

# Smelt Monitoring Team Meeting Summary Tuesday, February 13, 2024

## MEETING OBJECTIVE

To collectively assess how current operations and environmental conditions could be impacting Delta Smelt and Longfin Smelt and to provide information to Water Operations Management Team (WOMT) on the status of Delta Smelt and Longfin Smelt, their exposure to operations of the CVP and SWP, and their potential sensitivity to environmental and operational changes; i.e., assess changes in risk week-to-week.

## PARTICIPANTS

- California Department of Fish and Wildlife (CDFW)
- California Department of Water Resources (DWR)
- State Water Resources Control Board (SWRCB)
- U.S. Bureau of Reclamation (USBR)
- U.S. Fish and Wildlife Service (USFWS)
- Kearns & West (K&W)

## ACTION ITEMS

- N/A

## ADVICE TO WOMT

- Smelt Monitoring Team (SMT) continues to recommend Old and Middle River Index (OMRI) be limited to no more negative than -3,500 cfs on a 7-day average under Condition Of Approval (COA) 8.5.2, until the average Secchi depth in the Central and South Delta is greater than 1m as measured by the next Smelt Larva Survey (SLS).

## ANNOUNCEMENTS

- DWR and Reclamation shared that after checking with their management, they are in agreement with other agencies that the temperature condition serves as an on-ramp for COA 8.5.2, and this COA will remain active even if the temperature were to fall below the on-ramping threshold during the OMR management period.

# MEETING SUMMARY

## PART 1: Updates on Water Operations and Biological Conditions Updates

### Relevant Actions & Triggers

Starting 02/07/2024, Reclamation and DWR will begin targeting a 7-day average OMR no more negative than -3,500 cfs under COA 8.5.2. The Integrated Early Winter Pulse Protection (IEWPP) (“First Flush” Event) action ended on 02/05/2024. CDFW reported on the ITP Conditions of Approval (COA) currently in effect and whether they have been triggered. COA 8.4.2 Larval and Juvenile Longfin Smelt Entrainment Protection was not triggered by SLS 3. The table below is a summary and does not provide all the details related to each action or trigger. Rather, it is used to track the status of OMR Management Measures and Conditions Of Approval on a week-to-week-basis in the “Triggered?” column on the far right. For full descriptions, please see the OMR Guidance Document or ITP as needed.

### Proposed Action

OMR Management Measures	Requirement	Time Frame	Trigger	Triggered? *
Integrated Early Winter Pulse Protection (IEWPP) (“First Flush” Turbidity Event)	Reduce exports for 14 consecutive days so that the 14-day averaged OMR index for the period shall not be more negative than -2,000 cubic feet per second (cfs).	Dec 1 to Jan 31	(1) Running 3-day average of daily flows at Freeport >25,000 cfs; and (2) Running 3-day average of daily turbidity at Freeport ≥50 Nephelometric Turbidity Units (NTU <sup>1</sup> ); or (3) Real-time monitoring indicates a high risk of migration and dispersal into areas at high risk of future entrainment or a spent Delta Smelt (DS) has been collected in monitoring surveys.	Off-ramped. Implemented 1/23/24-2/5/24
OMR Management	Manage to a more positive OMR than -5,000 cfs.	From the onset of OMR management to the end.	N/A	Active, Triggered 1/1/24 due to salmonid presence in the Delta

<sup>1</sup> The current instrumentation measures turbidity in Formazin Nephelometric Units (FNUs).

OMR Management Measures	Requirement	Time Frame	Trigger	Triggered? *
Turbidity Bridge Avoidance ("South Delta Turbidity")	If the daily average turbidity at Bacon Island cannot be maintained less than 12 NTU, manage exports to achieve an OMR no more negative than -2,000 cfs until the daily average turbidity at Bacon Island drops below 12 NTU.	After the first flush or Feb 1 (whichever comes first) and until a ripe or spent female DS is detected or April 1 (whichever is first).	Average daily turbidity in Old River at Bacon Island (OBI) at a level of more than 12 NTU.	Active, Not Triggered
Larval and Juvenile Delta Smelt	Run hydrodynamic models and forecasts of entrainment, informed by the Enhanced Delta Smelt Monitoring (EDSM) or other relevant survey data to estimate the percentage of larval and juvenile DS that could be entrained. If necessary, manage exports to limit entrainment to be protective based on the modeled recruitment levels.	On or after March 15 of each year until off-ramp criteria are met.	If QWEST is negative AND larval or juvenile DS are within the entrainment zone of the pumps based on real-time sampling of spawning adults or young of year life stages.	Not active, following COA 8.5.2 under 2023 IOP
End of OMR Management	OMR criteria may control operations until June 30 (for DS and Chinook salmon), until June 15 (for steelhead/rainbow trout), or when the species-specific off ramps have occurred, whichever is earlier.	During OMR management to June 30, or when the DS temperature off ramp has been reached.	DS: when the daily mean water temperature at Clifton Court Forebay (CCF) reaches 77°F for 3 consecutive days	Not active

