

Smelt Monitoring Team – Tuesday, December 27th, 2022

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 update Smelt Monitoring Team (SMT) members via email if First Flush conditions are met prior to the next SMT meeting.

MEETING SUMMARY

PART 1: Updates on Water Operations and Biological Updates

Relevant Actions & Triggers

The federal Integrated Early Winter Pulse Protection action is active and will likely trigger according to the next six-day forecast period. The Incidental Take Permit (ITP) Condition of Approval (COA) 8.3.1 (Integrated Early Winter Pulse Protection) and 8.3.3 (Adult Longfin Smelt Entrainment Protection) are also active. 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 \geq 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, not triggered

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, 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 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 28th	Salvage threshold for water year (WY) 2023 is 32.	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 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.	Not active
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

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 a strong series of storms that started the evening of Monday, December 26th, and will continue through the weekend. The storm event is favoring the northern portion of California with valley floors receiving about four inches of precipitation and favorable parts of the Sierra forecasted to get upwards of 11 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. No changes expected.
- Releases from Nimbus Dam on the American River are 1,300 cfs. No changes expected.
- Releases from Goodwin Dam on the Stanislaus River are 200 cfs. No changes expected.
- The federal facility is exporting 900 cfs with change orders for December 29th and 30th targeting 2,700 cfs and 3,500 cfs respectively. The upper limit may be increased to 4,200 cfs later in the week.
- 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.
- Oroville Storage was 1,059,000 acre-feet as of December 26th.
- As of December 26th, Sacramento River flows at Freeport were 7,300 cfs.
- San Joaquin River flows at Vernalis were just below 1,000 cfs as of December 26th.
- State facility exports are 4,500 cfs and may increase up to 6,800 cfs with incoming storm water.
- On December 26th Delta outflows were approximately 4,000 cfs and may increase to 40,000 cfs next week.
- As of December 26th, QWEST was approximately -1,100 cfs. It will likely shift positive with flows above 10,000 cfs possible given the incoming storm systems.
- Rio Vista flows are currently 5,000 cfs and will climb towards 30,000 cfs.
- Strong spring tidal effects impacted water quality last week, but storm flows will likely restore water quality over the next six-day period.
- E/I will be the controlling factor in the Delta through the end of the year.
- The OMR index as of December 26th is approximately -2,500 cfs and may shift close to -7,500 cfs for a few days before transiting to -5,000 cfs on January 1st when OMR management begins.
 - December 24th OMR at USGS gauge:

- Daily: -1,900 cfs
 - Five-Day: -2,300 cfs
 - 14-Day: -3,000 cfs
- December 24th OMR Index:
 - Daily: -2,200 cfs
 - Five-Day: -2,000 cfs
 - 14-Day: -3,200 cfs
- December 26th OMR Index:
 - Daily: -2,700 cfs
 - Five-Day: -2,100 cfs
 - 14-Day: -3,400 cfs
- CDFW reported the average secchi depth for the 12 Central and South Delta SLS station is currently 152cm.

There were no updates to the survey table.

Review of Environmental Conditions and Survey Updates

CDFW delivered catch updates on relevant surveys to the SMT.

- SLS 12 was on the water from December 5th to the 7th. Processing is complete and there are no new LFS to report.
- SLS 13 was on the water from December 19th to the 22nd with all stations sampled and processing still underway.
 - LFS Larvae
 - Station 812: One (7 mm with yolk sack present)
 - Station 804: Two (6 and 8 mm with yolk sacks present)
 - Station 723: One (6 mm with yolk sack present)
 - Station 716: One (9 mm no yolk sack present)
 - Station 513: One (8 mm with yolk sack present)
 - Lower Sacramento River: 14 (Yolk sack was present for all fish)
- SLS 1 will occur on January 3rd through the 5th.

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

- EDSM sampled Monday through Friday the week of December 19th, completing all 36 sites.
 - DS: Zero
 - LFS: 57 in Suisun Marsh and Bay stratum (52 to 103 mm).
 - Three fish were transferred to the Fish Conservation and Culture Laboratory (FCCL) for broodstock. FCCL has reached their LFS take for the season.
- EDSM is scheduled to sample Tuesday through Friday this week, canceling some sampling on December 27th due to high winds. With the holiday schedule it will not be possible to make up missed sites, but crews will attempt to sample one stratum each day for the abundance estimate.
- The week of December 19th Chipps Island crews completed all 30 scheduled tows.
 - DS: Zero
 - LFS: 46 (60 to 114 mm)
 - Of the 46 LFS, 21 were transferred to FCCL for broodstock. One deceased LFS was returned to the USFWS office.

- This week Chipps Island will sample Tuesday, Wednesday, and Friday.
- The DS abundance estimate for the week of December 19th 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 19th to December 25th).

- No DS or LFS have been detected at either facility this WY.

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

USBR noted that First Flush will likely occur in the next seven days resulting in implementation of the Integrated Early Winter Pulse Protection Action.

USFWS expressed concern that the likelihood of entrainment will significantly increase if the OMR index is near -8,000 cfs when First Flush is triggered.

- DWR clarified that the flow and turbidity triggers for the Integrated Early Winter Pulse Protection Action are designed to provide sufficient buffer time to allow operations to adjust and mitigate any increased likelihood of entrainment from First Flush conditions.

The SMT discussed the merits of scheduling an off-cycle meeting later in the week to address First Flush conditions. The SMT agreed a meeting was not necessary given the Integrated Early Winter Pulse Protection hard trigger and the SMT will reconvene as scheduled next week.

CDFW inquired if COA 8.3.3 should be triggered, but DWR noted no adult LFS detections in the central and south Delta so a -5,000 OMR action would not likely generate any tangible benefit. DWR elaborated that QWEST trending towards +10,000 cfs would likely be more protective for adult LFS than an OMR action.

CDFW noted that if the First Flush Condition does not get met later in the week, COA 8.3.2 will initiate OMR Management on January 1st. Additionally, COA 8.4.2 would also become active, but not triggered on January 1st.

- DWR notes that COA 8.4.2's requirements may be immediately cease if the flows are high enough for COA 8.4.3 to trigger.

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 one was updated to note the incoming precipitation which may increase exports and trigger First Flush conditions.
- Evaluation question two noted that if First Flush conditions occur, DS are unlikely to migrate into areas of higher likelihood of entrainment due to OMR index values.
- The executive summary added language on the incoming storm systems, more negative OMR index, increased turbidity due to strong winds, and the likely onset of First Flush conditions.

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

- Language was added to acknowledge the increased flows from forecasted storm events and resulting increased exports that could elevate risk. However, COA 8.3.1 will likely trigger and help maintain low risk.

Change in exposure from last week

- No changes in DS or LFS risk.

Executive Summary

- DS and LFS: Note forecasted precipitation likely triggering First Flush conditions.
- Added language for potential initiation of COA 8.3.2 and a certain initiation of COA 8.4.2 on January 1st.

Part 4: Additional Considerations/Discussion

Agencies reported no items for elevation to WOMT.