

Smelt Monitoring Team – Tuesday, March 7th, 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

- DWR to connect with CDFW regarding questions about the February 28th Particle Tracking Model (PTM) results.
- Smelt Monitoring Team (SMT) members to confirm if possible to push the March 21st SMT meeting time back to 12:00 to 2:00 p.m. to accommodate the Interagency Ecological Program Annual Workshop.

MEETING SUMMARY

PART 1: Updates on Water Operations and Biological Updates

Relevant Actions & Triggers

Incidental Take Permit (ITP) Condition of Approval (COA) 8.4.3 (High flow offramp for Longfin Smelt) was triggered on March 2nd. 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.	Off-ramped 1/17/23; triggered 12/31/22, implemented 1/3/23 to 1/16/23

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.		Active as of 1/17/23
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 by detection of a ripe female by SKT 2; Triggered 1/17/23 to 2/8/23
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

IIP 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		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.	Off-ramped 1/17/23; triggered 12/31/22, implemented 1/3/23 to 1/16/23
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 12/31/22 with triggering of COA 8.3.1

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 Smelt Larval 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 off-ramp occurs	(1) LFS larvae or juveniles are found in four or more of the 12 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.	Triggered by SLS 4 on 2/16/23; by SLS 5 on 2/28/23; temporarily off-ramped by COA 8.4.3 (3/2/23-present)
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, triggered 3/2/23

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	Triggered 1/17/23 to 2/8/23; 2/15/23 to 2/17/23; 2/21/23 to 2/26/23
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.	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 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; water year type is above normal as of 02/01/23

Current Operations & Outlook

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

- USBR reported on weather conditions noting a continued active pattern with intermittent precipitation through Wednesday and more activity starting Thursday with a warmer atmospheric river (AR) elevating the rain-snow transition in the mountains. Lower tributaries will experience increased runoff as a result of combined rain/snowmelt. The six-day forecast anticipates 10 inches along the spine of the Sierras while the valley floors of the Sacramento and San Joaquin Basins will receive two to three inches. USBR noted that the March 6th forecast did not capture the full magnitude of the incoming AR event, and thus flows and operations may differ.
- Releases from Whiskeytown Dam on Clear Creek are currently 200 cfs.
- Releases from Keswick Dam on the Sacramento River are 3,250 cfs.
- Releases from Nimbus Dam on the American River are 4,000 cfs with an increase to 8,000 cfs or more by end of the week.
- Releases from Goodwin Dam on the Stanislaus River are 500 cfs with anticipated Tulloch side flow management.
- Delta Cross Channel (DCC) gates remain closed. No changes expected for the next seven-day period.
- The full moon spring tide peaked on March 7th with the Delta entering a neap cycle peaking on the 14th.
- The federal facility is exporting 4,200 cfs.
- DWR reported that State facility exports are approximately 6,700 cfs and may adjust to 9,500 by March 11th while targeting an OMR index of -5,000 cfs.
- Feather River releases are holding at 1,050 cfs and will likely increase with incoming precipitation.
- As of March 6th, Sacramento River flows at Freeport were just below 26,000 cfs. Storm water will most likely increase flows above 50,000 cfs by early next week.
- San Joaquin River flows at Vernalis were 11,800 cfs as of March 6th and will likely increase to over 20,000 cfs by March 11th.
- Delta outflows were 30,200 cfs as of March 6th and will likely increase to approximately 75,000 cfs.
- As of March 6th, QWEST was around 8,000 cfs with flows expected to increase by March 10th.
- X2 is near Port Chicago (~62 km).

- The expected daily OMR index values as of March 6th are -3,000 to -5,000 cfs.
 - March 4th OMR at USGS gauge:
 - Daily: -5,600 cfs
 - Five-Day: -4,000 cfs
 - 14-Day: -3,600 cfs
 - March 4th OMR Index:
 - Daily: -4,800 cfs
 - Five-Day: -4,400 cfs
 - 14-Day: -3,700 cfs
 - March 6th OMR Index:
 - Daily: -5,000 cfs
 - Five-Day: -4,900 cfs
 - 14-Day: -4,000 cfs
- USBR clarified that there is no immediate concern regarding flood control releases from Shasta Dam, but operations may adjust as weather models come into further agreement regarding next week's forecasted precipitation.
- DWR noted that the OMR index will probably continue to be the controlling factor into the weekend. Exports may reach maximum facility capacity over the weekend.

The survey table was updated to reflect 20-mm Survey starting March 13th.

Review of Environmental Conditions and Survey Updates

CDFW delivered catch updates on relevant surveys to the SMT.

