

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

- DWR to perform Particle Tracking Model (PTM) run as requested prior to the next Smelt Monitoring Team (SMT) meeting if conditions indicate a new PTM run would be informative.

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 FNU 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 including 8.5.1 Turbidity Bridge Avoidance and 8.5.2 Larval and Juvenile DS Protection. COA 8.4.2 Larval and Juvenile Longfin Smelt Entrainment Protection was triggered on March 11th by Smelt Larval Survey (SLS) 5 when larvae were detected at four of twelve stations. 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 as of March 1st it is also active for Delta Smelt (DS) through June 30th. COA 8.12 was triggered for LFS on March 11th by SLS 5.

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.	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

TTP 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	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 1 st through Feb 28 th , 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 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 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 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	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 a shift in meteorological conditions with a storm system delivering precipitation on March 15th and 16th with another possibility of precipitation over the

weekend. Northern California and the Sacramento basin could receive over half an inch while the most favorable parts of the Sierra Nevada mountains could receive an inch and a half. One to two tenths of an inch is predicted in the San Joaquin basin.

- 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.
- Changes are expected on the American River as the transition is made to meet the updated D-1641 conditions in the Delta. American River releases from Nimbus Dam are 1,750 cfs today and will decline towards 1,250 cfs on March 16th. Reductions from Nimbus will impact Freeport flows by the end of the week.
- Releases from Goodwin Dam on the Stanislaus River are currently 400 cfs with a reduction to 300 cfs scheduled for March 16th.
- Operational requirements in the Delta are currently transiting from the 11,400 cfs outflow target to the reduced outflow requirement of 7,100 cfs.
- As of today, Reclamation is exporting 2,700 cfs at the federal facility and then operations will be reduced to 800 cfs on March 17th.
- Freeport flows were around 11,700 cfs on March 14th.
- Delta Cross-channel (DCC) gates are currently closed. No modifications expected.
- DWR reported that Feather River releases decreased significantly from last week from 5,500 to 2,500 cfs on March 15th.
- State facility exports fluctuated from 300 to 0 cfs last week. On March 14th exports reached 600 cfs and once the transition is over, exports will fluctuate between 0 and 600 cfs.
- Delta outflows were 10,800 cfs on March 14th and will decrease to 8,500 cfs on March 15th to meet the 7,100 cfs requirement.
- QWEST has been around 1,500 and 2,000 cfs and will transition to -500 cfs for a few days before returning to positive values.
- The OMR Index was -1,000 cfs last week and reached -2,800 cfs on March 15th. The OMR Index is expected to level out to -1,000 to -1,200 cfs dependent on hydrology. The OMR Index would have reached -3,300 cfs without the -1,250 cfs seven-day average limit recommendation.
- X2 is 78 km and is expected to travel further upstream with decreased outflows and rising tide.
- No significant turbidity at Franks Tract and OBI in the past week.
- DWR clarified that the fluctuation between positive and negative QWEST is the result of large swings due to the operational transition.
- USFWS inquired if the combined exports in the outlook are calculated on a daily average or if they are a 14-day average, and DWR noted that they are the daily average.
- DWR responded to a CDFW question on pumping increasing if there is significant precipitation. It was noted that pumping would not exceed the published ranges.
 - CDFW expanded by sharing that fish movement often coincides with rain events, but with the forecasted event being on the smaller side it is unlikely it will result in fish movement.
- Survey table was edited to reflect partial interruption for the Chipps Island Trawl last week.

Review of Environmental Conditions and Survey Updates

CDFW delivered catch updates on relevant surveys to the SMT.

- SLS 4 processing is complete for all stations.
- SLS 5 processing is ongoing. Updates include:
 - LFS larvae were detected at four stations in the south Delta, triggering COA 8.4.2 on March 11th.

- Three LFS larvae were detected at Station 716, triggering COA 8.12 on March 11th.
- Spring Kodiak Trawl (SKT) is on the water the week of March 14th with the south and central Delta stations sampled on Monday. No osmerids were detected.
- 20 mm Survey 1 and SLS 6 will begin the week of March 21st.
- USBR inquired when SKT will sample the Sacramento Deepwater Shipping Channel (SDWSC) and Suisun Marsh next.
 - CDFW confirmed that the upper Sacramento River will be sampled on March 16th and Suisun Marsh the next day.

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

- EDSM sampled from Monday to Friday during the week of March 7th completing all sites. Results are as follows:
 - Suisun Marsh
 - DS: Two (all marked)
 - Suisun Bay
 - LFS: 15 (69 to 77 mm)
 - Sacramento Deep Water Shipping Channel
 - DS: Five (all marked)
 - Lower San Joaquin River
 - LFS: One
 - Note: The fish was detected closer to the confluence of the Sacramento and San Joaquin Rivers than reported during the March 11th SMT meeting.
- Database issues have impaired the preparation of the new abundance estimate. For the time being last week's abundance estimate will be used.
- USFWS updated the SMT on the genetic results of the unmarked fish caught by EDSM on January 5th, and it appears to be a wild fish.
- Chipps Island trawl experienced interruptions last week due to wind and boat issues which resulted in the loss of a day and a half of sampling. Thirty-three of 50 tows were completed. Four LFS were detected, but none were healthy enough to be used as broodstock.
 - USFWS clarified that the sampling crew described the appearance of the fish as "thin and sickly".

CDFW provided a salvage and qualitative larval sampling update (March 8th to March 14th).

