

Smelt Monitoring Team Meeting Summary Tuesday, January 30, 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

- Reclamation and DWR will notify salvage facilities to begin qualitative larval sampling as soon as possible given water temperatures and other hydrological conditions.

ADVICE TO WOMT

- Continued from last week, the “Integrated Early Winter Pulse Protection” action under both the Federal Biological Opinions and State ITP Conditions of Approval (COA) 8.3.1 were “triggered” on Sunday 1/21. As a result, CVP and SWP shall continue to reduce their combined exports for the 14 consecutive day period between 1/23/24 through 2/5/24 so that the 14-day averaged OMRI shall be no more negative than -2,000 cfs during this period.
- Although not controlling, SMT continues to recommend the State’s share of OMRI be limited to -5,000 cfs on a 7-day average under COA 8.4.2, Larval and Juvenile Longfin

Smelt Protection. This may be off-ramped by COA 8.4.3 High Flow Offramp later this week.

- Based on the detection of a Delta Smelt in salvage, historical salvage timing, active migration (based on hydrological conditions and historical patterns), and suitable spawning temperatures, risk of entrainment in the OMR corridor has increased from Low to Moderate. Risk of entrainment remains Low for fish outside of the OMR corridor.

ANNOUNCEMENTS

- The SMT agreed to cover tables 2 and 3 during the SMT call pending Reclamation and SaMT's approval.

MEETING SUMMARY

PART 1: Updates on Water Operations and Biological Conditions Updates

Relevant Actions & Triggers

Integrated Early Winter Pulse Protection (IEWPP) ("First Flush" Event) was triggered on 1/21/2024 due to a running 3-day average daily flow at Freeport of >25,000 cfs and a running 3-day average turbidity at Freeport >50 NTU/FNU. The 14-day average OMRI for the following 14 days shall be no more negative than -2,000 cfs. 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 remains triggered but is not controlling. 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, Triggered on 1/21/24 due to elevated flows and turbidity and remains in effect through 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.	Not active; will become active automatically on February 1.

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 1 st through June 30 th 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, Triggered on 1/21/24 due to elevated flows and turbidity; remains in effect through 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	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 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, triggered on 1/10/24 by SLS 1 and again on 1/25/24 by SLS 2

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, 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. Will become active on February 1

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 $\geq 12^{\circ}\text{C}$ 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	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

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 a range of 5,000 to 40,000 cfs for flood management.
- Releases from Oroville Dam on the Feather River are currently 1,750 cfs with a range of 1,750 to 15,000 cfs for flood management.
- Releases from Nimbus Dam on the American River are 1,750 cfs with a range of 1,750 to 3,000 cfs for flood management.
- Releases from Goodwin Dam on the Stanislaus River are currently 1,500 cfs for flood management with no anticipated changes for the week.
- Jones Pumping Plant is currently exporting 1,800 cfs with a range of 1,800 cfs to 3,600 cfs.
- The State facility is currently exporting 2,000 cfs with a range of 800 cfs to 2,500 cfs.
- Expected Daily OMR Index Values are between -1,800 cfs and -2,200 cfs.
- Sacramento River flows at Freeport range between 30,000 to 75,000 cfs.
- San Joaquin River flows at Vernalis range between 2,500 to 6,000 cfs.
- The Delta Outflow index ranges from 35,000 to 80,000 cfs.
- X2 is around 61 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 2 was on the water last week 1/22-1/25 and sampled all stations detecting a total of 443 larval LFS.
 - Detections occurred in the following locations: 27 LFS in the Napa River, 194 LFS in the Suisun Bay and West region, 183 LFS in the Confluence, 15 LFS in the lower Sacramento River, and 24 LFS in five of the 12 Central and South Delta stations.
 - SLS 3 is scheduled to be on the water next week from 2/5-2/7/24.

USFWS provided catch updates on EDSM and Chipps Island Trawl.

