Smelt Monitoring Team – Tuesday, March 22nd, 2022

PARTICIPANTS

- California Department of Fish and Wildlife (CDFW)
- California Department of Water Resources (DWR)
- National Marine Fisheries Service (NMFS)
- State Water Resources Control Board (SWRCB)
- U.S. Bureau of Reclamation (USBR)
- U.S. Fish and Wildlife Service (USFWS)
- Kearns & West (KW)

ACTION ITEMS

- CDFW to compile cumulative qualitative larval sampling numbers for USFWS.
- DWR to perform Particle Tracking Model (PTM) run as requested prior to the next Smelt Monitoring Team (SMT) meeting.

MEETING SUMMARY

PART 1: Updates on Water Operations and Biological Updates

USBR briefly discussed the Interim Operations Plan (IOP) in light of the recent decision on the 2019 biological opinions. The IOP is intended to bring together the state and federal perspectives. As a result of the decision, USBR is open to exploring efficiencies in how the monitoring teams are operated, but any significant modifications to the monitoring teams must be approved by the long-term operations (LTO) group. The SMT may revisit a few topics, develop new recommendations, and submit a proposal to the LTO group in the future. CDFW noted that Condition of Approval (COA) 8.5.2 will now be considered in both the federal and state assessments given the IOP.

Relevant Actions & Triggers

USBR reported on Old and Middle River (OMR) management measures. The Turbidity Bridge Avoidance action was off-ramped due to the detection of a ripe female Delta Smelt (DS) by Spring Kodiak Trawl (SKT) 3 on March 17th and the End of OMR Management action is now in effect. Under the End of OMR Management action, OMR criteria may control operations until June 30th or until the daily mean water temperature at Clifton Court Forebay (CCF) reaches 77° F for three consecutive days. CDFW reported on the Incidental Take Permit (ITP) Conditions of Approval (COA) that are in effect including 8.5.1 Turbidity Bridge Avoidance, 8.5.2 Larval and Juvenile DS Protection, and 8.4.2 Larval and Juvenile Longfin Smelt Entrainment Protection. COA 8.12 (Barker Slough Pumping Plant Longfin and Delta Smelt Protection) is active from January 15th to March 31st for Longfin Smelt (LFS), and from March 1st to June 30th for DS.

CDFW clarified that there is no offramp action for COA 8.5.1 (Turbidity Bridge Avoidance) on the state side, unlike on the federal side.

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 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.	Triggered 12/18/21; last day of action was 1/2/22
OMR Management	Manage to a more positive OMR than -5,000 cfs	From the onset of OMR management to the end		In effect
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 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.	Triggered on 1/3/22; Off-ramped by SKT 3 on 3/17/22
Larval and Juvenile Delta Smelt	Run hydrodynamic models and forecasts of entrainment, informed by the EDSM or other relevant survey data to estimate the percentage of larval and juvenile delta smelt 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 delta smelt are within the entrainment zone of the pumps based on real-time sampling of spawning adults or young of year life stages	In effect

[1] The current instrumentation measures turbidity in Formazin Nephelometric Units (FNUs).

OMR Management Measures	Requirement	Time Frame	Trigger	Triggered?
End of OMR Management	OMR criteria may control operations until June 30 (for Delta Smelt 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 reaches 77°F for 3 consecutive days	In effect

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 Delta Smelt 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		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 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 Smelt Monitoring Team 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.	Triggered 12/18/21; last day of action was 1/2/22

Condition of Approval	Requirement	Time Frame	Trigger	Triggered?
8.3.3 (Adult Longfin Smelt Entrainment Protection)	After December 1, if an Integrated Early Winter Pulse Protection (Condition of Approval 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 Smelt Monitoring Team (SMT) determines that there is a high risk of entrainment.	Dec 1 through Feb 28th	Salvage threshold for WY 2022 is one.	Off-ramped due to trigger of 8.3.1
8.4.1 (OMR Management for Adult Longfin Smelt)	The SMT shall conduct weekly risk assessments and decide whether to recommend and 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 by larval detections 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 offramp occurs	(1) Longfin Smelt 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) Longfin Smelt 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 1/20/22, 1/31/22, 2/28/22, and 3/11/22

Condition of Approval	Requirement	Time Frame	Trigger	Triggered?
8.4.3 High flow offramp for Longfin Smelt	If triggered, Conditions of Approval 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, Not Triggered
8.5.1 Turbidity Bridge Avoidance	maintain daily average turbidity in Old River at Bacon Island (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 is in agreement that the action may be ended or modified.	Turbidity at OBI > 12 FNU	In effect as of 1/3/22