- 12 LFS were salvaged at the federal facility ranging from 20 to 21 mm in size.
- Larvae were seen at the CVP on March 8th and the SWP on March 7th.
- Two LFS were detected at the state facility on March 14th with lengths of 21 and 22 mm, and represent a salvage of four.
- The cumulative salvage to date for both facilities is 16 LFS.

USBR shared environmental data updates as of March 14th.

- Three-station daily average water temperature: 14.25° C.
- Three-day running average turbidity at OBI: 3.49 FNU.
- Current turbidity at OBI: 3.7 FNU.
- X2 is 78 km.
- Weather forecast out of Antioch is partly cloudy to sunny with a chance of precipitation on March 18th with winds from west northwest to west southwest from six to nine mph.

- Weather forecast out of Stockton is partly cloudy to sunny with a chance of precipitation on March 18th with winds from west northwest to west from 5 to 11 mph and gusts up to 21 mph.

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

USBR noted that as of March 15th evaluation questions in the risk assessment on larval and juvenile DS come into effect. USBR suggested that at this point there is no evidence to indicate that conditions have changed for DS since last week. The one point of interest is the slight increase in temperature from 12 to 14°C. CDFW echoed that the three-station daily temp increasing will likely cue to the fish that the seasons are changing, and may increase the likelihood of movement into the central and south Delta. However, without a turbidity bridge and a negative QWEST this behavior seems unlikely. With X2 at 78 km it is possible that fish may spawn further upstream to take advantage of the freshwater habitat.

CDFW highlighted that entrainment of larval and juvenile LFS into the south Delta may increase given increased exports. Additionally, larval detections at the moment may be skewed given that SLS gear is equipped for smaller fish, and the SMT should expect new information on population density with the first 20 mm Survey of the season next week. Likewise, the slight temperature increases and X2 are environmental conditions of interest at the moment.

CDFW clarified that given the continued salvage, and increasing exports there is no decrease in risk to LFS, and thus proposed the SMT recommendation should remain in effect. The SMT agreed.

DWR asked if the -1,250 cfs OMR Index recommendation would remain controlling after March 17th, or if the SWP will transition to D-1641 at that time. DWR explained that the controlling factor for operations will depend on how much precipitation falls later this week.

DWR inquired if another PTM run would be informative.

- DWR suggested waiting to undertake another PTM run until March 21st given the uncertainty around how much precipitation will occur in the coming days. CDFW and DWR agreed.
- CDFW suggested using the same insertion points (Stations 812, 815, and 902) and scenarios (base case and OMR Index no more negative than -1,250 cfs) as the PTM run requested on March 8th. DWR and USFWS agreed.
- DWR will complete the requested PTM run prior to the next SMT meeting provided conditions indicate the data will be informative.

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:

- Due to USFWS database issues there is no new all strata abundance estimate.
- Evaluation question four was updated to reflect stable turbidity conditions are expected despite precipitation.
- Evaluation question six was revised to note that a turbidity avoidance bridge is not warranted given stable turbidity conditions.
- Language in evaluation question seven was updated to capture anticipated fluctuations in QWEST and the lack of larval or juvenile DS observed in the south Delta.

- Evaluation question eight denoted that DS are less likely to be in the south Delta and turbidity is expected to remain low for the next seven days, however, the OMR index will be less protective at more negative values within the anticipated range of -500 to -4,000 cfs for the next seven days.
- Evaluation question nine was updated to note that all recent detections of adult DS are outside of the south Delta and no larval or spent females have been detected yet. The SMT agreed they currently cannot estimate the percent of larval and juvenile entrainment because of uncertainty around the distribution of these life stages.
- The executive summary was updated to note that a turbidity bridge avoidance action is not likely given current conditions and the more negative OMR Index may increase the likelihood of entrainment if larval DS are present.

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. No changes since last week.
 - LFS: Remains low. Updated to note that exports are increasing and QWEST is temporarily negative, but for the expected OMR Index range this will not result in increased risk for larvae in either the Sacramento River or the confluence.
- Routing Risk (behavior and life history)
 - DS: Remains low. Language was updated to reflect low turbidity through the lower San Joaquin River. Furthermore, increasing water temperatures suggest spawning is likely to start soon.
 - LFS: Risk remains low. No changes since last week.
- Overall entrainment risk for DS or LFS.
 - DS: Remains low. No changes since last week.
 - LFS: Remains low. Revised to address changing operations and current environmental conditions.

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

- Exposure Risk
 - DS: Remains low. Revised to note that while no DS larvae have been detected there is a possibility that spawning has begun and larvae are present given water temperatures. Additionally, captures the effect of last week's recommendation on operations for the protection of LFS larvae.
 - LFS: Low risk for adult and subadult LFS entrainment. Updated given the OMR Index reaching -2,800 cfs.
 - Remains low to medium for larvae in the lower San Joaquin River.
 - Remains high for LFS larvae and juveniles in the OMR corridor. Updated with new salvage data from March 11th and 14th.
- Change in exposure from last week
 - DS: Remains low. Updated to note X2 shifted upstream by 4 km and will continue moving upstream as outflow decreases. Increasing exports may increase risk if spawning has begun.

- LFS: Updated to reflect the high risk for larvae with juvenile salvage beginning and exports increasing.

The LFS executive summary was revised to acknowledge the continuation of the March 11th recommendation under COA 8.4.2 as well as the latest salvage data. CDFW also noted that Barker Slough Pumping Plant will be offline until March 18th.

Part 4: Additional Considerations/Discussion

Agencies reported no items for elevation to WOMT, beyond continuing their recommendation to operate to a seven-day average OMR Index no more negative than -1,250 cfs under COA 8.4.2.