

Smelt Monitoring Team – Tuesday, January 3rd, 2023

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

- CDFW to share memo on Fall Midwater Trawl Index with SMT members.

MEETING SUMMARY

PART 1: Updates on Water Operations and Biological Updates

Relevant Actions & Triggers

Both federal Integrated Early Winter Pulse Protection (IEWPP) action and the State Incidental Take Permit (ITP) Condition of Approval (COA) 8.3.1 (Integrated Early Winter Pulse Protection) were triggered December 31st; both mandate reduced exports such that the 14-day average OMR index is not more negative than -2,000 cfs from January 3rd through January 16th. COA 8.3.3 (Adult Longfin Smelt Entrainment Protection) is off-ramped with the on-ramping of COA 8.3.1, and COA 8.4.1 was off-ramped with the detection of LFS larvae as of Smelt Larval Survey (SLS) 12. 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 Old and Middle River (OMR) Guidance Document or ITP as needed.

Proposed Action

OMR Management Measures	Requirement	Time Frame	Trigger	Triggered?
Integrated Early Winter Pulse Protection (“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 12/31

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

OMR Management Measures	Requirement	Time Frame	Trigger	Triggered?
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
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 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
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 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 12/31
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 1 st through Feb 28 th , 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 28 th	Salvage threshold for water year (WY) 2023 is 40.	Off-ramped with COA 8.3.1 triggering on 12/31

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 with detection of LFS larvae in 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 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
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.	Triggered but not controlling

Condition of Approval	Requirement	Time Frame	Trigger	Triggered?
8.5.1 Turbidity Bridge Avoidance	Maintain daily average turbidity at OBI at a level of less than 12 NTU. If the daily average turbidity at OBI is greater than 12 NTU, 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 NTU.	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
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 1 st through June 30 th or until off-ramped by 8.8	(1) When the five-day salvage of juvenile Delta Smelt 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

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 30 th	Daily mean water temperature at CCF is >25° C for three consecutive days.	Not active
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 1 st through June 30 th 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

USBR and DWR shared operations updates from the Outlook. Their observations included:

- USBR reported on weather conditions noting an active storm pattern with consistent precipitation. The stronger portion of the system will arrive Wednesday, January 4th and last to the later parts of the week. The Shasta Basin and Northern Sierra are expected to receive upwards of 13.5 inches over the six-day forecast period and the Sacramento Valley floor three to five inches.
- Releases from Whiskeytown Dam on Clear Creek are currently 200 cfs. No changes expected.
- Releases from Keswick Dam on the Sacramento River are 3,250 cfs. Side flow may alter releases with the stronger storm events.
- Releases from Nimbus Dam on the American River are 25,000 cfs to manage flood risk. Side flow from the stronger storm events could change releases later in the week.
- Releases from Goodwin Dam on the Stanislaus River are 400 cfs. Side flow from the stronger storm events could change releases later in the week.
- The federal facility is exporting 3,500 cfs with the potential to modify flows in reaction to pulses from stormwater. Anticipated to fluctuate between 2,700 to 4,200 cfs.
- Delta Cross Channel (DCC) gates remain closed. No changes expected for the next seven-day period.
- DWR reported that Feather River releases are 950 cfs.
- As of January 2nd, Sacramento River flows at Freeport will range from 40,000 to 90,000 cfs.
- For the week of January 2nd, San Joaquin River flows at Vernalis will be from 7,000 to 10,000 cfs.
- State facility exports are anticipated to fluctuate between 1,000 to 4,500 cfs.
- The maximum combined exports reflected on the outlook is 8,000 cfs, which is less than the combined total maximum for each facility because each facility will not pump the maximum amount simultaneously.
- As of January 2nd, QWEST was expected to range between +7,000 to +2,500 cfs.
- Rio Vista flows are 73,000 to 92,000 cfs.
- X2 is at 65.25 km
- The expected daily OMR index values as of January 2nd are -1,800 to -2,200 cfs.
 - December 31st OMR at USGS gauge:
 - Daily: -6,860 cfs

- Five-Day: -6,340 cfs
 - 14-Day: -4,000 cfs
- December 31st OMR Index:
 - Daily: -8,120 cfs
 - Five-Day: -6,300 cfs
 - 14-Day: -3,780 cfs
- January 2nd OMR Index:
 - Daily: -5,000 cfs
 - Five-Day: -6,100 cfs
 - 14-Day: -4,010 cfs
- First Flush was triggered on Saturday, December 31st. Starting Tuesday, January 3rd, the OMR index will be managed to a 14-day average of less than -2,000 cfs for 14 days.