- SLS 2 was on the water from January 17th to the 19th. New results are as follows and processing is now complete:
 - Larval LFS
 - San Pablo: 14
- SLS 3 was on the water from January 30th to February 1st. New results are as follows, processing is ongoing:
 - Larval LFS
 - San Pablo and Napa River: 42
- SLS 4 was on the water from February 13th to the 15th. New results are as follows, processing is ongoing:
 - Larval LFS
 - Napa River:
 - Station 346: 221 (Fork Length (FL) = 8-15 mm; no yolk sac present)
 - Station 504: 359 (FL = 6-12 mm; 127 have yolk sac present)
- SLS 5 was on the water from February 27th to March 1st. All stations were sampled. Results are as follows, processing is ongoing:
 - Larval LFS
 - South and Central stations (809, 812, 901, 902, 915): 14 (FL = 6-8 mm; 7 have yolk sac present. All data is QC'd)
 - Suisun Bay and West: 547 (Detections are preliminary)
- SLS 6 and 20-mm Survey 1 will be on the water from March 13th to the 16th.
- Spring Kodiak Trawl Survey 3 will be on the water from March 6th to the 9th.

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

- EDSM sampled Monday through Friday the week of February 27th to March 3rd, completing all sites.
 - DS: Zero
 - The DS abundance estimate for the week of February 27th is zero.
 - The last non-zero abundance estimate is the week of February 20th at 1,283.
 - LFS: Six
 - Suisun Marsh: Three (FL = 76-85 mm)
 - Suisun Bay: Three (FL = 74-87 mm)
- EDSM is scheduled to sample Monday, March 6th through Thursday, March 9th. Preliminary results are as follows:
 - DS: One ad clipped on March 6th (FL = 72 mm)
- The week of February 26th Chipps Island crews completed 50 tows. This increase in tows is due to trawl efficiency protocol being in place to the end of March.
 - DS: Zero
 - LFS: 54 (FL = 74-104 mm)
- This week Chipps Island will sample Sunday, Tuesday, Wednesday, Thursday, and Friday.
- The next phase of EDSM begins in April.

CDFW provided a salvage update (February 27th to March 5th).

- State Facility
 - DS Counts
 - March 2nd: One
 - Right orange posterior tag.
 - LFS Counts
 - March 2nd: One
- Federal Facility
 - DS Counts
 - March 2nd: One
 - Left orange anterior tag.
- Operations
 - No interruptions were reported at the facilities last week.
 - DWR shared that CDFW has requested that all larval fish be identified at the Skinner Fish Facility which will likely lead to delays in releasing quality-controlled data.
- Cumulative Seasonal Salvage
 - DS: 52
 - LFS: 26

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

Delta Smelt

USBR and CDFW acknowledged that risk has not changed much since last week, however discussions surrounding DS larvae will likely begin next week, as hatching typically begins to occur in mid-March.

The SMT agreed that risk continues to be high in the OMR corridor, moderate in the Lower San Joaquin River, and low everywhere else. DWR noted that current conditions are fair but, the incoming AR will likely replace the clear water in the OMR corridor with widespread hydrologic turbidity and the OMR is expected to shift more

positive as flows increase at Vernalis. CDFW agreed with DWR. Lastly, DWR reiterated that SWP will operate to the state share of OMR index of -2,000 cfs for five days per ITP COA 8.5.1 if turbidity at OBI exceeds 12 FNU.

Longfin Smelt

The SMT does not currently have the means to make a recommendation for LFS due to the triggering of ITP COA 8.4.3 (High flow offramp). CDFW proposed risk for LFS remain the same as last week; the SMT agreed. Similar to DS, LFS will benefit from ample flows from the San Joaquin River and highly positive QWEST values. DWR added that the triple digit catches of LFS larvae downstream is a positive sign.

PTM Station Selection and Results

CDFW requested to change an injection point for future PTM runs by replacing station 902 with station 809 (near Jersey Point in the Lower San Joaquin River) to better assess the fate of particles past Chipps Island. Therefore, going forward the three injection points would be stations 812, 815, and 809. These stations should enable the SMT to focus discussions on habitat, entrainment from the Lower San Joaquin River into the OMR corridor and export facilities, and the particles pushed out past Chipps Island rather than entrainment of particles already in the OMR corridor. This will enable the group to focus on larvae that are present in the San Joaquin River, rather than on larvae in the OMR corridor where the SMT has less influence on the fate of fish. DWR indicated support for CDFW's suggestion. They believe station 809 to be far more informative than station 902 as particles located at 902 will eventually become entrained.

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 reflects the discussion documented in Part 2 above.

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.

Part 4: Additional Considerations/Discussion

No items to elevate to WOMT.