

Smelt Monitoring Team

Meeting Summary

Tuesday, May 21, 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

- **SMT** members to identify and share topics for discussion during the end of season debrief with K&W by 5/24/24.
- **SMT** agreed to a weekly evaluation of the need to continue qualitative larval sampling to identify an appropriate time to finish for the season.
- **USFWS** agreed to check with relevant agency personnel regarding the information considered for answering Evaluation Question 8 in the Proposed Action Weekly Risk Assessment (see discussion below).

ADVICE TO WOMT

- No advice to WOMT. Regarding Reclamation's request for SMT feedback on a proposed future operations range of no more negative than -3,500 cfs OMRI on a 14-day average, the SMT agreed that if current favorable hydrological conditions continue, operations at no more negative than -3,500 cfs OMRI on a 14-day

average would likely not increase DS risk unless more DS are found in salvage or in survey detections in the South Delta. The SMT will re-evaluate risk next week based on conditions at that time.

ANNOUNCEMENTS

- Reclamation requested time to consider Delta Smelt risk under a proposed future operations range of no more negative than -3,500 cfs OMRI on a 14-day average.

MEETING SUMMARY

PART 1: Updates on Water Operations and Biological Conditions Updates

Relevant Actions & Triggers

- CVP and SWP operators are targeting an OMRI range of -1,200 cfs to +1,500 cfs under COA 8.17, the 2024 IOP, and the 3/29/24 Director’s decision.

CDFW reported on the ITP Conditions of Approval (COA) currently in effect and whether they have been triggered. Reclamation reported on the Old and Middle River (OMR) management measures currently in effect and whether they have been triggered. COA 8.17 became active on 4/10/24 and continues to be triggered limiting SWP exports to be within 4:1 I/E ratio with Vernalis flows or limit the State’s share of combined exports of 1,500 cfs for health and safety minimum per the 2020 SWP ITP. CVP operations are currently following the 2024 Interim Operations Plan (IOP) and the 3/29/24 Director’s decision. The table below summarizes the status of OMR Management Measures and Conditions of Approval on a week-to-week-basis through updates in the “Action Status” column on the far right. For full descriptions of OMR Management Measures and Conditions of Approval, please see the OMR Guidance Document or ITP.

Proposed Action

OMR Management Measures	Requirement	Time Frame	Trigger	Action Status*
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.	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
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.	Off-ramped

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

OMR Management Measures	Requirement	Time Frame	Trigger	Action Status*
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.	Active, Not Triggered
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	Active, Not Triggered

ITP Conditions of Approval

Condition of Approval	Requirement	Time Frame	Trigger	Action Status
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 st through June 30 th or until off-ramped by 8.8	N/A	Active

Condition of Approval	Requirement	Time Frame	Trigger	Action Status
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 on 2/5/24
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 th	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	Action Status
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 th	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 st through June 30 th 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, Not Triggered by 20-mm Survey 5

Condition of Approval	Requirement	Time Frame	Trigger	Action Status
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, 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	Off-ramped

Condition of Approval	Requirement	Time Frame	Trigger	Action Status
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 $\geq 12^{\circ}\text{C}$ 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)</p>	Active, Not Triggered

Condition of Approval	Requirement	Time Frame	Trigger	Action Status
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.	LFS: Off-ramped. DS: Not active due to Above Normal water year type forecast as of 5/14/24.
8.17 (Export Curtailments for Spring Outflow)	Reduce exports from April 1 st to May 31 st each year to achieve the SWP proportional share of export reductions established by the ratio of Vernalis flow to combined CVP and SWP exports, scaled by water year type, to provide incidental spring outflow.	April 1 st through May 31 st	The three-day average Delta outflow is less than 44,500 cfs	Active, Triggered on 4/10/24

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 625 cfs with a weekly range of 250 cfs to 625 cfs for a salmon attraction pulse.
- Releases from Keswick Dam on the Sacramento River are currently 6,500 cfs with a range of 6,500 cfs to 12,000 cfs, for a spring pulse flow.
- Releases from Oroville Dam on the Feather River are currently 6,950 cfs with a range of 4,000 cfs to 8,000 cfs for the week.
- Releases from Nimbus Dam on the American River are 4,500 cfs with a range of 3,500 cfs to 6,000 cfs for the week.

