Smelt Monitoring Team – Tuesday, January 11th, 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 (KW)

ACTION ITEMS

- USBR to confirm that fish facilities are receiving release notifications for the experimental Delta Smelt (DS) program.
- SMT to discuss potential need to initiate larval sampling at the facilities at next week's meeting.

MEETING SUMMARY

PART 1: Updates on Water Operations and Biological Updates

Relevant Actions & Triggers

USBR reported on Old and Middle River (OMR) management measures. Turbidity Bridge Avoidance is in effect to maintain average daily turbidity in Old River at Bacon Island (OBI) at a level of no more than 12 NTU to minimize risk to adult DS in the OMR corridor where they are subject to higher entrainment risk. CDFW reported on the Incidental Take Permit (ITP) Conditions of Approval (COA) that are in effect. COA 8.4.2 Larval and Juvenile Longfin Smelt (LFS) Entrainment Protection is under consideration for the South and Central Delta. 8.5.1 Turbidity Bridge Avoidance is in effect with 8.5.2 Larval and Juvenile DS Protection being active. CDFW also noted that COA 8.12 Barker Slough Pumping Plant Longfin and Delta Smelt Protection will not be active in January based on the Sacramento Valley Water Year Type Index (SVI) for January, which is below normal. Another assessment will be considered once the February forecast is released. CDFW clarified that 50% exceedance is used for the water year classification.

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 three-day average of daily flows at Freeport >25,000 cfs; and (2) Running three-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.	In effect as of 1/3/22
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	Not active

[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	Not active

ITP Conditions of Approval

Condition of Approval	Requirement	Time Frame	Trigger	Triggered?
8.1.5.2 (Smelt Monitoring Team Risk Assessment) Triggered	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		Yes
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	Three-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 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 Smelt Larval Survey (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	Active, Not Triggered

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	Not active

Current Operations & Outlook

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

- USBR Central Valley Office (CVO) reported drier weather patterns due to the high-pressure ridge across the Pacific. No significant chances of precipitation in the five to seven day forecast window.

- 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 variable, but currently at 5,000 cfs as operations emerge from the flood space encroachment at Folsom. A change order is out for this week to facilitate rotary screw trap installation with flows afterwards generally between 2,000 and 5,000 cfs.
- Releases from Goodwin Dam on the Stanislaus River are currently 200 cfs. No modifications expected.
- Freeport flows approximate 22,000 cfs.
- Vernalis flows are 1,000 cfs.
- Operations continue to target an OMR Index of -5,000 cfs.
- Jones Pumping Plant exports are currently targeting 4,200 cfs.
- Delta Cross-channel (DCC) gates are currently closed.
- DWR reported that Feather River releases are currently at 950 cfs.
- Clifton Court Forebay (CCF) inflows remained low last week within 1,500 to 1,700 cfs. As of January 11th flows are 1,700 cfs with a declining trend for the next several days while still operating to the -5,000 OMR Index. Outflows are 1,700 cfs and will also trend downwards given decreasing Sacramento River flows.
- The QWEST seven-day average is -1,000 cfs and will become more negative through the week while staying more positive than -2,000 cfs.
- On January 11th flows at Rio Vista were 17,000 to 18,000 cfs and will decrease through the week.
- X2 is 65 km and slightly upstream of Port Chicago, but will likely be move upstream as flows decrease.
- The 14-day OMR Index average was -3,600 cfs and the OMR Index today (January 11th) is -4,800 cfs. Note that the 14-day average still includes several days within the first flush action, and the 16th will be the first 14-day average not affected by the action.
- DWR clarified at CDFW's request that the current allocation to contractors is for the health and safety limit. This includes assuring that water gets into storage in San Luis Reservoir to ensure availability for future deliveries. A proposed temporary urgency change petition (TUCP) has not yet been granted.
- The following edits were made to the survey status table.
    - CDFW noted that Smelt Larva Survey (SLS) 1 and Larval Entrainment Pilot Study (LEPS) are experiencing disruptions due to COVID-related concerns and are not sampling for the week. LEPS plans to continue sampling on Tuesday the 18th. SLS 2 will pick up on the 24th.
    - Spring Kodiak Trawl (SKT) begins Tuesday the 18th.

Review of Environmental Conditions and Survey Updates

CDFW delivered updates on relevant surveys to the SMT.

- SLS 1 was canceled due to COVID mitigation.
- SKT is scheduled to begin January 18th.
- SLS Survey 13 (December 27th to December 30th) data processing is ongoing, and the 12 central and south Delta stations have been processed.
    - DS: Zero
    - LFS: 44
        - Station 914: One
        - Station 809: Two
- LEPS was active January 3rd to 5th but sampling was canceled on the 6th and 7th due to COVID health concerns.
    - 33 samples were collected. Processing is complete.

        - One 7 mm LFS was collected on January 5th with yolk sac present.
- CDFW indicated that the LFS detections at station 914 during survey 13 of SLS, and a detection by LEPS trigger 24-hour sampling to assess daytime versus nighttime larval densities. The sampling will take place next week with no specific date chosen yet.

