

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

- USFWS to conduct a regression analysis of state and federal facility Longfin Smelt (LFS) salvage data.

MEETING SUMMARY

PART 1: Updates on Water Operations and Biological Updates

Relevant Actions & Triggers

USBR reported on Old and Middle River (OMR) management measures. Under Larval and Juvenile Delta Smelt (DS) action, if QWEST is negative and larval or juvenile DS are within the entrainment zone of the pumps based on real-time sampling run hydrodynamic models and forecasts of entrainment to estimate the percentage of larval and juvenile DS that could be entrained and if necessary, manage exports to limit entrainment to be protective based on the modeled recruitment levels. 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 8.4.2 Larval and Juvenile LFS Entrainment Protection, 8.5.2 Larval and Juvenile DS Protection, and 8.12 Barker Slough Pumping Plant Longfin and Delta Smelt Protection.

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	Triggered 12/18/21; last day of action was 1/2/22

¹ The current instrumentation measures turbidity in Formazin Nephelometric Units (FNU).

OMR Management Measures	Requirement	Time Frame	Trigger	Triggered?
			future entrainment or a spent DS has been collected in monitoring surveys.	
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 DS 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 DS are within the entrainment zone of the pumps based on real-time sampling of spawning adults or young of year life stages	In effect
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 CCF reaches 77°F for 3 consecutive days	In effect

IIP 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 LFS required under 8.1.5 and 8.1.1	Nov 1 st through June 30 th 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 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.	Triggered 12/18/21; last day of action was 1/2/22
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 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 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:	Onset of OMR management through Feb 28 th	SMT recommendation based on weekly risk assessment	Off-ramped by larval detections in Smelt Larval Survey (SLS) 12

Condition of Approval	Requirement	Time Frame	Trigger	Triggered?
	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			
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) 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	Triggered 1/20/22, 1/31/22, 2/28/22, 3/11/22, 3/29/22, 4/11/22, and 4/26/22
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 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 end of OMR management or until CDFW agrees that the action may be ended or modified.	Turbidity at OBI > 12 FNU	In effect as of 1/3/22; off-ramped April 1 st .
8.5.2 (Larval and Juvenile	If triggered, this Condition of Approval will restrict south Delta exports for seven	Nov 1 st through June 30 th or until	When the five-day salvage of juvenile DS is greater than or equal to	Active, not triggered

Condition of Approval	Requirement	Time Frame	Trigger	Triggered?
Delta Smelt Protection)	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 DS 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.	off-ramped by 8.8	one plus the average prior three years' FMWT index (rounded down). The 2021 FMWT index for DS was zero.	
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° 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 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	Active, Triggered for LFS 2/14/22, 3/11/22, and DS on 3/23/22

Current Operations & Outlook

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

- USBR reported on weather conditions as the region exits out of cooler conditions. Periodic precipitation that started over the weekend to the north of the I-80 corridor along the spine of the Sierra Nevada will phase out by midweek. Total precipitation will not be significant enough to change flows as the region enters a period of warmer weather later this week.

- Releases from Whiskeytown Dam on Clear Creek are currently 200 cfs. No changes expected for the next seven-day period.
- Releases from Keswick Dam on the Sacramento River are currently 3,250 cfs with a change order for 3,500 cfs on May 11th.
- Releases from Nimbus Dam on American River ramped up to 1,500 cfs from 1,000 cfs last week to support Sacramento River conditions and Delta outflow and water quality.
- Releases from Goodwin Dam on the Stanislaus River are currently 500 cfs. The system is in its last week of the pulse flow period. Targeted releases after the last pulse are complete are currently unknown since flows must be adjusted in real time to accommodate the D-1641 Vernalis requirements.
- Federal facility exports are targeting 900 cfs with no changes expected for the week ahead.
- Delta Cross Channel gates are closed and will remain so through May 20th with the possibility of opening on the 21st.
- DWR reported that Feather River releases increased from 800 to 2,200 cfs.
- Freeport flows are around 6,200 cfs and will likely climb over the next few days as released water flows into the Delta.
- San Joaquin flows at Vernalis were 1,100 cfs on May 10th and will fluctuate with pulses from the Stanislaus River.
- State facility exports were reduced to 300 cfs over the weekend and will return to 600 cfs as of May 11th.
- Delta outflows were 4,100 cfs on May 10th and will increase to about 5,000 cfs later in the week.
- QWEST will continue to be positive as it fluctuates between 0 to 1,000 cfs for the week with an average of about 500 cfs.
- Rio Vista was 3,000 cfs and will climb up to 5,000 cfs through the week.
- Banks Pumping Plant will be offline due to maintenance activities from May 15th to May 20th.
- The daily OMR Index was -1,000 cfs on May 9th and will fluctuate between -1,000 and -1,600 cfs .
- Construction of the Old River agricultural barrier and Middle River barrier starts today. Grant Line Barrier construction begins May 18th. The OMR Index equation will change when the Grant Line Barrier is complete in late May.
- The USGS OMR gauge is currently more positive than OMRI due partially to probable fouling and the effect of the peak of the neap tidal cycle.
- No edits to the survey table.

