

**SMELT WORKING GROUP**  
**Monday, May 6, 2013**

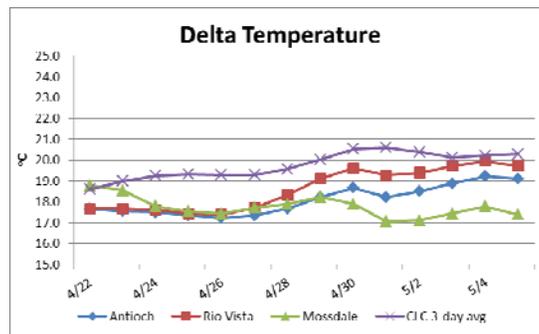
**Meeting Summary:**

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. The Working Group will continue to monitor smelt salvage, larval and juvenile smelt survey data, and Delta hydrological conditions and will reconvene May 13, 2013, at 10 am.

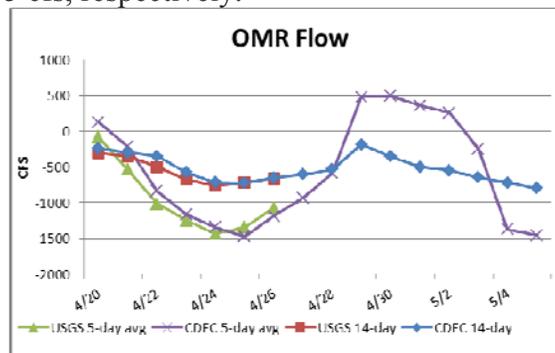
**Reported Data:**

**1) Current environmental data:**

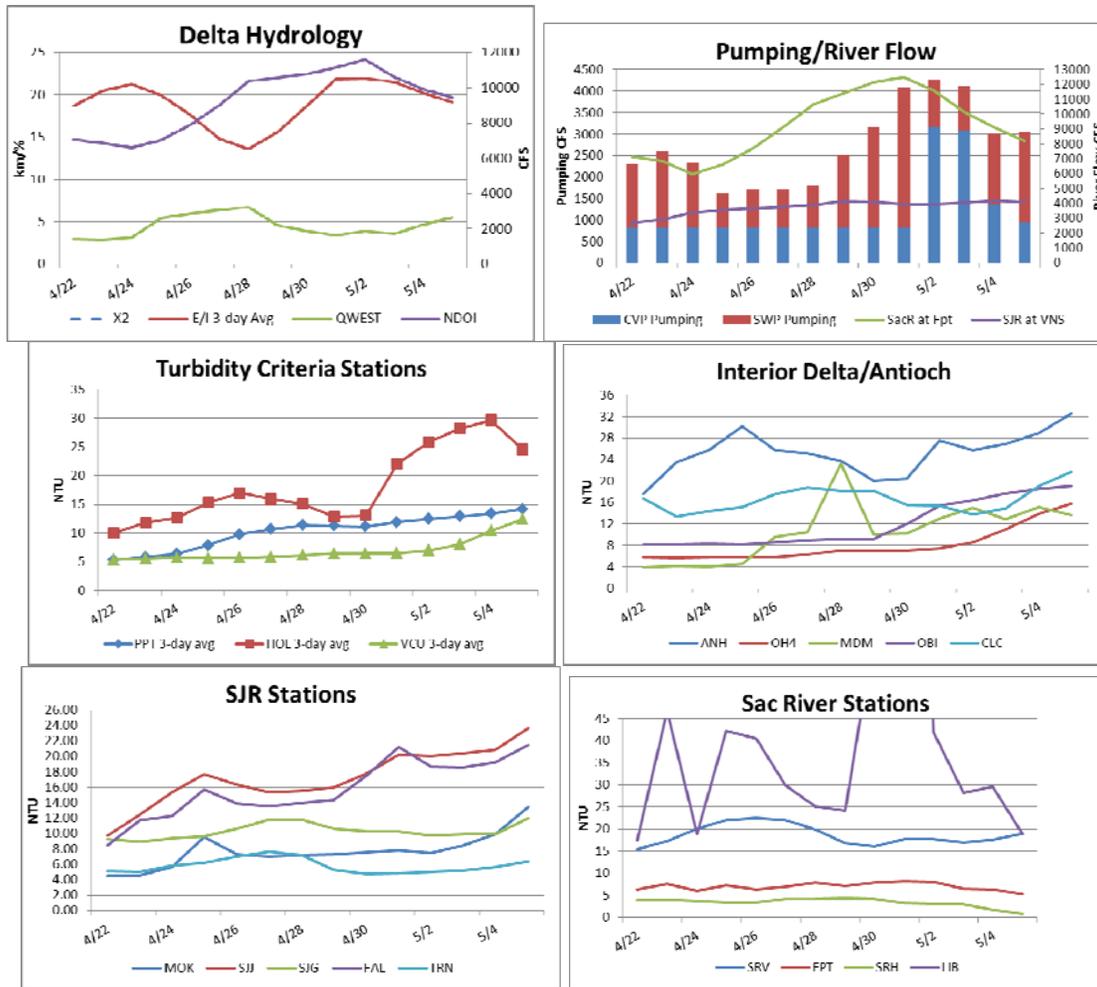
- **Water temperatures:**



- **OMR:** USGS tidally-averaged 5-day average OMR flow and 14-day average OMR flow were unavailable. CDEC 5-day average OMR flow and 14-day average OMR flow on May 5 was -1,456 cfs and -795 cfs, respectively.



- **Flow:** Sacramento River flows at Freeport are approximately 8,233 cfs and San Joaquin River at Vernalis is approximately 4,109 cfs, while X<sub>2</sub> was upstream of 82km.



### Delta Fish Monitoring:

Spring Kodiak Trawl #5 was in the field last week. Seventeen adult delta smelt were collected and two young-of-the-year. The adults ranged in size from 71 to 89 mm and were composed of two males and 15 females (all spent).

The 20-mm Survey #4 was in the field the week of April 22. Sample processing is approximately 76% complete. A total of 132 delta smelt were collected so far, with a size range of 7 to 28 mm. Seventeen delta smelt were collected from the lower San Joaquin River; the remaining delta smelt were collected at the confluence and Sacramento River stations. Processing is also on-going for 20-mm Surveys #2 and 3. Updated 20-mm Survey data have been uploaded to the 20-mm Survey webpage (<http://www.dfg.ca.gov/delta/projects.asp?ProjectID=20mm>).

20-mm Survey 5 is in the field this week. Preliminary results for the central and southern Delta stations are anticipated prior to the next SWG call.

The 2012 annual Fall Midwater Trawl Index (September through December) is 42. The combined SWP and CVP total allowable take for adult delta smelt for the WY 2013 as calculated

from the FMWT Index using the formula prescribed in the BO is 362 (revised). The combined SWP and CVP total allowable take for larval-juvenile delta smelt for the WY 2013 following the formula in Table C-4 of the BO is 2,350 (revised).

The 2012 Delta Smelt Recovery Index (based on September and October) is 13. 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 CDFW surveys are available online at: <http://www.dfg.ca.gov/delta/>.

### **1) Salvage:**

#### Delta Smelt:

A total of 302 young of the year delta smelt of salvageable size ( $\geq 20$  mm) was observed at the SWP fish facility for the reporting period of April 29 through May 5, while 28 were observed at the CVP fish facility for the reporting period of April 29 through May 4. The season total for juvenile delta smelt  $\geq 20$  mm is now 374. Delta smelt larvae  $< 20$  mm were observed in larval fish samples taken at the SWP on April 29 and 30 and at the CVP on April 30. Larval fish samples for the previous week are still being processed at this time.

