

Smelt Monitoring Team – Tuesday, January 16, 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

- DWR to produce new PTM runs prior to the next SMT meeting on 1/23/2024.

ANNOUNCEMENTS

- N/A

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 as of 12/1/23, 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, and triggered on 1/10/24

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 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.	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 due to Below Normal water year type forecast

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 1,750 cfs with no anticipated changes for the week.
- Releases from Goodwin Dam on the Stanislaus River are currently 1,000 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 1,800 cfs, with a range of 1,800 cfs to 3,500 cfs.
- Expected Daily OMR Index Values are between -4,000 cfs to -5,100 cfs.
- Sacramento River flows at Freeport range between 14,000 cfs and 30,000 cfs.
- San Joaquin River flows at Vernalis range between 1,750 cfs to 2,250 cfs.
- The Delta Outflow index ranges from 10,000 to 30,000 cfs.
- X2 is around 75 km.

Review of Environmental Conditions and Survey Updates

CDFW delivered catch updates on relevant surveys to the SMT.

- FMWT
 - SLS 1 was on the water 1/8 to 1/10 and detected 45 new LFS since the last meeting, with 21 detections in Montezuma Slough ranging between 6-9mm, 16 detections in the Confluence stratum with lengths between 6-8mm, and 8 detections in the Sacramento River system with lengths between 6-7mm.
 - SLS 2 is scheduled to sample next week between 1/22-1/24.

USFWS provided catch updates on EDSM and Chipps Island Trawl.

- EDSM sampled last week Tuesday-Friday at 35 sites and were able to make up sites missed last week due to sea lion presence.
 - No DS were detected and the abundance estimate is still 1321 based on the last non-zero detections.
 - EDSM detected 14 LFS in Suisun Bay, and 209 LFS in Suisun Marsh.
 - A DS captured in September and was genetically determined to be a DS-Wakasagi hybrid. This is the first verified hybrid captured in sampling.
 - DWR asked what stratum the hybrid was detected in.
 - USFWS shared that the detection occurred in Suisun Bay/
 - USFWS shared that hybrid species maintain Federal ESA protections and thus was included in the catch reports.
 - CDFW shared that they would report back to the group on whether the CESA protects hybrids in a similar manner and asked the SMT if DS-Wakasagi hybrids are fertile.
 - USFWS did not know about fertility but noted that there is language in the ESA that allows protections to species that are indistinguishable from one another, and this applies to hybrid species. But would not weigh in on CESA's treatment of hybrid species.
 - DWR shared that the Benajmin et al 2018 paper found genetic hybrids in the Delta and also found that there were back crosses thus indicating that the hybrids could be fertile.
 - USFWS shared that California Tiger Salamander hybrids are protected under ESA. Additionally, genetic testing is an evolving field and results from these tests could be changed in the future so we should not speak in absolutes.
 - USFWS noted that this would ultimately be a question for regulators to decide.

- USFWS shared that EDSM detected a DS 8 miles downstream of the Rio Vista marina on the morning of 1/16/24, and the fish was ad clipped, indicating it was part of the ongoing DS supplementation efforts (1/10/24 release group).
- Chipps Island Trawl completed all 30 tows and detected no DS or LFS.
 - Normal Chipps Island Trawl sampling will continue this week.

CDFW shared the following salvage update

- No operational variances were reported and no osmerids were detected in salvage.

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

DS

- Reclamation did not have any items for discussion.

LFS

- CDFW shared that it was good to see a positive QWEST value as discussed last week and noted that CDFW's perspective on risk level and recommendation to WOMT remains the same.
- DWR shared that looking ahead to the coming weekend and precipitation could lead to a QWEST of +5,000 cfs. DWR shared that they would like to discuss how changes in hydrology would inform risk level given the continuing positive QWEST levels and asked if the SMT would be comfortable with a -5,000cfs OMR.
 - CDFW shared that their perspective is that the risk level should remain the same given the variability in hydrology. CDFW also noted that, COA 8.4.3, the high flow offramp, would automatically off-ramp COA 8.4.2 if the hydrology improved significantly.
 - DWR shared that given the forecasted QWEST values, risk will decrease later in the week. The new PTM runs do not reflect possible precipitation and still only show 7% difference in entrainment between -5,000 cfs OMR and -3,500 cfs OMR. DWR suggested updated PTM modeling once the forecast for the weekend is solidified.
 - CDFW noted they would like to look at an updated PTM run and the assumptions being made in the model for the amount of rain in the PTM runs.
 - DWR shared that precipitation is not a direct input into the DSM 2 model but the elevated flows will impact entrainment in the model. QWEST is not a PTM model input; however elevated flows are inputs.