ITP Conditions of Approval

Condition of Approval	Requirement	Time Frame	Trigger	Triggered?
8.1.5.2 (Smelt Monitoring Team Risk Assessment)	Outlines contents for weekly risk assessments of DS and Longfin Smelt (LFS) required under 8.1.5 and 8.1.1.	Nov 1 <sup>st</sup> through June 30 <sup>th</sup> or until off-ramped by 8.8	N/A	Active
8.3.1 (Integrated Early Winter Pulse Protection)	Reduce south Delta exports for 14 consecutive days to maintain a 14-day average OMR index no more negative than -2,000 cfs, and convene the Smelt Monitoring Team (SMT) within one day of triggering. After maintaining a 14-day average OMR index no more negative than -2,000 cfs for 14 days, Permittee shall maintain a 14-day average OMR index no more negative than -5,000 cfs, initiating the OMR Management season.	Dec 1 to Jan 31	3-day running average daily flows at Freeport greater than, or equal to, 25,000 cfs, AND Three-day running average of daily turbidity at Freeport is greater than, or equal to, 50 FNU OR The SMT determines that real-time monitoring of abiotic and biotic factors indicates a high risk of DS migration and dispersal into areas at high risk of future entrainment.	Off-ramped

Condition of Approval	Requirement	Time Frame	Trigger	Triggered?
8.3.3 (Adult Longfin Smelt Entrainment Protection)	After December 1, if an Integrated Early Winter Pulse Protection (COA 8.3.1) has not yet initiated, Permittee shall reduce south Delta exports to maintain a 14-day average OMR index no more negative than -5,000 cfs and initiate OMR Management (Condition of Approval 8.3) if: Cumulative combined LFS salvage (total estimated LFS counts at the CVP and SWP salvage facilities beginning December 1 through February 28 exceeds the most recent Fall Midwater Trawl (FMWT) LFS index divided by 10, Real-time monitoring of abiotic and biotic factors indicates a high risk of LFS movement into areas at high risk of future entrainment, as determined by DWR and CDFW SMT staff.	Dec 1 through Feb 28 <sup>th</sup>	Salvage threshold for water year (WY) 2024 is 46.4.	Off-ramped as of 1/1/24 due to initiation of OMR season by COA 8.3.2

Condition of Approval	Requirement	Time Frame	Trigger	Triggered?
8.4.1 (OMR Management for Adult Longfin Smelt)	<p>The SMT shall conduct weekly risk assessments and decide whether to recommend an OMR flow requirement to minimize entrainment of adult LFS. The SMT may provide advice to restrict south Delta exports for seven consecutive days to achieve a seven-day average OMR index within three risk categories:</p> <p>Low risk: OMR between -4,000 cfs to -5,000 cfs  Medium risk: OMR between -2,500 cfs to -4,000 cfs  High risk: OMR between -1,250 cfs to -2,500 cfs</p>	Onset of OMR management through Feb 28 <sup>th</sup>	SMT recommendation based on weekly risk assessment.	Off-ramped as of 12/18/23 due to detection of larval LFS by Smelt Larva Survey (SLS) 12
8.4.2 (Larval and Juvenile Longfin Smelt Entrainment Protection)	If triggered, it will restrict south Delta exports for seven consecutive days in order to maintain a seven-day average OMR index no more negative than -5,000 cfs and convene the SMT to recommend an OMR flow limit between -1,250 and -5,000 cfs.	January 1 <sup>st</sup> through June 30 <sup>th</sup> or until the temperature off-ramp occurs	(1) LFS larvae or juveniles are found in four or more of the 12 Smelt Larvae Survey (SLS) or 20 mm stations in the central or south Delta, or (2) LFS catch per tow exceeds five larvae or juveniles in two or more of the 12 stations in the central or south Delta. The relevant stations are: 809, 812, 815, 901, 902, 906, 910, 912, 914, 915, 918 and 919.	Active, <b>not triggered by SLS 3 and temporarily off-ramped by COA 8.4.3</b>