Updates to the survey table include:

- The Larval Entrainment Pilot Study (LEPS) is active as of Tuesday, January 3rd.

Review of Environmental Conditions and Survey Updates

CDFW delivered catch updates on relevant surveys to the SMT.

- SLS 1 and LEPS are on the water this week from January 3rd to the 5th.
- Spring Kodiak Trawl (SKT) 1 will be on the water the week of January 9th.
- The LFS FMWT index for WY 2023 is 403.

USFWS provided catch updates on the Enhanced Delta Smelt Monitoring Program (EDSM) and Chipps Island Trawl.

- EDSM sampled Tuesday through Friday the week of December 26th, completing 22 of 36 sites due to weather complications. Three sites were completed in all strata except for Cache Slough.
 - DS: Zero
 - LFS: 58 in Suisun Marsh and Bay stratum (FL: 60 to 115 mm).
- EDSM is scheduled to sample Tuesday through Friday this week (week of January 2). The forecasted weather may force the crew to deviate from established sampling plans. With the New Year holiday this week, it is unlikely that any missed sites will be made up.
- The week of December 26th Chipps Island crews completed all 30 scheduled tows.
 - DS: Zero
 - LFS: 35 (FL: 62 to 109 mm)
- This week Chipps Island will sample Tuesday, Wednesday, and Friday.
- The DS abundance estimate for the week of December 26th was zero due to no detections.
 - The last non-zero abundance estimate is from the week of November 7th at 1,240.

CDFW provided a salvage update (December 26th to January 1st).

- The federal fish salvage facility detected a 110 mm adult LFS during the 8:00 pm fish count. The expanded seasonal salvage is now four LFS.
 - This is the first salvage of WY 2023.

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

USBR noted that turbidity was lower during “First Flush” last year, and higher turbidity this year could elevate risk for fish in the system. DWR added that as of January 1st, there was a turbidity bridge extending from the

lower San Joaquin River into the central and south Delta and that the LFS detected in salvage arrived only hours after turbidity climbed above 12 FNU.

DWR also noted that the second DS experimental release is scheduled for the week of January 9th pending any weather delays. Tentatively, soft and hard releases are scheduled on Wednesday and Thursday for the Sacramento Deep Water Ship Channel. An experimental release meeting is planned for Thursday, January 5th to address complications that may occur from the forecasted storms.

CDFW agreed that risk will need to be carefully assessed, especially considering the turbidity bridge increasing the potential for migration into the south and central Delta.

CDFW highlighted the rarity of adult LFS salvage and noted that it is also earlier than the last adult LFS salvage which was in mid-February of 2019. However, the FMWT index of 403 indicates that there are more fish in the system this year, so this salvage may not indicate an increase in risk. Risk may increase once OMR values are no longer controlled by IEWPP.

DWR concurred that risk has not elevated, but conditions in the following weeks may promote a downstream westward shift in the population.

PART 3: Live-edit Assessments

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

USBR reviewed proposed changes to the PA Assessment, which include the latest dates, detections, conditions, data, and the following:

- Evaluation question 1 was updated to confirm that “First Flush” conditions were met on December 31st.
- Evaluation question 2 was updated to clarify that while a turbidity bridge is present, the risk of Delta Smelt entrainment in the south Delta is partially offset by low OMR values.
- Executive summary was updated to include observation of “First Flush” conditions, increased turbidity, and the likely onset of DS migration in response to increased flow and turbidity conditions. Overall risk remains low due to the IEWPP, however the presence of a turbidity bridge potentially increases the likelihood that DS could move into the South Delta.

ITP Longfin Smelt Risk Assessment

The SMT reviewed and discussed updates to the ITP Risk Assessment for LFS, which include the latest dates, detections, conditions, and data as well as:

Advice to WOMT

- No items for elevation to WOMT.

Sections 1-A and 1-B

- Rationale was modified to address the onset of the IEWPP and acknowledge the presence of a turbidity bridge, noting that the low OMR values should partially mitigate the increased turbidity.

Change in exposure from last week

- No changes in DS or LFS risk.

Executive Summary

- Changes to the DS and LFS executive summaries include observations of “First Flush” conditions, increased turbidity, the recent LFS salvage, and the likely onset of Delta Smelt migration and the shift in X2 further downstream due to recent storms likely means that LFS are distributing widely, which will help decrease risk.

Part 4: Additional Considerations/Discussion

Agencies reported no items for elevation to WOMT.