

Smelt Monitoring Team – Tuesday, January 2, 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 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

- K&W to update meeting notes from 12/26/2023 to reflect the 01/01/2024 onset of Old and Middle River (OMR) Management season due to salmonid presence applies to both the Proposed Action (PA) and the Incidental Take Permit (ITP).
- USFWS to distribute graphs on Longfin Smelt (LFS) distribution that were shared during the 12/26/2023 meeting.

ANNOUNCEMENTS

- None

MEETING SUMMARY

PART 1: Updates on Water Operations and Biological Conditions Updates

Relevant Actions & Triggers

OMR Management season, when the OMR Index is restricted to no more negative than -5,000 cfs, has been triggered and is now in effect as of January 1, 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 is now in effect but is not triggered. The descriptions below are intended as summaries and do not provide all the details related to each action or trigger. 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 ¹); 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.	Active, Not Triggered
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
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.	Not active

¹ The current instrumentation measures turbidity in Formazin Nephelometric Units (FNUs).

OMR Management Measures	Requirement	Time Frame	Trigger	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
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 1st through June 30th or until off-ramped by 8.8	N/A	Active

Condition of Approval	Requirement	Time Frame	Trigger	Triggered?
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.	Active, Not 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 28th	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 28th	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 1st through June 30th or until the temperature offramp 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, Not Triggered

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	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, Not Triggered
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	Not active

Condition of Approval	Requirement	Time Frame	Trigger	Triggered?
8.5.2 (Larval and Juvenile Delta Smelt Protection)	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.	Nov 1st through June 30th or until off-ramped by 8.8	(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. Or (2) when a larval/juvenile DS is detected in SLS/20 mm Or (3) the 3-day average water temperature at Jersey Point is $\geq 12^{\circ}\text{C}$ and Secchi from the most recent SLS/20 mm survey is $\leq 1\text{m}$ averaged across the 12 stations (809, 812, 815, 901, 902, 906, 910, 912, 914, 915, 918, and 919)	Active, Not 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 $>25^{\circ}\text{C}$ for three consecutive days.	Active, Not Triggered

Condition of Approval	Requirement	Time Frame	Trigger	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

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 5,000 cfs with no anticipated changes for the week.
- Releases from Oroville Dam on the Feather River are currently 1,750 cfs with no anticipated changes for the week.
- Releases from Nimbus Dam on the American River are 2,000 cfs and may decrease to 1,750 cfs.
- Releases from Goodwin Dam on the Stanislaus River are currently 200 cfs with no anticipated changes for the week.
- Delta Cross Channel (DCC) gates closed on 11/27/2023 and are expected to remain closed for the season.
- Jones Pumping Plant is currently exporting 3,600 cfs with a range of 3,600 cfs to 4,200 cfs.
- The State facility is currently exporting 2,300 cfs, with a range of 1,500 cfs to 3,000 cfs.
- Expected Daily OMR Index Values are between -4,000 cfs to -5,000 cfs.
- Sacramento River flows at Freeport range between 13,000 cfs and 25,000 cfs.
- San Joaquin River flows at Vernalis range between 1,000 cfs to 1,750 cfs.
- The Delta Outflow index ranges from 11,000 to 24,000 cfs.
- X2 is greater than 81 km (surface EC of 2.64 mS/cm estimated to be = 84.6 km).

Review of Environmental Conditions and Survey Updates

CDFW delivered catch updates on relevant surveys to the SMT.

- FMWT surveyed 12/04-20/2023. Over the course of sampling, they detected 13 adult LFS and 75 juvenile LFS.
- The San Francisco Bay Study began its January survey on 01/02/2024.
- The Larval Entrainment Pilot Study began on 01/02/2024.
- SLS 13 sampled all stations between 12/26-28/2023. A total of 23 larval LFS were detected:
 - Confluence
 - 16 detections at Stations 520, 801, and 804
 - Fork length = 5-8 mm
 - Lower Sacramento River
 - 5 detections at Stations 703, 704, 705, and 707
 - Fork length = 6-8 mm
 - South and Central Delta
 - 2 detections at Stations 809 and 812
 - Fork length = 7 mm
 - Average Secchi Depth = 180 cm
 - 20 of the 23 LFS had yolk sacs.
- SLS 1 is scheduled to begin sampling the week of 01/08/2024.

USFWS provided catch updates on EDSM and Chipps Island Trawl.