#### Longfin Smelt:

A total of 257 young of the year ( $\geq 20$  mm FL) longfin smelt (LFS) was salvaged for the reporting period: 227 at the SWP and 30 at the CVP. LFS post-larvae  $< 20$  mm were observed at the SWP on April 29 and 30. Post-larval samples are being processed for the weekend.

#### Salvage Operations

One of the two CVP salvaged fish release sites will be out of commission starting on May 1 for repairs. The Skinner Fish Facility and Banks Pumping Plant will be shut down starting later today through Thursday for maintenance.

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>

### **2) Expected Project Operations:**

Combined CVP/SWP exports are approximately 2,000 cfs as of today. Projected operations are expected to maintain current levels, in support of the SWRCB D-1641 water quality requirements of 1:1 pumping to flow at the San Joaquin River at Vernalis and to support water quality standards at Emmaton and Jersey. In addition, the NMFS RPA also requires 1:1 pumping with the flow at Vernalis from April 1 through May 31.

### **3) Particle Tracking Modeling:**

No PTM runs were requested or discussed.

**4) Turbidity Modeling:**

No turbidity modeling was discussed today.

**5) Assessment of Risk:**

**Background:**

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 -5,000 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 Working Group reviewed and discussed all relevant data from Delta monitoring, salvage, field surveys, and planned Project operations.

The Working Group continues to assess the risk of entrainment to adults and is following the guidance provided in Action 3 of the RPA for assessing the risk of entrainment to juveniles. The Working Group discussed its April 29 recommendation, the WY 2013 juvenile delta smelt Incidental Take Limit (ITL), the recent delta smelt distribution data from field surveys, and the recent salvage of juvenile and larval delta smelt.

The WY 2013 ITL for juvenile delta smelt is 2350. The concern level and incidental take statistics for WY 2013 (following Table C-4 of the BO), are as follows:

|         | April | May | June | July | Total |
|---------|-------|-----|------|------|-------|
| Concern | 13    | 540 | 1379 | 1566 | 1566  |
| ITL     | 20    | 809 | 2069 | 2350 | 2350  |

The Working Group recommends to the Service that planned operations and current OMR flows are sufficiently protective of delta smelt. Should projected operations deviate from what

was reported, resulting in OMR flows becoming increasingly negative (daily values approaching -2,500 to -3,000 cfs), the Working Group will reconvene to review new available data and the entrainment risk to delta smelt.

Salvage of  $\geq 20$  mm size delta smelt increased during the previous week. Total take for the season is now 374 or 16% of the WY 2013 annual ITL of 2,350.

Daily OMR flows since April 28 have ranged between approximately -2,200 and +3,500 cfs, and juveniles of salvageable size were detected every day of this reporting period (April 29 through May 5). Similarly positive OMR flows are anticipated to continue through May 31, which is the end of the NMFS BO's San Joaquin River flow RPA requiring a 1:1 ratio of exports to flows at Vernalis in critically dry water year types. Exports are presently more constrained by D-1641 support water quality standards at Emmaton and Jersey. For the past several weeks, daily OMR flows have been mostly more protective than the range of 14-day average OMR target flows required in the Service's BO RPA Action 3 for larval and juvenile delta smelt (-1,250 to -5,000 cfs).

Based on samples processed so far from 20-mm Survey #4, it appears that the center of distribution of larvae and juveniles is out of the south the central Delta. This is an apparent shift from the distribution indicated in 20-mm Surveys #2 and 3, which indicated the young-of-the-year may be occurring in the same (or slightly lower) proportion than in the north Delta. The Working Group will continue to monitor this pattern of fish distribution, and review updated data from 20-mm Surveys as they become available.

Samples from the SWP and CVP larval fish sampling (conducted on April 29 and 30) indicate that there are still delta smelt  $< 20$  mm in the south and central Delta, although densities appear to be less than the previous reporting period.