Condition of Approval	Requirement	Time Frame	Trigger	Triggered?
8.4.3 High flow offramp for Longfin Smelt	If triggered, COA 8.4.1 and 8.4.2 are not required or would cease if previously required.	Throughout OMR management season	When river flows are (a) greater than 55,000 cfs in the Sacramento River at Rio Vista or (b) greater than 8,000 cfs in the San Joaquin River at Vernalis. If flows subsequently drop below 40,000 cfs in the Sacramento River at Rio Vista or below 5,000 cfs in the San Joaquin River at Vernalis, the OMR limit previously required as a part of Conditions of Approval 8.4.1 and 8.4.2 shall resume.	Active, <b>Triggered 2/6/24 by Rio Vista flows</b>
8.5.1 Turbidity Bridge Avoidance	Maintain daily average turbidity at OBI at a level of less than 12 FNU. If the daily average turbidity at OBI is greater than 12 FNU, Permittee shall restrict south Delta exports to achieve an OMR flow that is no more negative than -2,000 cfs until the daily average turbidity at OBI is less than 12 FNU.	After the first flush or Feb 1 until end of OMR management or until CDFW agrees that the action may be ended or modified.	Turbidity at OBI > 12 FNU	Active, Not Triggered

Condition of Approval	Requirement	Time Frame	Trigger	Triggered?
8.5.2 (Larval and Juvenile Delta Smelt Protection)	<p>If triggered, this Condition of Approval will restrict south Delta exports for seven consecutive days in order to maintain a seven-day average OMR index no more negative than -5,000 cfs and SMT members will meet to assess the risk of entrainment. The SMT may provide further advice to restrict exports in order to maintain an OMR index more positive than -5,000 cfs. In their assessment, SMT members will determine if risk of entrainment is low, medium, or high; subsequent OMR restrictions will be based on level of risk. Furthermore, if trigger (2) or (3) are met, this Condition of Approval will restrict south Delta exports to maintain a seven-day average OMR index no more negative than -3,500 cfs until the average Secchi depth is greater than 1 meter in the south Delta stations in a subsequent SLS or 20 mm survey. If average south Delta Secchi depth continues to be less than or equal to 1 meter in a subsequent SLS or 20mm survey, then Permittee shall continue restrictions and request a risk assessment by the Smelt Monitoring Team to determine if additional advice and subsequent restrictions are warranted and provide advice to WOMT.</p>	Nov 1st through June 30th or until off-ramped by 8.8.	<p>(1) When the five-day salvage of juvenile DS is greater than or equal to one plus the average prior three years' FMWT index (rounded down). The 2023 September through December FWMT index for DS was zero.</p> <p>Or (2) when a larval/juvenile DS is detected in SLS/20 mm</p> <p>Or (3) the 3-day average water temperature at Jersey Point is <math>\geq 12^{\circ}\text{C}</math> and Secchi from the most recent SLS/20 mm survey is <math>\leq 1\text{m}</math> averaged across the 12 stations (809, 812, 815, 901, 902, 906, 910, 912, 914, 915, 918, and 919)</p>	<b>Active, Triggered on 2/5/24</b> by SLS 3, implemented on 2/7/24



Condition of Approval	Requirement	Time Frame	Trigger	Triggered?
8.8 (End of OMR Management)	If triggered, OMR Management would be off-ramped for LFS and DS.	From the onset of OMR management through June 30th	Daily mean water temperature at CCF is >25° C for three consecutive days.	Active, Not Triggered
8.12 (Barker Slough Pumping Plant Longfin and Delta Smelt Protection)	Barker Slough Pumping Plant will reduce exports so the maximum 7-day average is <60 cfs.	From January 15 through March 31 in dry and critical water years for LFS, and from March 1st through June 30th for DS	Larval Smelt are detected at SLS Station 716 during the period identified for each species, and/or when recommended by the SMT.	Not active due to Below Normal water year type forecast

**Not active:** The COA could become active in this season, but the on-ramp conditions have not been met.

**Active, not triggered:** The on-ramping condition has been met, but the trigger condition has not been met.

**Active, triggered:** The trigger condition has been met.

**Off-ramped:** This COA could no longer become active in this season.

\* [Glossary](#)

### ***Current Operations & Outlook***

- Releases from Whiskeytown Dam on Clear Creek are currently 200 cfs with no anticipated changes for the week.
- Releases from Keswick Dam on the Sacramento River are currently 15,000 cfs with a range of 15,000 cfs to 20,000 cfs for flood management.
- Releases from Oroville Dam on the Feather River are currently 3,000 cfs with a range of 2,000 cfs to 12,000 cfs for flood management.
- Releases from Nimbus Dam on the American River are 3,500 cfs with a range of 3,500 cfs to 10,000 cfs for flood management.
- Releases from Goodwin Dam on the Stanislaus River are currently 1,500 cfs for flood management.
- Jones Pumping Plant is currently exporting 4,200 cfs with a range of 3,600 cfs to 4,200 cfs.
- The State facility is currently exporting 2,600 cfs with a range of 800 cfs to 4,000 cfs.
- Expected Daily OMR Index Values are between -2,000 cfs to -3,500 cfs.
- Sacramento River flows at Freeport range between 38,000 to 60,000 cfs.