Review of Environmental Conditions and Survey Updates

CDFW delivered catch updates on relevant surveys to the SMT.

- The Spring Kodiak Trawl May Survey is being conducted this week.
- Processing and QC for 20 mm Surveys 2 through 4 is ongoing.
- Preliminary results from 20 mm Survey 4 include:
 - Station 919: No osmerids
 - Station 704: One DS
 - LFS catch ranged in length from 15 to 36 mm.
- 20 mm Survey 3 results have been updated with the following data changes:
 - Station 706: 12 mm DS larva is now QC'd as LFS
 - Station 726: 12 mm DS larva is now QC'd as Wakasagi
 - Station 724: two 13 mm DS larvae are now QC'd as Wakasagi.
 - CDFW confirmed with USBR that a total of four DS were removed from the 20 mm Survey 3 totals.

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

- The week of May 2nd EDSM sampled all 40 planned sites, and sampling for this week will take place from Monday to Thursday.
 - No new DS detections at this time.
- The weekly abundance estimate for the week of April 25th to the 29th is zero based on the lack of DS detections.
- Chipps Island Trawl completed all scheduled sampling.
 - Five LFS were detected.
- Next week the Chipps Island Trawl will return to a three-day sampling schedule.

CDFW provided a salvage and qualitative larval sampling update (May 2nd to the 9th).

- CDFW shared an updated series of graphs tracking salvage for the current water year as well as 2020 and 2021.
 - CDFW noted that the end of salvage for the season was seen around this time in previous years.
- No DS detected at either facility.
- Weekly salvage of LFS ≥ 20 mm occurred every day last week.
 - Federal Facility: 94
 - State Facility: 540
 - Weekly total for both facilities: 634
- The seasonal total LFS juvenile salvage is 6,709 for both state and federal facilities.
- CDFW and DWR briefly discussed the range of salvage lengths. CDFW confirmed that most fish salvaged recently at the state facility were between 25 and 41 mm and fish at the federal facility were between 20 and 29 mm.
 - USFWS noted that at this size and age fish begin to develop volitional movement capabilities.
- CDFW noted that the state water project larval sampling will be inactive from about 6:00 am Monday May 15th until 6:00 pm on May 20th due to maintenance at Banks Pumping Plan.
 - USFWS commented that the SMT will need to consider this gap in sampling when interpreting salvage data going forward. Additionally filling CCF and not pumping the water out, will increase pre-screen loss for larval and juvenile smelt and there will be no accounting for these losses.

USBR shared environmental data updates as of May 9th.

- Three-station daily average water temperature: 17.30° C.
- CCF daily average temperature: 18.70° C.
- Current daily average turbidity at OBI: 2.13 FNU
- Current turbidity at OBI: 2.30 FNU.
- X2 is at 87.2 km.
- The weather forecast out of Antioch calls for a 30% chance of rain today then mostly sunny and clear until the end of the week. Winds will be from the north to the west from 10 to 18 mph with gusts up to 30 mph.
- The weather forecast out of Stockton is mostly sunny and clear with west to northwest winds from 10 to 20 mph.

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

USBR noted a lack of new observations of DS in the south Delta and nothing to indicate a change in where fish might be located. CDFW concurred, observing that conditions have not altered significantly from last week.

