |            |            |            |                       |
| 2014 | 4      | 919     | 29-Apr-14 | 1                | No Longfin Catch  | 0           |            |            |            |                       |

Processing complete through 05/02/2014

\*Five minute tows



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