- San Joaquin River flows at Vernalis range between 4,000 to 7,500 cfs.
- The Delta Outflow index ranges from 35,000 to 68,000 cfs.
- X2 is <56 km.
- Delta Cross Channel (DCC) gates closed on 11/27/2023 and are expected to remain closed for the season.

### ***Review of Environmental Conditions and Survey Updates***

CDFW delivered catch updates on relevant surveys to the SMT.

- SLS 3 was on the water from 2/5-2/7/24 and sampled all stations, detecting 273 larval LFS throughout the Delta. Larval LFS detection distribution is as follows: 2 LFS in San Pablo Bay, 41 LFS in the Napa River, 191 LFS in Suisun Bay, 29 LFS in the Confluence, 7 LFS in the Lower Sacramento River, 2 LFS in Barker Slough, and 1 LFS in one of the 12 South and Central Delta Stations.
  - SLS 4 is scheduled to be on the water from 2/20-2/22/24.
  - On 2/7/24, SLS 3 measured Secchi depth for station 918 that was inaccessible on 2/5/24. The average Secchi depth for the 12 Central and South Delta stations is 72cm.

USFWS provided catch updates on EDSM and Chipps Island Trawl.

- EDSM was on the water from 2/5-2/8/24 and completed all 35 sites.
  - EDSM detected a total of 9 DS, with 8 marked and 1 unmarked. The breakdown is as follows, 4 marked DS in the lower San Joaquin River, 2 marked DS in the lower Sacramento River, as well as 2 marked and 1 unmarked DS in Suisun Marsh.
  - Sampling began in the Western Delta stratum this week. EDSM detected 2 marked DS this week, 1 in the Western Delta at Carquinez Strait measuring 70mm fork length, the first DS detected in that stratum since 2017. The other DS measured 78mm and was captured in the Lower San Joaquin stratum about a mile north of Prisoner's Point.
  - EDSM detected 101 LFS last week with 44 LFS detected in Suisun Bay, 37 LFS detected in Suisun Marsh, and 20 LFS detected in the Lower Sacramento River.
  - The DS abundance estimate for the week of 2/5/24 is 18,057.
  - USFWS noted that the method for abundance estimate has been changed to account for Code 9 fish based on the recent detection of two Code 9 DS.
  - Sampling will continue this week from Monday - Thursday.
  - No sampling will occur the week of 2/19/24 due to an office retreat.

- Chipps Island Trawl was on the water from 2/5-2/9/24 and completed 40 tows and detected a total of 32 LFS.
  - Sampling this week is scheduled for Monday, Tuesday, Thursday, and Friday.
  - No sampling will occur the week of 2/19/24 due to an office retreat.

CDFW shared the following salvage update.

- CDFW reported that there were 4 DS, two were ad-clipped and two were VIE tagged, salvaged at the Tracy facility between 2/5-2/11/24.
  - On 2/9/24 a Wakasagi was collected in salvage at the Skinner facility.
  - SWP facility reported reduced fish counts on 2/5/24 and 2/6/24.
- CDFW sought clarification about additional DS being detected in salvage.
  - One additional marked DS was detected in salvage at CVP on 2/12/24.
- USFWS asked if there was data about the total number of DS that had been salvaged to date.
  - CDFW shared that the cumulative seasonal salvages of DS is 20 for the reporting period, and 24 including the one detected yesterday. DS to date, all from the CVP facility.

## **PART 2: Open Discussion on Species Status (Structured-Unstructured Time)**

### **DS**

- Reclamation suggested splitting risk determinations by Larvae and Adult DS. Reclamation suggested keeping risk Moderate in the OMR Corridor despite adult DS appearing in salvage and the lower San Joaquin River as there is not a complete turbidity bridge through the OMR corridor, hydrological conditions are favorable to DS and protections are in place which will likely help minimize risk to adult DS. Risk remains moderate for larvae based on suitable spawning temperatures and lower water clarity in the South Delta, but no detections of ripe adults or larvae. CDFW and DWR agreed with Reclamation that risk for Adults, Sub-adults and Larvae is Moderate.
- CDFW additional Secchi depth measurements from the Central and South Delta, which were measured on 2/12/24 and averaged to 73.1 cm. The Secchi measurement were to provide additional data to evaluate risk for DS and does not serve as an automatic trigger for COA 8.5.2. USFWS asked for a caveat to be added to the Executive Summary that would clarify that it is likely that additional DS will appear in salvage but that does not necessitate heightened risk due to favorable conditions.
- Reclamation asked the SMT if they wanted to make use of the DSM2 model which produces flow and velocity values at various locations. The model would mostly