- Releases from Goodwin Dam on the Stanislaus River are currently 1,500 cfs with a range of 600 cfs to 2,500 cfs for a spring pulse flow.
- Jones Pumping Plant is currently exporting 1,800 cfs with an anticipated range of 1,800 cfs to 3,500 cfs.
- The State facility (SWP) is currently exporting 600 cfs with an anticipated range of 600 cfs to 1,000 cfs.
- Expected Daily OMR Index Values are between +1,500 cfs to -1,200 cfs.
- Sacramento River flows at Freeport range between 18,000 to 25,000 cfs.
- San Joaquin River flows at Vernalis range between 6,000 to 10,000 cfs.
- The Delta Outflow index ranges from 20,000 to 35,000 cfs.
- X2 is 63 km.
- Delta Cross Channel (DCC) gates closed on 11/27/2023 and are expected to remain closed over the upcoming holiday weekend due to high flow on the Sacramento River.

Review of Environmental Conditions and Survey Updates

CDFW delivered catch updates on relevant surveys to the SMT.

- 20-mm Survey 2 and 3 are being processed and there are no new updates on catch.
- 20-mm Survey 4 was on the water from 4/29/24-5/2/24 and there are 162 new LFS detections with the majority from the Napa River.
- 20-mm Survey 5 was on the water from 5/13/24-5/16/24 and there are 217 new LFS detections with the majority from Suisun Bay and Suisun Marsh. There was 1 newly confirmed larval DS detection from 5/13/24 at station 914 in the South Delta near Mildred Island.
- 20 mm survey 6 will be on the water this week from 5/27/24-5/30/24.

USFWS provided catch updates for EDSM and Chipps Island Trawl.

- EDSM was on the water last week from 5/13/24-5/16/24 and sampled 33 sites. There are 14 new DS detections from Suisun Bay and Suisun Marsh and Sacramento Deep Water Ship Channel.
 - So far there are 457 total LFS detections from the week of 4/22/24 and 70 total LFS detections from the week of 4/29/24. The majority of detections are from Suisun Bay, Suisun Marsh, and Cache Slough.
 - Processing of samples from weeks 39-42 is ongoing.
 - EDSM is on the water this week, sampling from 5/20/24-5/23/24.

- The most recent DS abundance estimate is 3,578,084 from the week of 4/15/24.
- Chipps Island Trawl was on the water on 5/13/24- 5/15/24, sampled 30 tows and did not detect any DS or LFS.
 - Chipps Island Trawl is on the water this week on 5/20/24, 5/22/24, and 5/24/24.

CDFW shared the following salvage update.

- No DS or LFS were detected in salvage or reported in qualitative larval sampling this week.
- No operational variances were reported.

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

Reclamation prompted a discussion about when qualitative larval sampling should end for the season based on rising water temperature and staff feedback.

- Reclamation shared the message from Tracy Fish Collection Facilities that warm water species like Striped Bass are becoming more common at larval sampling stations which could indicate that DS are moving out of warmer waters and asked the SMT about the timing for ending qualitative larval sampling for the season.
 - CDFW conveyed that ending sampling now would be earlier than previous years. CDFW shared a table showing the following temperatures and dates when sampling ended over the past four years:
 - 6/15/2020 with water temperature at Clifton Court Forebay (CCF) measuring 22.55°C.
 - 5/31/2021 with water temperature at CCF measuring 21.97°C.
 - 6/7/2022 with water temperature at CCF measuring 22.3°C.
 - 6/6/2023 with water temperature at CCF measuring 20.93°C.
 - The water temperature at CCF has been dropping following a warming trend earlier this month, with temperatures over the last few days measuring:
 - 5/16/24 – 19.63°C
 - 5/19/24 – 19.27°C
 - 5/20/24 – 18.82°C
 - CDFW suggested that it was likely that temperatures had risen due to low exports from the CVP and SWP, but are now falling again as exports increase. CDFW suggested continuing larval sampling based on the new detection of a DS larvae in the South Delta, most DS being caught are still

less than 20mm, and the recent temperature trends. suggest continuing sampling. USFWS agreed with CDFW and also noted the importance of collecting qualitative larval sampling data.

- The SMT agreed to a weekly evaluation of the need to continue qualitative larval sampling to identify the appropriate time to finish for the season keeping in mind that temperature can be variable at this time of year, exports are now increasing, and in the past few years CCF temperature has been around 22°C when sampling ended.
- Reclamation asked CDFW if, given the increased Wakasagi detections this year, there had been larval Wakasagi detections in qualitative larval sampling, and if there was a recent shift in life stage observed.
 - CDFW responded that there had not been any Wakasagi detections at the Skinner facility and added that there had been <30mm Wakasagi detections at the federal facility. No other larval osmerids have been detected in larval sampling this year.

DS

- Reclamation suggested keeping risk Low for DS for all life stages in all regions. Despite the single DS detection in the Central Delta, the majority of DS seem to be outside of the zone of entrainment.
 - USFWS, CDFW, and DWR agreed with Reclamation's proposal.

