Smelt Monitoring Team – Tuesday, May 9th, 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

- USBR to share background materials on the Summer-Fall Habitat Action and present to the Smelt Monitoring Team (SMT) at a late June meeting.
- CDFW to schedule meeting times for the research analysis subgroups.
- CDFW to share 20-mm Survey 5 Secchi depth with the SMT via email.
- USBR to circulate draft email regarding qualitative larval sampling to the SMT for review. (complete)
- USBR to include DWR on the email to Rene Reyes regarding qualitative larval sampling.

MEETING SUMMARY

PART 1: Updates on Water Operations and Biological Updates

Relevant Actions & Triggers

Incidental Take Permit (ITP) Condition of Approval (COA) 8.12 (Barker Slough Pumping Plant Longfin and Delta Smelt Protection) will remain inactive as the water year type remains classified as wet. 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 (FNUs).

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 Spring Kodiak Trawl (SKT) 2; Triggered 1/17/23 to 2/8/23
Larval and Juvenile Delta Smelt	(1) Reclamation will operate to an OMRI no more negative than -5000 cfs. (2) Reclamation will operate to an OMRI no more negative than -3500 cfs.	On or after March 15 of each year until off-ramp criteria are met.	(1) 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. (2) If QWEST is negative AND Secchi depth in the south Delta is less than 1 m.	Active, not triggered
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		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.	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 1st through Feb 28th, 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 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)	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: 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	Onset of OMR management through Feb 28th	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.	Not triggered by SLS 6, 20mm Survey 1, 2, 3, or 4 (3/21/23-present); triggered by SLS 4 on 2/16/23; by SLS 5 on 2/28/23; temporarily off-ramped by COA 8.4.3 (3/2/23-3/21/23)
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 April 1	Turbidity at OBI > 12 FNU	Active; Triggered 1/17/23 to 2/8/23; 2/15/23 to 2/17/23; 2/21/23 to 2/26/23; 3/17/23 to 4/1/23; off-ramped 4/1/23
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 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 2022 September through November FWMT 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 ≥12°C and Secchi from the most recent SLS/20 mm survey is ≤1m averaged across the 12 stations (809, 812, 815, 901, 902, 906, 910, 912, 914, 915, 918, and 919)	Active, initially triggered on 3/18/23 by (3) Jersey Point 3-day average water temperature exceeded 12°C and SLS survey 6 and 20mm Survey 1 Secchi depth were less than 1m, and continues to be triggered by 20mm Surveys 2, 3, and 4 Secchi depth less than 1m

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; water year type is wet as of 04/01/23; off-ramped for LFS 4/1/23

Current Operations & Outlook

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

- USBR reported on weather conditions noting a warming trend through the weekend which may bring increased snowmelt.
- Releases from Whiskeytown Dam on Clear Creek are currently 625 cfs for a spring attraction pulse, and later returning to a peak of 200 cfs.
- Releases from Keswick Dam on the Sacramento River are currently 13,000 cfs and will remain variable in response to Shasta storage management.
- Releases from Nimbus Dam on the American River are 8,000 cfs and will remain variable in response to storage management.
- Releases from Goodwin Dam on the Stanislaus River are 1,500 cfs.
- Delta Cross Channel (DCC) gates remain closed. No changes expected for the next seven-day period.
- Tides are transitioning from the May 5th spring tide to a neap cycle reaching its zenith on May 12th.
- Federal facility exports are currently 3,500 cfs and are expected to range from 2,700 to 3,500 cfs.
- DWR reported that State facility exports were approximately 3,000 cfs on May 8th and decreased to 2,000 cfs as of May 9th and will settle around 1,000 cfs due to maintenance activities.
- As of May 9th, Feather River releases are 7,000 cfs.
- Sacramento River flows at Freeport are 40,400 cfs as of May 8th and will slightly decrease in the next few days.
- On May 8th San Joaquin River flows at Vernalis were just below 20,800 cfs and will remain stable.
- Delta outflows were approximately 65,000 cfs as of May 8th and will remain stable.
- As of May 8th, QWEST was just below 31,500 cfs and will remain stable.
- X2 is downstream of Martinez (<56 km)
- The expected daily OMR index values as of May 8th were between +3,500 and +13,000 cfs.
    - May 6th OMR at USGS gauge:
        - Daily: 6,400 cfs
        - Five-day: 6,700 cfs
        - 14-day: 8,400 cfs
    - May 6th OMR Index:

        - Daily: 8,100 cfs
        - Five-Day: 8,700 cfs
        - 14-Day: 9,600 cfs
    - May 8th OMR Index:
        - Daily: 9,500 cfs
        - Five-Day: 8,700 cfs
        - 14-Day: 9,400 cfs
- The survey table was updated to note that SKT and Larval Entrainment Pilot Study (LEPS) have concluded for the season.