Survey detections of adult DS are declining which is expected as natural mortality during this life stage is high. CDFW pointed out that salvage efficiency is low at the small sizes that DS could be currently, so the absence of detections does not mean that there are no DS in the south Delta.

USFWS pointed out that LFS salvage remains very high relative to previous years and the difference in salvage from this week to last week is likely not statistically significant. CDFW shared that the salvage to FMWT Index ratio is now 21, which is higher than the previous drought years, though not as high as 2021 when the ratio was 31. It remains to be seen whether the declining survey detections of LFS in the south Delta indicate that salvage will be winding down for the season.

CDFW noted that COA 8.4.2 was not triggered by 20 mm Survey 4 so there is no mechanism in place for the SMT to continue their recommendation this week.

USFWS and CDFW discussed using the Larval Entrainment Pilot Study (LEPS) detections as a proxy for salvage as the state facility enters its maintenance period on May 15th. While it is not real time data it can still offer insights (e.g., in hindcast). USFWS also suggested using a regression analysis to determine if there is a relationship between the federal facility and state facility salvage data that could support the SMT's ability to assess risk in the absence of salvage data from the state facility.

CDFW asked if the Temporary Urgency Change Order (TUCO) would still limit exports over the coming week. DWR confirmed that several factors would restrict combined exports to no more than 1,500 cfs, including D-1641 requirements, the Interim Operations Plan, and ITP COA 8.17.

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:

- Evaluation questions seven and eight were updated to clarify the most recent DS detection in the OMR corridor occurred on April 5th.
- Language was added to evaluation question nine to note DS previously detected in the OMR corridor have an increased likelihood of entrainment and that DS may continue to be present in this region despite a lack of recent detections by 20 mm surveys or qualitative larval sampling.
- The executive summary was revised to reflect that the last larval DS detection in the OMR corridor was over a month ago, and any fish in the OMR corridor are at increased likelihood of entrainment.
- The SMT agreed to streamline the Cultured DS Experimental Releases section. USBR will bring proposed language to the next SMT meeting for discussion.

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:

Advice to WOMT:

- Language was added to reflect that 8.4.2 was not triggered on May 9th, but with continued salvage indicating that LFS are present in areas of high entrainment risk, the SMT remains concerned about the high salvage this year. With no COA being triggered this week the previous recommendation was lifted.

- Text was added to note that water temperatures are still within the window of spawning for DS. Therefore, DS may still be in areas of high entrainment risk but prevent detection due to their small size.

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: No changes since last week.
 - LFS: No changes in risk since last week. Text was updated to note juveniles are present.
- Routing Risk (behavior and life history)
 - DS: No changes since last week.
 - LFS: No changes since last week.
- Overall entrainment risk for DS or LFS.
 - DS: No changes since last week.
 - LFS: No changes since last week.

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

- Exposure Risk
 - DS:
 - Adults and sub-adults: No changes since last week.
 - Juveniles: No changes in risk since last week. Language was revised to reflect spawning is ongoing.
 - Larvae: No changes to risk since last week. Abiotic conditions such as X2 and QWEST were updated, and text was added to note a lack of recent detections.
 - LFS:
 - No changes to adult risk since last week. Language was updated to reflect ongoing salvage at decreasing numbers.
 - No changes since last week for larvae and juveniles in the lower San Joaquin River.
 - No changes since last week for larvae and juveniles in the OMR corridor. Language referencing the previous SMT recommendation was removed. New language was added highlighting that 20 mm Survey 4 did not detect any LFS in the OMR corridor, however, continued salvage suggests that LFS are still present in the region.
- Change in exposure from last week
 - DS: No changes since last week.
 - LFS: No changes since last week.
- The executive summary for LFS was revised to note 20 mm Survey 4 detected seven larval and juvenile LFS in the two most downstream lower San Joaquin stations which are outside the high-risk zone. 20 mm Survey 4 did not trigger COA 8.4.2 thus the SMT lifts the recommendation to limit OMRI to -1,250 cfs on a 7-day average.
- DWR mentioned that a [presentation by Levi Lewis](#) (UC Davis) at the 2022 Interagency Ecological Program (IEP) Annual Workshop indicated that otolith data provides evidence that LFS hatching is typically complete by the end of April.

Part 4: Additional Considerations/Discussion

Agencies reported no items for elevation to WOMT.