- CDFW clarified that the assessment today (1/16) will reflect the current risk and noted that a PTM run would help with next week's risk assessment in terms of risk. CDFW noted a desire to have a positive QWEST for a sustained period to support adequate flows to help push fish downstream in the system, and that risk would remain moderate until this weekend unless there is a high flow off-ramp.
- DWR noted that there has been a positive QWEST for nearly a week reaching up to +1,500 cfs and expressed the opinion that the SMT should be responsive to improving hydrology and even act in real-time given the circumstances considering that most larvae appear to be in lower San Joaquin River and South Delta. However, given the uncertainty of the extended forecast, DWR agreed to keep the current recommendation.
- DWR asked for greater clarity around flow criteria associated with elevated entrainment risk. The team was asked if they would like to convene to separately discuss flow criteria associated with elevated entrainment risk. USFWS shared that there are post season meetings at the end of the year to discuss these types of questions and that during the management season, agencies are busy managing real-time operations.
- DWR shared that they would be able to produce PTM runs by Monday 1/22 so the team could have time to review them in advance of the next SMT meeting.

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.

- Abundance estimate
 - Will leave out the newly reported DS until next week.
- DS Life Stage
 - Remove Juveniles.
- Table 8 Preliminary Detections
 - 1 DS detected by EDSM.
- Table 7
 - 1 DS detected.
- Releases
 - Release 4 updated to "complete".

- Table 9
 - 1 DS detected.
- Abiotic Conditions
 - Turbidity conditions updated to reflect precipitation.
- Executive Summary
 - Delta Smelt detection date updated to reflect 1 DS detection in the Lower Sacramento River stratum.
- USFWS suggested pointing to DS distribution based on X2 could be done in the Executive Summary and asked if the current count is referring to any particular life stages.
 - Reclamation shared that the values in the Executive Summary are for all DS life-stages that are present.
 - USFWS noted that in past years DS distribution upstream can be determined based on X2.
 - Reclamation shared the Historical Trends section points to the relevant research citations where applicable. Reclamation offered to include more historical information about DS distribution in the Executive Summary.
 - USFWS noted a preference to include information in the Executive Summary reflecting the historical centroid distribution of DS in relation to X2 based on Sommer et al.
- Reclamation updated the Delta Smelt section to include language saying: Based on historical data, the centroid of distribution may have shifted downstream with shifting X2 (Sommer et al., 2011).
 - Reclamation asked if the upstream shift of DS would have occurred this year given the hydrological conditions thus far.
 - CDFW responded that there is uncertainty due to the lower detections. CDFW's opinion is that the population scale migration behavior is assumed to not have begun until first flush conditions are met. CDFW is comfortable with the proposed language from USFWS.

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

- Continue State's share of OMRI limit to -3,500 cfs on a 7-day average.

- Structural edits made to the Executive Summary; values updated to reflect the most current values.

Delta Smelt and Longfin Smelt Risk Assessments

Delta Smelt

- No updates to this table.
- Updated to reflect the recent DS detection.

Longfin Smelt

- No updates to this table.
- X2 estimated to be around 75km
- In the lower Sacramento River and Confluence region QWEST may be as negative as -600 cfs but likely to remain positive with the forecasted precipitations.
- Changes in exposure risk from previous week
- Delta Smelt: No changes.
- Longfin Smelt: No changes, risk for LFS larvae in the Central Delta remains “Moderate”.
- COA 8.4.2 was triggered on 1/10/2024 and the State’s share of the OMRI has been limited to -3500cfs.

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 01/23/2024 on Microsoft Teams.