

Smelt Monitoring Team – Tuesday, December 12th, 2023

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

- None

ANNOUNCEMENTS

- The SMT will be meeting the Tuesday (December 26) after Christmas (December 25).

MEETING SUMMARY

PART 1: Updates on Water Operations and Biological Conditions Updates

Relevant Actions & Triggers

USBR reported on anticipated Old and Middle River (OMR) management measures. The Integrated Early Winter Pulse Protection action became active on December 1, 2023 but not triggered. CDFW reported on the Incidental Take Permit (ITP) Conditions of Approval (COA) currently in effect and whether they have been triggered. CDFW noted that starting December 1, 2023, COA 8.3.1 (Integrated Early Winter Pulse Protection) and 8.3.3 (Adult Longfin Smelt Entrainment Protection) can be considered. 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
OMR Management	Manage to a more positive OMR than -5,000 cfs.	From the onset of OMR management to the end.	N/A	Not active
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 if: Cumulative expanded salvage, Dec 1st through Feb 28th, exceeds most recent Fall Midwater Trawl (FMWT) Index divided by 10, or SMT determines that there is a high risk of entrainment.	Dec 1 through Feb 28th	Salvage threshold for water year (WY) 2024 is 28.8 until updated with the December index.	Active, Not Triggered

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.	Not active
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.	Not active

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.	Not active
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 2022 September through November FMWT 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.	Not active

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 with no anticipated changes for the week.
- 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 November 27th.
- Jones Pumping Plant is currently exporting 3,600 cfs with a range of 3,600cfs to 4,200 cfs.
- The State facility is currently exporting 2,000 cfs, with a range of 1,000 cfs to 4,500 cfs.
- Expected Daily OMR Index Values are between -4,000 cfs to -8,000 cfs.
- Sacramento River flows at Freeport range between 9,000 cfs and 11,000 cfs.
- San Joaquin River flows at Vernalis range between 1,000 cfs to 1,500 cfs.
- The Delta Outflow index ranges between 4,000 cfs and 5,500 cfs.
- X2 is greater than 81 km.
- Tides are currently transitioning from Spring to neap tide. First Quarter moon on 12/19.

Review of Environmental Conditions and Survey Updates

CDFW delivered catch updates on relevant surveys to the SMT.

- SLS has begun sampling for the season, starting Monday 12/11. SLS has processed five stations with no smelt detections thus far. The average Secchi depth at the 12 central and south Delta stations was 166cm.
- DWR sought clarification about the status of the FMWT.
 - CDFW noted that they will continue to sample through the week but have experienced some delays due to fog and bridge closures.

USFWS provided catch updates on EDSM and Chipps Island Trawl.

- EDSM started phase one of sampling, adding the South Delta stratum.
 - EDSM sampled 32 sites from Monday-Thursday and detected 1 DS in the Lower Sacramento River stratum which measured 63mm in fork-length and was VIE tagged.
 - The abundance estimate for the week of 12/4/23 through 12/8/23 was 1,321 based on one detection last week.
- EDSM detected 1 LFS in Suisun Bay and 6 LFS in Suisun Marsh. All LFS were retained for either FCCL broodstock or sent to the DOP for further study.
 - This week's sampling has experienced delays due to fog and will be sampling Monday-Friday.
- Chipps Island Trawl sampled 30 tows and detected 2 LFS which were retained and transferred to FCCL.
 - Sampling this week will occur on Monday, Wednesday, and Friday.

CDFW provided a Salvage Update

- No osmerids detected. On 12/6/23 there was a reduced 10-minute count at the Skinner facility due to an unscheduled flow change.

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

DS

- USBR did not have any items for discussion.
- CDFW added that the environmental conditions are not yet conducive for DS migration.

LFS

- CDFW noted that there was the expectation of more LFS this week in surveys. Will continue tracking and expecting to see more fish in the following weeks.

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.

- Question 1: No first flush condition has been exceeded. Conditions will be monitored.
- DWR noted that the estimation of X2 based on surface electrical conductivity is unsupported >81km and should be interpreted with caution. While the 2.64 surface EC to 2 PSU bottom salinity relationship has been generally accepted in the deeper waters of the confluence (below 81 km from the Golden Gate Bridge), there has not been such acceptance for the shallower waters upstream.
- The SMT discussed the limitations of using the X2 estimator tool when X2 is above 81 km or below 56 km. DWR warned that when X2 is > 81 km and in the shallower upstream water, the relationship between the surface electrical conductivity and X2 location may be different than when X2 is < 81 km. CDFW acknowledged the limitation but emphasized the need for higher resolution X2 data than “> 81 km” to assess risk for LFS, and will continue to use the tool with a note addressing the limitations.
 - This is expected to be an ongoing discussion outside of SMT, as there is a need to better understand X2 > 81 km, both for assessing risk for LFS as well as managing operations to maintain X2 within the parameters of the PA and the SWP ITP.

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.
- Two adult LFS have been detected by Chipps Island Trawl during the week of 12/4.

Delta Smelt and Longfin Smelt Risk Assessments

Delta Smelt

- Risk of entrainment remains low for all life stages in all regions.

- DS Subadults and Adults routing risk: one marked adult DS was detected in the Lower Sacramento River by EDSM.

Longfin Smelt

- Risk of entrainment remains low for all life stages in all regions.
- X2 is ~93Km
- No survey detections and it is unlikely that LFS are present in the Central and South Delta.

Changes in exposure risk from previous week

- Delta Smelt: No changes.
- Longfin Smelt: No changes.

Life Stages Present

- Delta Smelt: Sub-Adults and Adults.
- Longfin Smelt: Sub-Adults and 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 12/19/2023 on Microsoft Teams.