LFS

- CDFW suggested keeping risk Low for all life stages in all regions based on LFS distribution and a forecasted OMRI of no more negative than -1,200 cfs.
 - DWR agreed with CDFW's proposal.

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.

DS

- Reclamation noted that they would begin reporting Clifton Court Forebay temperature at it approaches 25°C. As of 5/19/24 the temperature was 19.2°C.
- CDFW suggested adding the recent larval DS detection from the South Delta on 5/13/24 to Table 1.
 - Reclamation made the suggested change.

LFS

- CDFW noted that there were no LFS detected in the South and Central Delta.

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.

- Table 7
 - 6 new larval DS detections.
- Other Environmental Conditions
 - OMR Index values are expected to range between -1,500 and +1,200.
 - QWEST was +10,700 cfs as of 5/20/24.
- Evaluation Questions
 - 7) Reclamation noted that the first time they requested feedback on the 3/29/24 Director’s decision they added language to the evaluation question sections regarding the implications of that decision on risk for SMT species of concern. Reclamation asked the SMT if they would continue to like to include that language.
 - CDFW shared that for the SWP, actions are still controlled by COA 8.17 and sought clarification about the controlling action for the CVP, whether it was the Director’s decision on 3/29/24 or the 2024 IOP. Reclamation clarified that because there have been no other decisions, the Director’s decision from 3/29/24 is still controlling and noted that the CVP has completed the export curtailment action under the 2024 IOP as of 5/14/24. CDFW suggested removing the reference to the 2024 IOP at the end of this paragraph as it is no longer controlling (e.g., no longer limiting the risk within the entrainment zone).
 - SMT agreed to add language specific to both the CVP and SWP respectively.
 - 8) *Based on real-time spatial distribution of Delta Smelt and currently available turbidity information, should OMR be managed to no more negative than -3,500?*
 - CDFW asked whether a “no” to this evaluation question was still correct in light of the recent detections of a juvenile DS in salvage on 4/29/24 and a larval DS in the South Delta on 5/13/24.
 - The SMT discussed whether the Secchi depth was the only metric for triggering larval and juvenile DS entrainment protection, or whether other available information, including recent detections, should be considered.

CDFW referred the SMT to Technical Note 47 as a reference, and shared that their understanding was that abiotic conditions and survey detections could both be considered for this action.

- USFWS said they would confer with relevant agency personnel and provide clarification and an answer to the SMT. In the meantime, the SMT agreed not to answer yes or no to this question and provide the technical details relevant to the question.

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.
- Condition of Approval (COA) 8.17 Export Curtailment for Spring Outflow continues to be triggered and limit SWP exports to be within 4:1 I/E ratio with Vernalis flows or limit the State's share of combined exports of 1,500 cfs for health and safety minimums per the 2020 SWP ITP. The CVP will follow the Director's decision established on 3/29/24.
- OMRI range this week is +1,500 cfs to -1,200 cfs this week due to COA 8.17 and the Director's decision on 3/29/24.

Delta Smelt

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

Longfin Smelt

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

Change in Exposure

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

Life Stages Present

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

PART 4: Additional Considerations/Discussion

The SMT discussed the Proposal to Operate to an OMRI no more negative than -3,500 cfs on a 14-day average

- Reclamation requested feedback from the SMT on the proposal to operate to an OMRI no more negative than -3,500 cfs on a 14-day average following the conclusion of the Export Curtailment for Spring Outflow action undertaken for salmonid protection.
 - Reclamation clarified that the proposal would be implemented as of 5/28/24.
- CDFW asked what the expected QWEST would be with a -3,500 cfs OMRI and when the Delta Cross Channel (DCC) gates would open. Reclamation responded that will depend heavily on San Joaquin River flows and estimated an approximate QWEST of around +4,000. Reclamation noted that the DCC gates would open once Sacramento River flows at Freeport had dropped below 20,000 cfs, but that they would likely stay closed at least through the Memorial Day weekend.
- CDFW suggested that if current favorable hydrological conditions continue, the proposal to operate at no more negative than -3,500 cfs OMRI on a 14-day average would likely not increase DS risk unless more DS are found surveys in the South Delta or in salvage. SMT members agreed.
- Some discussion ensued as to how to convey this discussion back to management at Reclamation. It was agreed that these notes, prepared by Kearns & West and verbal communication by Reclamation members on the SMT members to their management would be appropriate and satisfactory.

Agencies reported no items for elevation to WOMT.

Next SMT Meeting

The next SMT meeting will be held on Tuesday 05/28/2024 on Microsoft Teams.