

Smelt Monitoring Team – Tuesday, March 28th, 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

- CDFW to follow up with USFWS on status of online 20-mm bubble plot survey maps.

MEETING SUMMARY

PART 1: Updates on Water Operations and Biological Updates

Relevant Actions & Triggers

The Incidental Take Permit (ITP) Condition of Approval (COA) 8.5.2 (Larval and Juvenile Delta Smelt Protection) was triggered on March 18th due to the three-day average water temperature exceeding 12° C at Jersey Point and average secchi depth of <1 m at the 12 Central and South Delta stations by SLS 6 and 20mm Survey 1. COA 8.5.1 (Turbidity Bridge Avoidance) was triggered on the 17th due to daily average turbidity >12 FNU at Old River at Bacon Island (OBI) and will off-ramp on April 1st. 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 1 st through June 30 th 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 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 |
| 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 28 th | SMT recommendation based on weekly risk assessment. | Off-ramped with detection of LFS larvae in Smelt Larval Survey (SLS) 12 |

| Condition of Approval | Requirement | Time Frame | Trigger | Triggered? |
|--|--|--|---|---|
| 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. | Off-ramped by SLS 6; 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 |
| 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 |

| 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 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 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 $\geq 12^{\circ}\text{C}$ 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, triggered 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 |
| 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 $>25^{\circ}\text{C}$ for three consecutive days. | Active; not triggered |

| Condition of Approval | Requirement | Time Frame | Trigger | 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 03/01/23 |

Current Operations & Outlook

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

- USBR reported on weather conditions noting a colder, low freezing levels, storm event spanning March 28th to the 29th with precipitation favoring the Shasta Basin and Northern Sierras with one to two inches falling in the Sacramento and San Joaquin River basins. Another, lighter, storm system is expected to arrive at the start of April.
- Releases from Whiskeytown Dam on Clear Creek are currently 200 cfs with a channel maintenance pulse expected to temporarily increase flows to 840 cfs before returning to 200 cfs.
- Releases from Keswick Dam on the Sacramento River are 3,250 cfs.
- Releases from Nimbus Dam on the American River are 7,000 cfs. Flood management actions are possible.
- Releases from Goodwin Dam on the Stanislaus River are 1,500 cfs. A fishery egg basked retrieval will briefly reduce releases to 300 cfs later this week.
- Delta Cross Channel (DCC) gates remain closed. No changes expected for the next seven-day period.
- March 28th marks the first quarter of the neap tidal cycle, with the next full moon on the 5th of April.
- The federal facility is exporting 3,500 cfs, but pumping will decrease as facility constraints come into play.
- DWR reported that State facility exports were approximately 3,400 as of March 27th and decreasing to 2,800 cfs by the 28th. As side flow diminishes exports will drop to 5,000 cfs.
- Feather River releases are 15,000 cfs. DWR is assessing inflows associated with incoming precipitation and will evaluate operational decreases after the storm system passes.
- As of March 27th, Sacramento River flows at Freeport were around 63,000 cfs, and will increase with incoming precipitation.
- San Joaquin River flows at Vernalis were 35,700 cfs as of March 27th and may drop to 34,000 cfs.
- Delta outflows were 107,000 cfs as of March 27th and will decrease over the week with some variability as storm runoff works its way through the system.
- As of March 27th, QWEST was around +44,000 cfs and is expected to remain above 30,000 cfs.
- X2 is west of Martinez (<56 km).
- The expected daily OMR index values as of March 20th are +5,000 to +17,000 cfs.
 - March 25th OMR at USGS gauge:
 - Daily: 11,000 cfs
 - Five-Day: 10,300 cfs
 - 14-Day: 5,700 cfs

- March 25th OMR Index:
 - Daily: 11,000 cfs
 - Five-Day: 10,600 cfs
 - 14-Day: 6,200 cfs
- March 27th OMR Index:
 - Daily: 13,700 cfs
 - Five-Day: 11,300 cfs
 - 14-Day: 8,500 cfs

No updates to the survey table.

Review of Environmental Conditions and Survey Updates

CDFW delivered catch updates on relevant surveys to the SMT.

- SLS 6 was on the water from March 13th to the 17th. All stations were sampled. Detections are as follows, processing is ongoing:
 - LFS Larvae
 - Suisun Bay and Confluence region: 50
 -
- 20-mm survey 1 was on the water from March 13th to the 17th. Napa stations 345 and 346 were dropped in addition to two tows at station 344 due to storm deposited debris in the river. All 12 Central and South Delta stations are processed. Processing is ongoing:
 - LFS Larvae
 - Station 504: One
 - Station 706: One
- 20-mm survey 2 is on the water this week from Monday, March 27th to the 30th
- SKT 4 will be on the water from Monday, April 3rd to the 6th.

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

- EDSM sampled the week of March 19th Monday through Friday completing all 35 sites.
 - DS
 - Sacramento Deep Water Ship Channel (SDWSC): One (Right, green, posterior tag from January 26th soft release)
 - The DS abundance estimate is now 1,575.
 - LFS
 - Suisun Bay: Five
 - Western Delta: Nine
 - Lower Sacramento: One
- EDSM is scheduled to sample this week Monday, March 27th through Thursday, March 30th.
- Chipps Island sampled the week of March 19th Sunday, Monday, Wednesday, Thursday, and Friday completing 46 of 50 tows. Six tows were cancelled on March 23rd due to high wind.
 - DS: Zero
 - LFS: Nine (Fork Length = 84 to 100 mm)
- Chipps Island will sample Sunday, Monday, Wednesday, Thursday, and Friday the week of March 26th.

CDFW provided a salvage and qualitative larval sampling update (March 20th to the 26th).

- No DS or LFS were detected at either facility.

- Operations
 - State Facility
 - Reduced one count on March 22nd at 0900 due to high fish numbers.

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. CDFW added that COA 8.5.1, Turbidity Bridge Avoidance, concludes on April 1st.

Longfin Smelt

CDFW noted that environmental conditions are good for LFS. Recent survey results indicate that detections are decreasing and spawning is likely ending soon. Larvae will continue to be present, but the high storm flows and positive OMRI should be protective against entrainment. The SMT agreed risk remains low for LFS.

DWR noted that ITP COA 8.17, Export Curtailments for Spring Outflow, will be in effect as of April 1st with no controlling effect on operations as long as three-day average Delta outflows do not drop below 44,500 cfs.

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.