- EDSM sampled last week Monday-Thursday at all 35 sites.
 - EDSM detected a total of 5 DS, 2 ad-clipped DS and 1 unmarked DS in Suisun Marsh, 1 ad-clipped DS in the Deep Water Shipping Channel, and 1 VIE-tagged DS in the Lower Sacramento River. EDSM also detected a total of 273 LFS, with 265 in Suisun Marsh, 4 in Suisun Bay, and 4 in the Lower Sacramento River.
 - The DS detected last week of uncertain origin was genetically confirmed to be an ad-clipped hatchery DS with a bad ad clip.
 - The abundance estimate for the week of 1/30/24 is 6,135.
 - Sampling will continue Monday-Friday although some sites were missed due to weather.
 - FCCL notified USFWS that they are at capacity for LFS broodstock. DS broodstock will continue to be brought to FCCL.
- Chipps Island Trawl was on the water from 1/22-1/26/24 and completed 30 tows and detected a total of 15 LFS.
 - This week sampling will increase to 4 days a week (Monday, Tuesday and Thursday, Friday) to accommodate gear efficiency sampling.
- CDFW asked if the 5 DS were in addition to the 1 from Montezuma Slough.
 - USFWS clarified that the total included the DS mentioned last week caught on 1/22 in Suisun and Montezuma sloughs.

CDFW shared the following salvage update.

- 1 ad-clipped DS was detected in salvage at the Tracy Fish Collecting Facility on 1/27 and measured 72mm.
- There was a planned salvage outage from 10-11:15am on 1/24 for an inspection of the secondary channel traveling screen.

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

DS

- SMT discussed recent observations about changes in turbidity and implications for Delta Smelt.
 - USFWS shared that Frank's Tract and Clifton Court Forebay have shown turbidity >12 FNU.
 - CDFW reminded the SMT that COA 8.5.1, Turbidity Bridge Avoidance, will become active starting 2/1 and that IEWPP will limit OMRI to -2,000 cfs if triggered; there is no high flow offramp for this the Turbidity Bridge Avoidance Action.
 - A question was asked regarding the timing of operational changes. If Turbidity Bridge Avoidance thresholds were reached on 2/1, when would the management actions for Turbidity Avoidance begin given IEWPP. DWR clarified that typically operational changes begin the day after a management measure or COA is triggered. DWR clarified that if turbidity is above the 12 FNU on 2/1 (day 0) then management actions (-2,000 cfs OMRI for five consecutive days) will be implemented between days 1-3 i.e. between 2/2-2/4/24. If the facility is operating for IEWPP then the Turbidity Bridge Avoidance is just an overlapping standard. DWR also noted that there would be 5 days of management at OMIR of -2,000 cfs and if turbidity still remained above 12 FNU at OBI, there would need to be further discussion about what would happen after.
- Reclamation asked about how water temperatures would impact DS movement given temperature at Jersey Point is approximately 12°C. CDFW noted that turbidity in parts of the lower San Joaquin River is high and water temperature at certain regions in the Delta is above 12°C indicating that DS are likely making localized movements in the area and spawning soon. When thinking about risk to DS can think about larval DS risk as well.
- Reclamation noted that although environmental conditions are currently favorable for DS and turbidity is not currently impacting the south Delta around OBI, fish are migrating and there is higher turbidity leading into the OMR Corridor. Thus there is increased risk to the species. Reclamation also noted the recent salvage and proposed increasing risk to DS in the OMR Corridor to Moderate.
- There was more discussion about the implications of the Clifton Court Forebay gauge showing turbidity values >12FNU/NTU. DWR noted last week's elevated turbidities coincided along with the higher flows in the SJR and Sacramento River and that turbidity is likely moving south. Turbidity is dynamic and given hydrological conditions, DWR was leaning towards keeping risk Low. Due to unknowns around the behavior of cultured DS in the wild and the wide dispersal of fish from the 1/10/24 large-scale release, DWR cautioned against reading too much into the ad-clipped fish detected in salvage. Had the salvaged DS been wild it would have been more indicative of Moderate risk and population scale-migration.