Condition of Approval	Requirement	Time Frame	Trigger	Triggered?
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 salvage of Delta Smelt exceeds 11 in three days, 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 -3,500 cfs.	Nov 1st through June 30th or until off-ramped by 8.8	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 2021 FMWT index for Delta Smelt zero.	Active, not triggered
8.8 (End of OMR Management)	If triggered, OMR Management would be off-ramped for Longfin and Delta Smelt.	From the onset of OMR management through June 30th	Daily mean water temperature at Clifton Court Forebay 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 Longfin Smelt, and from March 1st through June 30th for Delta Smelt	Larval Smelt are detected at SLS Station 716 during the period identified for each species, and/or when recommended by the SMT	Active, Triggered for LFS 2/14/22 and 3/11/22

Current Operations & Outlook

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

- USBR Central Valley Office (CVO) reported dry and warm conditions for the week ahead with temperatures reaching the high 80s and light winds. A chance of precipitation is possible during the late weekend and early into next week.
- Releases from Whiskeytown Dam on Clear Creek are currently 200 cfs. No modifications expected.
- Releases on the Sacramento River from Keswick Dam are currently 3,250 cfs. No modifications expected.
- American River releases from Nimbus Dam are 1,200 cfs today.
- Releases from Goodwin Dam on the Stanislaus River are currently 300 cfs with a reduction to 250 cfs scheduled for March 24th.
- Controlling operations in the Delta have transitioned to the reduced outflow requirement of 7,100 cfs.
- As of today, Reclamation is exporting 900 cfs at the federal facility. For the next week, a range of up to 1,800 cfs is expected.
- Delta Cross-channel (DCC) gates are currently closed. No modifications expected.
- DWR reported that Feather River releases were 2,500 cfs on March 22nd with no changes planned.
- Freeport flows are around 9,000 cfs.
- Vernalis flows are between 800 to 900 cfs.
- State facility exports have been 600 cfs and could decrease to 300 cfs if USBR increases pumping later this week.
- Delta outflows on March 21st were 7,500 cfs and will remain steady with a slight decrease possible this weekend in response to the potential increase in federal exports.
- QWEST has been around 800 cfs and will decrease to 0 to 200 cfs for the remainder of the week.
- The OMR Index was -1,300 cfs last week and could reach -2,000 cfs during the the week.
- As of March 21st, X2 is at 79 km and may vary later in the week due to the tide and outflows.
- Survey table was updated to reflect that the 20 mm Survey is active and the Delta Juvenile Fish Monitoring Program (DJFMP) survey returned to normal sampling last week.

Review of Environmental Conditions and Survey Updates

CDFW delivered catch updates on relevant surveys to the SMT.

- No catch updates are available for Smelt Larva Survey (SLS) 6 or 20 mm Survey 1, and the data from SLS 5 is still pending.
- SKT 3 was on the water from March 14th to the 17th and all stations were sampled. Eleven marked DS were caught including two ripe females in Suisun Marsh. Of the 11 fish, 10 were adipose clipped and one was VIE tagged. 73 LFS were caught in the Suisun Bay and West region with fork lengths ranging from 22 to 87 mm. Lastly, one Wakasagi was detected at station 719 with a fork length of 104 mm.
- The March Bay Study caught 95 LFS in regions ranging from the lower Sacramento River to the south bay. Of the 95 fish, 83 were juveniles and 12 were adults.

USFWS provided catch updates on the Enhanced Delta Smelt Monitoring Program (EDSM).

- EDSM sampled from Monday to Thursday during the week of March 14th completing all sites. Results are as follows:
    - Suisun Bay
        - LFS: 4
    - Sacramento Deep Water Shipping Channel (SDWSC)
        - DS: One (adipose clipped)
- The EDSM abundance estimate for the week of March 14th was 1,016 fish based on the one detection in the SDWSC.

- Yesterday, EDSM crews detected one adipose clipped DS in the Cache Slough Toe Drain.
- EDSM will switch to phase 2 (20mm net) on April 4th.
- Chipps Island trawl completed all sampling for the week of March 14th and collected nine LFS. None of the fish were transferred to the FCCL due to their unhealthy physical appearance, which may be a product of the recent warmer temperatures.