be useful for adult DS given the PTM utilization for DS larvae. The SMT discussed the use of the DSM2 model but decided that because there was not a strong biological basis indicating clear relationships between velocity, flow, and DS behavior and that the DSM2 model would likely not be used under normal conditions.

- USFWS suggested that the SMT could use historical data to see if there is an application to interpret movement from LFS or DS adults as it relates to flow and velocity. A published paper (Gross et al. 2021: Modeling Delta Smelt distribution for hypothesized swimming behaviors) did not find that adult DS movements were predictable based on hydrodynamics given the uncertainty across modeled behaviors. A request was made for SMT members to come forward with any additional information that might be relevant to the use of DSM2 model for this team.

LFS

- CDFW noted that SLS 3 detected far fewer larval LFS in the Central and South Delta, and the centroid of LFS distribution seems to have shifted downstream. Given the favorable hydrological conditions, CDFW suggested keeping risk Low for all life stages in all regions. DWR agreed with CDFW's suggestion for risk.

### **PART 3: Live-edit Assessments**

#### ***Review of Tables 2 and 3 of the Fish and Water Operations Outlook***

The SMT reviewed and discussed updates to Tables 2a, 3b, and 3c of the Weekly Fish and Water Operations Outlook which include the latest dates, detections, conditions, and data.

Delta Smelt

- IWEPP was off-ramped after 2/5/24.
- Turbidity Bridge Avoidance is active but not triggered.
- Reclamation asked if the data for the average Secchi depth from SLS 3 is available. CDFW responded that the updated average Secchi depth is 71.9 cm as of 2/7/24 as measured by SLS 3.

LFS

- COA 8.4.2 was not triggered by SLS 3.

#### ***Proposed Action Weekly Evaluation of Delta Smelt, including Distribution, Abiotic Conditions, Risk Assessment Questions, and Executive Summary***

#### **Delta Smelt (DS)**

The SMT reviewed and discussed updates to the PA Assessment for DS, which include the latest dates, detections, conditions, data, and reflects the discussion documented in Part 2 above.

- Table 9
  - Updated with the 11 new DS detections that were VIE tagged or ad-clipped.
- Abiotic Conditions
  - QWEST is estimated to be between +6,000 and +20,000 cfs this week.

### ***ITP Longfin Smelt and Delta Smelt Risk Assessment***

The SMT reviewed and discussed updates to the ITP Risk Assessment for DS and LFS, which include the latest dates, detections, conditions, data, and reflects the discussion documented in Part 2 above.

### **Advice to WOMET and LFS Executive Summary**

- Smelt Monitoring Team (SMT) continues to recommend Old and Middle River Index (OMRI) be limited to no more negative than -3,500 cfs on a 7-day average under Condition Of Approval (COA) 8.5.2, until the average Secchi depth in the Central and South Delta is greater than 1m as measured by the next Smelt Larva Survey (SLS).
- COA 8.4.2 was not triggered by SLS 3 and is temporarily off-ramped by COA 8.4.3.
- QWEST values are anticipated to be between +6,000 cfs and +20,000 cfs.

### **Delta Smelt**

- Risk remains Moderate for larvae, sub-adults, and adults in the OMR corridor. Risk remains Low in all other regions for all life-stages.
- 2 marked DS were detected in the Lower Sacramento River by EDSM, one each on 2/6/24 and 2/8/24. 5 marked DS were detected in salvage (pre-expansion) between 2/6/24 and 2/12/24. One marked adult DS was detected in salvage (pre-expansion) in CVP on 1/27/24.

### **Longfin Smelt**

- Risk remains Low for all life stages in all regions.

### **Change in Exposure**

- Delta Smelt: Risk for larval DS in the OMR corridor is Moderate due to low Secchi depth.
- Longfin Smelt: No changes.

### **Life Stages Present**

- Delta Smelt: Larvae, Sub-Adults, Adults.
- Longfin Smelt: Larvae, Sub-Adults, Adults.

#### **Part 4: Additional Considerations/Discussion**

Agencies reported no items for elevation to WOMT.

#### **Next SMT Meeting**

The next SMT meeting will be held on Tuesday 02/20/2024 on Microsoft Teams.