- Reclamation agreed with DWR that it was difficult to make conclusions from a single DS in salvage. But one fish in salvaged suggests there are more at risk of entrainment and therefore it is hard to justify keeping risk Low. USFWS suggested it may be premature to think about movement differences between hatchery and wild DS as hatchery and wild DS are treated the same under the current metrics used for recommendations. USFWS agreed to the suggestion to change DS risk from Low to Moderate within the OMR Corridor, and suggested a caveat that there is some uncertainty. USFWS reminded the SMT that risk denotes risk of entrainment and not salvage but the mere existence of salvage indicates that there is a higher entrainment risk.
- Finally, USFWS expressed concern that if the risk level is not raised and a storm elevates SJR turbidity past the 12FNU threshold, it will be more difficult to move from Low to High risk than from Moderate to High. CDFW agreed with USFWS' assessment and agreed with Reclamation's suggestion to increase the risk level from Low to Moderate within the OMR Corridor. CDFW added that conceptually, First Flush conditions cue DS upstream migration to prepare for spawning. Increased turbidity promotes localized movements and increased water temperature may cue DS to start spawning. DWR agreed with the SMT that risk should be changed from Low to Moderate in the OMR corridor.
- SMT agreed to change the risk for DS in OMR Corridor from Low to Moderate.

LFS

- CDFW shared that there are increased LFS detections in the South and Central Delta from SLS 2 compared with SLS 1. CDFW thinks current hydrological conditions will push LFS larvae will be pushed out of the SJR towards the Confluence and larval detections in that region support that. Detections of yolk-sac larvae in the Lower Sacramento River indicate LFS are likely newly hatched, and we are likely approaching peak hatching season. As long as QWEST remains positive, larvae will continue to be pushed West. CDFW asked DWR, what date Rio Vista flows are likely to hit 55,000 cfs, which would trigger COA 8.4.3. High Flow offramp. DWR responded it's likely to occur in early February, possibly 2/3/24, but that it is still too early for a flow prediction. CDFW proposed keeping the risk level Low for LFS larvae. DWR agreed with the assessment given the hydrological conditions and current triggers.
- CDFW and Reclamation noted water temperatures in the Delta are roughly 2°C warmer than this time last year, and thus DS spawning is likely to occur sooner than the previous year. The SMT agreed to request salvage facilities to begin qualitative larval sampling as soon as possible.

PART 3: Live-edit Assessments

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.

- Questions
 - 2) Updated information on DS detections, First Flush conditions indicating migration beginning, and turbidity conditions in the OMR corridor.
 - Risk of entrainment in the OMR corridor has likely increased from Low to Moderate.
 - CDFW suggested removing the word “likely” from the previous bullet.
 - Added “... low daily turbidity in portions of the OMR Corridor are expected to reduce the chance that migration DS will move into areas with a high likelihood of entrainment.”
 - Added “...and suitable spawning temperatures,”
- Executive Summary
 - CDFW noted that USFWS had shared that there were areas in the south Delta where turbidity was over 12FNU and asked for that to be reflected. USFWS suggested Reclamation should document the averaging period for turbidity values, suggesting using a 1-day average. CDFW noted first flush will trigger a large-scale DS migration. Increased temperatures may also lead to localized spawning movements and high turbidity can also cause increased DS movement.
 - Reclamation added language to the Executive Summary based on input from the SMT including information about DS spawning movement and areas of increased turbidity.

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

- QWEST values changed to +5,000 to +25,000 cfs.
- OMRI is limited to -2,000 cfs on a 14-day average under COA 8.3.1
- Although not controlling, SMT continue to recommend the State’s share of OMRI be limited to -5,000 cfs on 7-day average under 8.4.2 Larval and Juvenile Longfin Smelt Protection. This may be off ramped by COA 8.4.3 High Flow Offramp later this week.

Section 1-A: Sacramento River and Confluence

Delta Smelt

- No change in risk.
- DS are expected to continue their population-level, upstream spawning migration in response to high flow and turbidity conditions. OMRI is limited to -2,000 cfs on a 14-day average. Water temperatures have reached levels that are conducive for spawning in some locations.

Longfin Smelt

- No change in risk.
- Migration is on-going and spawning has been detected in the Lower Sacramento River region.

Section 1-B: Central Delta

Delta Smelt

- The risk level increased from Low to Moderate.
- One marked adult DS was detected in salvage in the CVP on 1/27/24.

Longfin Smelt

- No change from the previous week.
- QWEST is anticipated to be between +5,000 and +25,000 cfs this week. OMRI is limited to -2,000 cfs this week.

Change in Exposure:

- Delta Smelt: Risk for DS in the Central Delta has been increased from Low to Moderate.
- Longfin Smelt: No changes.

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 02/6/2024 on Microsoft Teams.