Based on the review of current delta smelt distribution and salvage data, current Delta conditions and projected operations, the Working Group agrees that projected operations are sufficiently protective of delta smelt. The Working Group will continue to monitor Delta conditions and surveys data. Should OMR flow become increasingly negative (approaching a daily OMR flow range of -2,500 to -3,000 cfs), the Working Group will meet to conduct an additional delta smelt entrainment risk assessment.

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

### **Advice for week of May 6, 2013:**

The Smelt Working Group believes that an OMR of -5,000 cfs is protective of longfin smelt at this time. No advice for Barker Slough operations is necessary at this time.

### **Summary of Risk:**

Risk of additional entrainment into the south Delta is very low. Few longfin smelt larvae remain in the central Delta, and current hydrologic conditions are very favorable. Qwest remains positive at about +2,647 cfs and should hold positive while total exports (2,000 cfs starting May 6) are temporarily lower than San Joaquin River inflow (4,109 cfs at Vernalis, but declining next

week) to improve west Delta water quality. Thus there's little risk of additional larva entrainment into the south Delta even though some longfin smelt larvae remain in the San Joaquin River and Old River. Within the south Delta, OMR has been weakly negative. The longfin smelt ITP concern period for Barker Slough ended March 31. Barker exports have been < 35 cfs since March 1, increased to 50 on April 18 and increased to about 70 cfs April 24; risk of entrainment is low even though longfin smelt densities were relatively high based on 20-mm Survey #4 results for Station 718 and 720.

### **Summary of Advice:**

Previously, SLS Survey #3 distribution numbers triggered Longfin Smelt Incidental Take Permit advice from the SWG on February 4 to limit OMR flows to -5,000 cfs (see criterion 3 below). On February 19, to limit south Delta entrainment of larvae from Station 809 and other San Joaquin River stations, an OMR of no more negative than -4,000 cfs was advised. On February 25 and 26, SLS Survey #5 central and south Delta catches from declined rather than increased, so as of March 4 an OMR of -5,000 was once again deemed protective. Since then central and south Delta larva numbers have remained low. As of April 8 and similar to March and early April reviews, OMR of -5,000 was deemed protective. Actual conditions present through April and into early May have been much more favorable.

On March 31, the ITP advice period for Barker Slough ended. Even though longfin smelt larvae remain in the vicinity, Barker Slough exports have remained low from March 1 (< 30 cfs) through April 17 and only increased to 50 cfs on the 18<sup>th</sup> and to 83 cfs April 30, posing little risk for longfin smelt larvae.

### **Basis for advice:**

The 2009 State Water Project 2081 for longfin smelt states that advice to the DFG Director shall be based on the following criteria:

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 20-mm Survey finds longfin smelt larvae present at 8 of 12 central and south Delta sampling stations in 1 survey (Stations 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. For Barker Slough Exports only: between January 15 and March 31 of Critically Dry or Dry water years only (Sacramento River), based on abundance and distribution and detection of longfin smelt larvae at Station 716.

### **Discussion of Criteria**

1. During the period April 29 through May 5, 257 juvenile longfin smelt were salvaged, more than doubling salvage. The increased salvage was brief dropping to lower levels in the past

couple days. Due to warming water temperatures, it is unlikely that any more adult longfin smelt will be salvaged this year. More juvenile longfin smelt can be expected in salvage, but no ITP criterion exists for juvenile longfin smelt.

2. Longfin smelt spawning is likely over for 2013. In early March Bay Study collected 3 longfin smelt adults just upstream from the Antioch Bridge, suggesting that some additional spawning took place in the lower San Joaquin River. No other longfin smelt adults were detected in the central or south Delta since then.

3 & 4. The fourth 20-mm Survey took place April 22-25 and longfin smelt larvae were detected in low numbers in Old River and in the lower San Joaquin River (Table 1). With the exception of Station 809, few larvae remain in the central and south Delta regions. Thus, there is no evidence of additional risk of entrainment into the south Delta and an OMR of -5,000 remains protective at this time.

