

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

None

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 was triggered by Smelt Larva Survey (SLS) 2 on January 31st when LFS larvae were detected at four of the 12 south and central Delta stations and larval catch per tow exceeded five at two of the stations. 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 is inactive due to the Sacramento Valley Water Year Type Index (SVI) forecast for January and will be reassessed when the February forecast is available.

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 (FNU).

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

IIP 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 1 st through June 30 th 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 1 st through Feb 28 th , 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 28 th	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 28 th	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 1 st through June 30 th 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 and 1/31/22

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 1 st through June 30 th 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 30 th	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 1 st through June 30 th 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 a dry weather pattern. There is no anticipated precipitation in the seven-day outlook with high winds forecasted from February 1st to the 2nd.

- 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 currently 2,000 cfs.
- Releases from Goodwin Dam on the Stanislaus River are currently 1,500 cfs to meet D-1641 requirements.
- Jones Pumping Plant exports are currently 800 cfs in response to the monthly requirement targeting an outflow of 11,400 cfs.
- Delta Cross-channel (DCC) gates are currently closed. No modifications expected.
- DWR reported that Feather River releases increased from 950 cfs last week to 3,000 cfs as of February 1st. There are possible increases further into the week to counteract the dry conditions.
- As of February 1st, Freeport flows are slightly above 12,000 cfs.
- Vernalis flows are just below 1,000 cfs, but may increase to 2,000 cfs over the next few days.
- Clifton Court Forebay (CCF) flows are 0 cfs as of February 1st with anticipated increases to 200 cfs in the next couple days and 300 cfs early next week. The targeted releases and exports are in response to the 11,400 cfs targeted outflow.
- Delta outflows were 5,800 cfs yesterday and will increase to around 12,000 cfs.
- QWEST yesterday was -2,500 cfs and will shift to 2,000 cfs today.
- Rio Vista flows are currently in the 10,000 cfs range and expected to hold steady.
- OMR Index:
 - February 1st: -500 cfs
 - 7-day average: -4,970 cfs
 - 14-day average: -4,950 cfs
 - The OMR Index is anticipated to stabilize between -1,500 to -1,000 over the coming week.
- X2 is > 81 km and just upstream of Collinsville. With expected higher outflows, X2 should shift to upstream of Chipps Island in the high 70s km range.
- Turbidity spikes have been observed in Franks Tract and Prisoner's Point due to the early February wind event but low exports should limit the dispersal of turbid conditions down the OMR corridor.
- The spring tide is peaking today and will decline over the next week.
- No edits were made to the survey status table.

Review of Environmental Conditions and Survey Updates

CDFW delivered catch updates on relevant surveys to the SMT.

- SLS 2 was active from January 24th to 28th. Sample processing is ongoing.
 - LFS catch results for the stations are as follows:
 - Station 906: One larva (8 mm)
 - A yolk sac was present.
 - Station 815: Two larvae (6 to 7 mm)
 - Both had yolk sacs.
 - Station 812: 24 larvae (6 to 8 mm)
 - 11 of 24 had yolk sacs.
 - Station 809: Six larvae (6 to 8 mm)
 - Four of six had yolk sacs.
 - Station 716: Five larvae (6 to 7 mm)
 - Four of five had yolk sacs.
 - The remaining SLS 2 samples should be through quality control by the end of week.

- The Larval Entrainment Pilot Study (LEPS) 24-hour sampling is complete having collected 45 samples. The team will be back on the water February 2nd and intends to have the 24-hour sampling data available within a week.

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

- Results for EDSM sampling from January 24th to the 28th are below:
 - Suisun Bay
 - LFS: 15 (61 to 84 mm)
 - Suisun Marsh
 - LFS: 27 (60 to 98 mm)
 - Lower Sacramento River
 - LFS: Six (73 to 92 mm)
 - DS: one (65 mm)
- CDFW inquired about the genetic analysis on the two unmarked DS. USBR noted that the UC Davis Genomic Variation Lab (GVL) ran genetics on the two “wild fish”, and during tissue collection Fish Conservation and Culture Laboratory (FCCL) staff examined the fish and concluded that they were poorly adipose clipped. Furthermore, genetic analysis indicates that the fish are from the hatchery population. A hybrid fish was identified in brood stock collection at FCCL and is having further genetic analysis being done.
 - USFWS clarified that there is no distinction between hybrid and pure fish for regulatory purposes.

CDFW provided a salvage update (January 25th to January 31st).

- No salvage of DS or LFS at either facility.

DWR provided updates on the DS experimental release program.

- Due to high winds, the February 2nd release event has been cancelled. There will still be a hard release of 6,400 fish on February 3rd in the Sacramento Deepwater Shipping Channel (SDWSC), but the exact details of the release location will be determined by release crews.
- Wednesday and Thursday releases are planned for the rest of February mostly in the SDWSC, but trial releases in Montezuma Slough are possible.

USBR shared environmental data updates as of February 1st.

- Three-station daily average water temperature: 10.45° C.
- Three-day running average turbidity at OBI: 4.77 FNU.
- Current turbidity at OBI: 4.6 FNU.
- X2 is > 81 km.
 - Estimated Sacramento River X2 is 84.6 km.
 - Estimated San Joaquin River X2 is 84.8 km.
- Weather forecast out of Antioch is mostly clear with north to northwest winds from 18 to 25 mph and gusts up to 40 mph.
- Weather forecast out of Stockton is mostly clear with north to northwest winds from 18 to 23 mph and gusts up to 34 mph.