CDFW provided a salvage and qualitative larval sampling update (March 14th to March 20th).

- 68 LFS over 20 mm were salvaged.
    - State Facility: 60
    - Federal Facility: Eight
- Larvae were detected at the federal facility from the 17th to the 20th and the state facility on the 14th and 15th.
    - USFWS requested a cumulative total number of larval detections at the state and federal facilities. CDFW agreed to provide those numbers.

USBR shared environmental data updates as of March 21st.

- Three-station daily average water temperature: 14.88° C.
- Three-day running average turbidity at OBI: 5.43 FNU.
- Current turbidity at OBI: 8.00 FNU.
- X2 is at 79 km.
- Weather forecast out of Antioch is sunny and clear with west to northwest winds from 5 to 13 mph.
- Weather forecast out of Stockton is sunny and clear with west northwest winds from 3 to 8 mph.

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

USBR noted that environmental conditions and turbidity are similar to what was reported last week. Naturally, later in the season the probability of spawning is higher, but there are no significant changes to discuss with the SMT at this time. CDFW added that water temperatures are increasing substantially more each week, so spawning is likely imminent. DWR pointed out that as surveys transition to a 20 mm gear there could be some larval fish that escape detection until they grow large enough.

The SMT discussed the March 14th Particle Tracking Model (PTM) run results. DWR had initially assumed that a storm over the weekend of March 19th to the 20th would materialize and produce enough precipitation to justify increasing exports. This, however, did not happen. Despite the lack of precipitation, DWR noted there is some potential for the projects to utilize water quality to comply with D-1641 requirements and increase exports later in the week. Given these conditions, two scenarios were run with an injection date of March 15th and injection points at Stations 812, 815, and 902:

1. A “no recommendation” scenario where the Projects operate to the X2 requirement using water quality starting March 23rd. Under this scenario, the OMR Index would range from -2,000 to -1,400 cfs during Week 1 and an OMR Index around -1,400 cfs for the remainder of the run.
2. A -1,250 cfs OMR case, beginning on March 23rd.

- DWR noted that the “no recommendation” scenario doesn’t necessarily represent the maximum plausible OMR Index scenario, given the uncertainty in operations later this week. However, this scenario is close to the maximum plausible OMR Index range.

- CDFW noted the results do not take into account the proposed Temporary Urgency Change Petition (TUCP) that may go into effect in April. USFWS asked how the TUCP might affect exports. DWR replied that exports are unlikely to increase and the TUCP should not significantly affect the results of the PTM run.
- DWR noted there was no difference between the scenarios in the percentage of particles that passed Chipps Island.
- CDFW observed that salvage of LFS increased at the end of last week, however the PTM results suggest a recommendation would not significantly change the outcome for fish in the OMR corridor.
- The SMT concluded that there is no appreciable difference between the two scenarios tested by the PTM, and thus a recommendation is not warranted at this time.

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, and data as well as:

- Added language to address COA 8.5.2.
- Added language noting the last detection of a wild DS was by EDSM on January 5th.
- Evaluation question 3 was updated to reflect the ripe females detected by SKT 3.
- References to anticipated precipitation were removed from evaluation questions 4 and 6.
- The executive summary was updated to reflect the detections in two new strata (the lower Sacramento River and Cache Slough Liberty Island) and to highlight the ripe females detected by SKT 3.

ITP Longfin Smelt Risk Assessment

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

Section 1-B: Risk of entrainment into the export facilities for DS and LFS in the central Delta

- Exposure Risk
    - LFS: Significant edits to the larval and juvenile in OMR corridor section citing PTM results and increased salvage but qualifying that the most protective OMR recommendation does not decrease likelihood of salvage or increase the proportion of particles that would pass Chipps Island. The SMT committed to requesting a new PTM run[2] and evaluating historical salvage trends relative to the standing stock of adults.

The executive summary for LFS was updated to highlight the increased salvage and note the SMT determined PTM run results showed that there is no appreciable difference between the -1,250 cfs recommendation and an OMRI temporarily as negative as -2,000 cfs. Additionally, the low risk for LFS larvae in the lower San Joaquin River and salvage numbers were updated.

[2] The requested PTM run will use the same injection points (Stations 812, 815, and 902) and same scenarios (base case and -1,250 cfs) as the PTM run requested by the SMT on March 15th.

Part 4: Additional Considerations/Discussion

Agencies reported no items for elevation to WOMT.