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

- EDSM sampled 30 sites from January 3rd to 6th.
    - DS: One unmarked in the Lower Sacramento River
    - LFS:
        - Five in Suisun Marsh
        - 10 in Suisun Bay
        - Three in the Lower Sacramento River
    - This week's sampling will occur January 10th to13th.
    - The western Delta stratum will be re-initiated for sampling January 17th in response to the X2 movement downstream.
- DJFMP sampled from January 2nd to 7th and detected 29 LFS at Chipps Island.
    - This week's sampling will occur January 9th to 14th.
    - USFWS noted that the LFS with the zero-length measurement recorded was a code 9 (captured outside of the live box and in the net) and was not measured.

CDFW provided a salvage update (January 4th to January 10th).

- No salvage of smelt at either facility.

DWR provided updates on the DS experimental release program.

- The DS experimental release program was temporarily delayed due to COVID-related health concerns. In response, the experimental release team switched to a full hard release of all 12,800 fish for January 11th and 12th at the mile 21 marker just downstream of Rio Vista.
- The next experimental release is scheduled for the week of the 24th and will be hard release only with a smaller number of fish.
- The release on the week of January 31st will be a full 12,800 fish, 50% hard release and 50% soft release.
- DWR clarified that there is no timeline for the genetic analysis of the captured unmarked DS, but that information will be shared with the SMT when it is available.

USBR shared environmental data updates as of January 10th.

- Three-station daily average water temperature: 9.68° C.
- Three-day running average turbidity at OBI: 5.25 FNU.
- Current turbidity at OBI: 4.10 FNU.
- X2 is 65 km.
- Weather forecast out of Antioch is mostly sunny to partly cloudy with eastern to northern winds reaching 5 mph.
- Weather forecast out of Stockton is patchy fog all week with mostly cloudy to mostly sunny skies. East southeast to northwestern winds ranging from 3 - 6 mph.

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

USBR asked for input on PA Assessment evaluation question 2 (Do DS have a high risk for migration and dispersal into areas that have a high risk for future entrainment?) from the SMT. The previous week's answer was crafted immediately after the first flush period, and new answer must be developed given the migration period.

- CDFW spoke to LFS migration data and highlighted migratory behavior that will likely persist through the month targeting spawning grounds west of where the population was before the storm events. This would place LFS mostly out of areas of entrainment.
- DWR offered perspective on DS migration moving rapidly upstream after first flush and then additional movement as water temperatures reached the spawning temperature of 12° C.

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.

- Abundance estimates will include marked fish in the future.
- The most recent detection was updated to January 5th.
- LEPS was included in surveys that are used for detections.
- Question 2 was updated to note that low turbidity persists in the OMR corridor, and adult DS are commonly associated with areas of higher turbidity. Therefore, the SMT does not expect DS to move into areas with a higher likelihood of entrainment.
- Question 3 was updated to reflect that no data is being collected currently to detect a spent female DS, but data collection by SKT will begin on January 18th.
- Question 4 removed language about uncertainty around turbidity following the first flush event.
- Question 6 removed language on the weather outlook and environmental conditions that could produce conditions that would trigger a turbidity bridge avoidance action.
- The executive summary was updated to note the unmarked DS collected on January 5th.

ITP Longfin Smelt Risk Assessment

The SMT reviewed and discussed updates to the ITP Risk Assessment.

Section 1-A

- Exposure Risk
    - Language about DS was pulled from evaluation question 2 in the PA assessment to reflect the discussion on turbidity.
    - No changes for LFS.
- Routing Risk
    - No changes for DS.
    - Routing risk for LFS was updated to point to X2 position reflecting recent wet conditions.
- There were no changes to overall entrainment risk for DS or LFS.

Section 1-B

- Exposure risk

    - Language about DS was updated to specify persistent and low turbidity has been observed in the OMR corridor.
    - The LFS section was revised to note insufficient density of larvae detected by SLS 13 to trigger COA 8.4.2. A reference to the January 5th larvae detected by LEPS near CCF was added with a note on high risk of entrainment for larvae in the South Delta. However, the SMT agreed that management actions will not mitigate risk for larvae already in the OMR corridor.
- Change in exposure from last week
    - No changes for DS
    - For LFS, there were no changes for larvae outside the zone of influence of the export facilities, but the presence of LFS larvae in the vicinity of the export facilities has been confirmed by recent sampling.
- Reporting OMR Index
    - Language was updated to state, "The SMT determined that risk of entrainment is low across the range of expected OMR Index values for fish outside of the Old and Middle River corridor. SLS 13 detected 3 LFS larvae in the south and central Delta, however this is insufficient to trigger COA 8.4.2."
- The executive summary was modified to note the SLS 1 cancellation due to COVID mitigation and subsequent impacts to data availability. The SMT also pointed out LFS population distribution is consistent with the expected upstream spawning distribution associated with drier hydrology, but that recent storms moved X2 downstream reflecting a more favorable hydrology and shifting spawning distribution further west out of the zone of entrainment.
- A new sentence was added to cover Barker Slough and the relevant COA (8.12) remaining inactive based on the January Sacramento Valley Water Year Type Index forecast of 2021 being classified as a Below Normal water year. This will be updated when the February forecast is released.
- COA 8.12 and 8.13 were also added to the Basis for Advice discussion.

Part 4: Additional Considerations/Discussion

- DWR notified the SMT that the False River drought barrier was breached on the 7th which will lead to condition changes in the Delta.

Agencies reported no items for elevation to WOMT.