5. Barker Slough Exports: The ITP period of concern ended March 31. Even though numerous longfin smelt larvae are present at Station 716 and at 718 and 720 in Lindsay Slough, the recent low export levels pose little risk and the increase to 83 cfs April 30 is still low. (<http://www.water.ca.gov/swp/operationscontrol/docs/delta/DeltaHydrology.pdf>).

**Current conditions:** Net Delta outflow was over 10,000 cfs in late April and declined to 9,485 on May 5. X2 remained over 80 km. Combined State and federal exports were about 3,000 cfs over the weekend and are currently at 2,000 cfs. Total exports remain below Vernalis flows (ca. 4,109 cfs) to provide improved outflow for west Delta water quality. Qwest has been modestly positive ( $\geq 1,600$  cfs) for the past week and is currently +2,646.

Table 1. Longfin smelt catch per station from 20-mm Survey, Survey #4, 2013. Processing is partial and data are preliminary and subject to change.

| Year | Survey | Station | Date      | # Tows Processed | Species           | Total Catch | Min Length | Max Length | Avg Length |                   |
|------|--------|---------|-----------|------------------|-------------------|-------------|------------|------------|------------|-------------------|
| 2013 | 4      | 323     | 24-Apr-13 | 1                | No Longfin Catch  | 0           |            |            |            | Suisun Bay & West |
| 2013 | 4      | 340     | 24-Apr-13 | 1                | Longfin Smelt     | 4           | 17         | 22         | 19.00      |                   |
| 2013 | 4      | 342     | 24-Apr-13 | 1                | No Longfin Catch  | 0           |            |            |            |                   |
| 2013 | 4      | 343     | 24-Apr-13 | 1                | No Longfin Catch  | 0           |            |            |            |                   |
| 2013 | 4      | 344     | 24-Apr-13 | 1                | No Longfin Catch  | 0           |            |            |            |                   |
| 2013 | 4      | 345     | 24-Apr-13 | 1                | No Longfin Catch  | 0           |            |            |            |                   |
| 2013 | 4      | 346     | 24-Apr-13 | 1                | No Longfin Catch  | 0           |            |            |            |                   |
| 2013 | 4      | 405     |           | 0                | Not Yet Processed | 0           |            |            |            |                   |
| 2013 | 4      | 411     | 25-Apr-13 | 1                | Longfin Smelt     | 10          | 9          | 22         | 17.30      |                   |
| 2013 | 4      | 418     | 25-Apr-13 | 1                | Longfin Smelt     | 22          | 14         | 34         | 23.59      |                   |
| 2013 | 4      | 501     | 23-Apr-13 | 1                | Longfin Smelt     | 50          | 13         | 24         | 19.50      |                   |
| 2013 | 4      | 504     | 23-Apr-13 | 3                | Longfin Smelt     | 9           | 14         | 31         | 22.56      |                   |
| 2013 | 4      | 519     | 23-Apr-13 | 3                | Longfin Smelt     | 470         | 10         | 33         | 20.55      |                   |
| 2013 | 4      | 602     | 23-Apr-13 | 1                | Longfin Smelt     | 89          | 14         | 28         | 19.98      |                   |
| 2013 | 4      | 606     | 23-Apr-13 | 1                | Longfin Smelt     | 594         | 17         | 26         | 21.54      |                   |
| 2013 | 4      | 609     | 23-Apr-13 | 1                | Longfin Smelt     | 103         | 15         | 24         | 20.58      |                   |
| 2013 | 4      | 610     | 23-Apr-13 | 3                | Longfin Smelt     | 529         | 14         | 29         | 20.21      |                   |
| 2013 | 4      | 508     | 24-Apr-13 | 3                | Longfin Smelt     | 313         | 13         | 30         | 21.09      |                   |
| 2013 | 4      | 513     | 24-Apr-13 | 3                | Longfin Smelt     | 346         | 10         | 27         | 20.47      |                   |