Review of Environmental Conditions and Survey Updates

CDFW delivered catch updates on relevant surveys to the SMT.

- Smelt Larval Survey (SLS) 6 was on the water from March 13th to the 16th with data now fully processed. Updated detections are as follows:
    - DS Larvae
        - Station 519: One (Confirmed)
            - The number of confirmed larval Delta Smelt for SLS Survey 6 is four.
- 20-mm Survey 1 was on the water from March 13th to the 17th. New detections are as follows:
    - LFS Larvae and Juveniles
        - San Pablo and Napa River regions: 190
- 20-mm Survey 2 was on the water from March 27th to the 30th. New detections are as follows:
    - LFS Larvae and Juveniles
        - San Pablo and Napa River regions: 85
- 20-mm Survey 4 was on the water from April 24th to the 27th. New detections are as follows:
    - DS Larvae
        - Station 706: One (Preliminary)
    - LFS Larvae and Juveniles
        - Suisun Bay and West region: 308
- 20-mm Survey 5 is on the water from May 5th to the 11th.
    - The average Secchi depth for the 12 Central and South Delta stations will be available on May 10th.
- In summary there are 16 combined SLS and 20-mm confirmed larval Delta Smelt larvae and one awaiting further QC.
- SKT 5 was on the water from May 1st to the 4th and sampled all stations. Detections are as follows:
    - LFS Larvae and Juveniles
        - Suisun Bay and West: 145 (Fork Length (FL) = 15 to 31 mm)
- SKT has concluded for the season.

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

- EDSM 20-mm larval surface trawls sampled April 24th to the 28th and completed 36 sites. Detections are as follows:
    - DS
        - Suisun Bay: One (FL = 7.9 mm)
    - LFS
        - Suisun Bay: Two
        - Suisun Marsh: Four

- EDSM 20-mm larval surface trawls sampled May 1st to the 5th and completed 40 sites. Detections are as follows:
    - Catch data is being processed.
- DJFMP Chipps Island Trawl sampled May 1st to the 5th completing 30 tows.
    - No DS or LFS were detected.
- DJFMP Chipps Island sampling this week is scheduled for Monday, Wednesday, and Friday.

CDFW provided a salvage and qualitative larval sampling update (May 1st to the 7th).

- Salvage
    - No DS or LFS were detected at either facility.
- Facility Outages
    - No operational issues were reported at either facility.
    - Skinner facility will shut down next week for maintenance.

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

Delta Smelt

USBR and CDFW agreed that conditions are similar and risk has not changed since last week.

Longfin Smelt

CDFW noted that environmental conditions continue to be favorable and there is low risk for LFS.

Qualitative Larval Sampling

The SMT discussed the recent increase of Splittail (*Pogonichthys macrolepidotus*) detections at the Tracy Fish Facility.

- USBR reported that staff at the Tracy Fish Facility have recently observed a substantial increase in detections of splittail and anticipate splittail numbers will soon be high enough that staff will need to use weight estimates to count fish under the 20mm length threshold. This will make it impossible to continue qualitative larval sampling. USBR requested guidance from the SMT.
- DWR suggested qualitative larval sampling could end at any time, noting that flows are favorable for smelt, and no DS or LFS have been detected in the South or Central Delta for several months.
- CDFW and USFWS agreed that flows are currently protective and acknowledged the logistical challenges of continued sampling, but urged taking a precautionary approach if possible.
    - CDFW pointed out that in some years (e.g., 2011), the first larval DS detection in salvage did not occur until June. In addition, current water temperatures remain favorable for smelt. In 2020, although there were no detections of DS larvae in the Central and South Delta stations, one DS larva was detected at the Tracy Fish Facility, so it's possible to detect a larval smelt in salvage when none are being detected in the area by the monitoring surveys.
    - USFWS emphasized the value of continued qualitative larval sampling and the need to provide additional support for surveys and other monitoring efforts.
    - USFWS also noted there are no regulatory requirements for larval fish counts from the state and federal facilities.
- The SMT agreed to request that Tracy Fish Facility staff continue qualitative larval sampling as long as practical. The SMT will monitor conditions and if protective flows diminish, but abiotic conditions remain favorable for smelt, and splittail numbers are sufficiently reduced, then they will request qualitative larval sampling be reinstated.

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.