DWR noted that larval sampling at the facilities will begin February 7th on the state side, and USBR confirmed a February 7th start date for federal larval sampling operations as well.

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

USBR noted that circumstances from last week have not dramatically changed. Notably there is a wind event in that will impact turbidity in the Delta which could produce readings greater than 12 FNU. This may lead to a higher likelihood of entrainment.

- USFWS noted that Franks Tract and Prisoner's Point as of 11:00 am February 1st have turbidity readings of 29.25 and 15.32 FNU respectively.

CDFW reviewed the analysis of SLS data cross walking the date of the first DS larvae collection with the three station daily, 7-day, and 14-day average water temperature, and noted that during warmer/drier years the date of first detection was in early March, indicating spawning occurred in February, with colder/wetter years demonstrating a late March first detection on average. This suggests that temperature is a component in spawning behavior. Given current abiotic conditions (i.e., water temperature, spring tide, and lunar cycle), spawning could be underway, but only in its earliest stages.

- USBR inquired if there is any concern that likelihood of larval DS entrainment may be higher given the findings. CDFW noted that the biggest change for the week is the reduction in exports, which points towards hydrodynamic conditions that are better for any potential larvae.

CDFW noted that biologically conditions are similar to last week with some large (70 to 80 mm) LFS that could still spawn. There are still yolk sac larvae present, indicating larvae are still emerging, and the distribution of LFS in the south and central Delta has not shifted significantly between SLS 1 and SLS 2.

CDFW brought up the possibility of conducting a particle tracking model (PTM) run, but DWR highlighted that the range of anticipated OMR Index values (-500 to -1,500 cfs) precludes using the model for a comparative analysis.

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.

- The abundance estimate for the week is inclusive of all strata.
- References to recent detections were updated to reflect the two DS detected by EDSM on January 31st throughout.
- The Cultured DS Experimental Release section was updated to cover the genetic analysis of the two previously unidentified cultured fish.
- The forecasted distribution section was revised to note that increasing turbidity and spring tides may influence the distribution of adults, given water temp is conducive to spawning.
- Language referencing the DS salvaged in the South Delta on January 16th was removed from evaluation question two.
- Evaluation question four was edited to acknowledge that a turbidity bridge avoidance action is not possible due to the already reduced OMR Index.
- Evaluation question five was updated to recognize that Holland Cut station is offline, and note that turbidity in the area will increase as a result of wind events in the region.
- Evaluation question six notes that a turbidity bridge avoidance action is not possible due to OMR being less negative than -2,000 cfs.

- The executive summary was revised to noted that high winds will likely increase turbidity from February 1st to the 3rd, but a turbidity bridge avoidance action is not possible for reasons described above. The SMT agreed that the likelihood of DS entrainment may increase with greater turbidity in the OMR corridor, but the anticipated OMR Index values decrease the overall likelihood of adult DS entrainment.

ITP Longfin Smelt Risk Assessment

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

Section 1-A: Risk of entrainment into the central Delta and export facilities for DS and LFS in the Sacramento River and Confluence

- Exposure Risk (hydrology)
 - DS: Remains low. Language referencing low turbidity in the OMR corridor was deleted.
 - LFS: Remains low. Language was revised to explain low risk is due to reduced exports resulting in positive QWEST.
- Routing Risk (behavior and life history)
 - DS: Remains low to medium. Language was updated to reflect the wind-driven turbidity event between the lower San Joaquin River and Franks Tract.
 - LFS: Risk remains low. The SMT agreed to remove language on X2 remaining stable as it has shifted over last seven days and to reiterate that risk remains low due to reduced exports.
- Overall entrainment risk for DS or LFS.
 - DS: Remains low. Text was added to acknowledge the OMR Index is projected to be less negative than prior weeks.
 - LFS: Remains low. Language was added to note that reduced exports will result in a substantially less negative OMR Index.

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

- Exposure risk
 - DS: Remains low due to projected operations resulting in a less negative OMR Index.
 - LFS: Overall risk remains low. Text was updated to reflect the following:
 - QWEST has turned positive, and exports have decreased resulting in less negative OMR Index.
 - SLS 2 triggered COA 8.4.2.
 - References to the PTM run were removed.
- Change in exposure from last week
 - DS: The SMT agreed there is a reduced risk of entrainment due to reduced exports. However, DS may move into the south and central Delta as a result of wind driven turbidity.
 - LFS: As with DS, the SMT agreed, there is reduced risk of entrainment of LFS due to reduced exports.
- The executive summary was revised to reflect the following:
 - The OMR Index is projected to be between -500 and -1,500 cfs due to compliance with D-1641.
 - X2 is now upstream of Collinsville but is expected to move downstream due to reduced exports and increased upstream releases.
 - The risk of entrainment is low due to reduced exports.
 - SLS 2 triggered COA 8.4.2, however the SMT determined that advice was not warranted.
- The Barker Slough summary was updated to note that SLS 2 found larvae at station 716.

Part 4: Additional Considerations/Discussion

Section 8.5.1 in the Fish and Water Operations Outlook was modified to note that high winds are anticipated and that the OMR Index is already less negative than -2,000 cfs.

Agencies reported no items for elevation to WOMT.