| 2013 | 4      | 520     | 24-Apr-13 | 1                | Longfin Smelt     | 92          | 11         | 26         | 19.30      |                   |
| 2013 | 4      | 801     | 24-Apr-13 | 3                | Longfin Smelt     | 193         | 7          | 22         | 17.63      |                   |
| 2013 | 4      | 804     | 24-Apr-13 | 3                | Longfin Smelt     | 101         | 11         | 23         | 18.06      |                   |
| 2013 | 4      | 703     | 24-Apr-13 | 3                | Longfin Smelt     | 168         | 10         | 26         | 18.79      |                   |
| 2013 | 4      | 704     | 24-Apr-13 | 3                | Longfin Smelt     | 1551        | 10         | 27         | 19.31      |                   |
| 2013 | 4      | 705     | 23-Apr-13 | 3                | Longfin Smelt     | 7           | 11         | 17         | 14.71      |                   |
| 2013 | 4      | 706     | 23-Apr-13 | 3                | Longfin Smelt     | 1498        | 10         | 25         | 19.63      |                   |
| 2013 | 4      | 707     | 23-Apr-13 | 3                | Longfin Smelt     | 234         | 12         | 28         | 19.32      |                   |
| 2013 | 4      | 711     | 22-Apr-13 | 3                | No Longfin Catch  | 0           |            |            |            |                   |
| 2013 | 4      | 716     | 22-Apr-13 | 3                | Longfin Smelt     | 5           | 15         | 29         | 20.20      |                   |
| 2013 | 4      | 718     | 22-Apr-13 | 2                | Longfin Smelt     | 9           | 16         | 29         | 21.78      |                   |
| 2013 | 4      | 719     | 22-Apr-13 | 3                | Longfin Smelt     | 33          | 15         | 34         | 22.15      |                   |
| 2013 | 4      | 720     | 22-Apr-13 | 3                | Longfin Smelt     | 8           | 18         | 27         | 22.38      |                   |
| 2013 | 4      | 723     | 22-Apr-13 | 3                | Longfin Smelt     | 9           | 11         | 28         | 19.78      |                   |
| 2013 | 4      | 724     | 22-Apr-13 | 3                | No Longfin Catch  | 0           |            |            |            |                   |
| 2013 | 4      | 726     | 22-Apr-13 | 2                | No Longfin Catch  | 0           |            |            |            |                   |
| 2013 | 4      | 809     | 22-Apr-13 | 3                | Longfin Smelt     | 23          | 11         | 21         | 15.61      |                   |
| 2013 | 4      | 812     | 23-Apr-13 | 3                | Longfin Smelt     | 3           | 13         | 14         | 13.67      |                   |
| 2013 | 4      | 815     | 23-Apr-13 | 3                | No Longfin Catch  | 0           |            |            |            |                   |
| 2013 | 4      | 901     | 22-Apr-13 | 3                | No Longfin Catch  | 0           |            |            |            |                   |
| 2013 | 4      | 902     | 22-Apr-13 | 3                | Longfin Smelt     | 1           | 12         | 12         | 12.00      |                   |
| 2013 | 4      | 906     | 23-Apr-13 | 3                | No Longfin Catch  | 0           |            |            |            |                   |
| 2013 | 4      | 910     | 22-Apr-13 | 3                | No Longfin Catch  | 0           |            |            |            |                   |
| 2013 | 4      | 912     | 22-Apr-13 | 3                | No Longfin Catch  | 0           |            |            |            |                   |
| 2013 | 4      | 914     | 22-Apr-13 | 3                | No Longfin Catch  | 0           |            |            |            |                   |
| 2013 | 4      | 915     | 22-Apr-13 | 3                | No Longfin Catch  | 0           |            |            |            |                   |
| 2013 | 4      | 918     | 22-Apr-13 | 3                | No Longfin Catch  | 0           |            |            |            |                   |
| 2013 | 4      | 919     | 23-Apr-13 | 3                | No Longfin Catch  | 0           |            |            |            |                   |

Processing complete through 5/3/2013