- EDSM
 - Crews were on the water between 12/26-29/2023 and sampled 26 sites.
 - Zero DS were detected.
 - 3 LFS were detected in Suisun Bay and 28 LFS were detected in Suisun Marsh.
- Chipps Island Trawl
 - All 30 tows were completed between 12/26-29/2023.
 - Zero DS and 1 LFS were detected.

CDFW shared the following salvage update via email:

- No DS or LFS were salvaged at either facility from 12/29/2023 to 01/01/2024.

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

DS

- Reclamation did not have any items for discussion.
- CDFW did not have any items for discussion.

LFS

- CDFW suggested that due to more favorable hydrologic conditions expected this week, risk for adults and sub-adults in the lower Sacramento River and Confluence be reduced from moderate to low. In addition, they suggested maintaining moderate risk for larval LFS in the Sacramento River and Confluence given increased detections since last week. They also suggested increasing risk for larval LFS in the Lower San Joaquin River to moderate, based on detections at Stations 809 and 812 since last week, and OMRI expected to be between -5,000 and -4,000 cfs this week.
 - DWR agreed with the designation for adults and sub-adults now that the OMR Index will be no more negative than -5,000 cfs, which is assumed to be generally protective of fish in the Lower San Joaquin River. The primary concerning factor for larvae in the Lower San Joaquin River is the high X2 value considering that QWEST is expected to be positive or slightly negative.
 - DWR requested clarification to support the moderate risk level for larvae in the Lower Sacramento River considering the -5,000 cfs OMR Index being less negative than last week.
 - CDFW responded that the detection of more LFS larvae in the Lower Sacramento River indicates increased presence since last week's risk assessment. Hydrologic conditions are improving, however, SacPas shows an E:I ratio of <50% with a negative QWEST. Until those factors change, CDFW recommends maintaining a moderate risk level.
 - USFWS agreed with CDFW's recommendation of moderate risk given the anticipated E:I ratio, X2 location, and QWEST and recent detections. Furthermore, the OMR Index only recently became less negative and SLS may not account for the lower residence time of larvae because of the negative flow of water near the pumps.
 - CDFW ultimately agreed with DWR's recommendation of low risk for larval LFS in the Lower Sacramento River given improving hydrologic conditions, while increasing risk for larvae in the Lower San Joaquin River from low to moderate.
- DWR noted that positive QWEST values indicate a reduction in risk.
 - CDFW agreed that positive QWEST is beneficial, but if it is only positive for a day or two in the coming week it may not be enough to flush larvae

out from an area that is tidally influenced. It may take a sustained positive QWEST to move larvae from areas where they may be at increased risk.

- DWR agreed and requested including language stating a positive QWEST contributes to reduced risk.
- The SMT agreed on the following:
 - Moderate risk for larval LFS in Lower San Joaquin River.
 - Low risk for all other life stages in all other regions.

PART 3: Live-edit Assessments

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

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.

- Language was added to clarify salvage definitions based on discussions over the last few days via email.
- Turbidity is low but may increase later in the week.
- There was discussion on the calculation for X2.
 - Surface EC of 2.64 mS/cm is estimated to be 84.6 km, which represents the average of Sacramento River and San Joaquin River estimates.
- Expecting precipitation in the coming week but not enough to trigger “first flush” conditions.

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 WOMT and LFS Executive Summary

- No advice to WOMT.
- Based on increased detection and hydrological conditions, the risk of entrainment for LFS larvae from the Lower San Joaquin River region is moderate.
- Noted that OMR Management season has started this week based on salmonid presence, therefore the OMR Index will be no more negative than -5,000 cfs.

Delta Smelt and Longfin Smelt Risk Assessments

Delta Smelt

- No updates to this table.

Longfin Smelt

- Risk to sub-adult and adult LFS has been changed to low in all regions.
- DWR asked to include a statement about X2 being upstream of the Confluence to clarify the increased risk to larval fish in the Lower San Joaquin River.
- USFWS reminded the group of the graphs of larval and adult LFS distribution shared during the last meeting to help understand the relationship between X2 and the historical distribution of fish. The current value of X2 suggests that most of the fish would be predicted to be near the Confluence. For standardization purposes however, USFWS requested clarification of the location of the Confluence in km from the Golden Gate. USFWS suggested including graphs of years with high salvage as a reference in future risk assessments.

Changes in exposure risk from previous week

- Delta Smelt: No changes.
- Longfin Smelt: Change from low to moderate risk designation for larvae in the Central Delta. Low risk designation for sub-adults and adults in all regions.

Life Stages Present

- Delta Smelt: Sub-Adults and 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 01/09/2024 on Microsoft Teams.