

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

- At the request of DWR, CDFW to prioritize processing for station 716 going forward given its role in compliance.
- CDFW to contact DWR when the April 20th 20 mm Survey 3 fish from station 716 has officially been identified. DWR will then notify the Smelt Monitoring Team (SMT) if Condition of Approval (COA) 8.12 has been triggered.
- DWR and USBR to coordinate on analysis of Delta Smelt (DS) detected by the Fish Restoration Program (FRP).
- USFWS to inquire about inviting outside expertise to the SMT to discuss Longfin Smelt (LFS) salvage data and trends.

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 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) COA that are in effect including 8.4.2 Larval and Juvenile LFS Entrainment Protection which was triggered on April 26th by 20 mm Survey 3, 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 future entrainment or a spent 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.	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

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 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

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 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

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 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: 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 Smelt Larval Survey (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) 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

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 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 .

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 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.	Nov 1 st through June 30 th or until off-ramped by 8.8	When the five-day salvage of juvenile DS is greater than or equal to one plus the average prior three years' FMWT index (rounded down). The 2021 FMWT index for DS was zero.	Active, not triggered
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 noting a drier pattern with slight chances of precipitation late this week and into next week in the northern Sierra Nevada. It is unlikely that the rainfall will influence operations.
- Releases from Whiskeytown Dam on Clear Creek are currently 200 cfs. No changes expected.
- Releases from Keswick Dam on the Sacramento River are currently 3,250 cfs. No changes expected.
- Releases from Nimbus Dam on American River are holding at 1,000 cfs. No changes expected.
- Releases from Goodwin Dam on the Stanislaus River are currently averaging 500 cfs today with an increase to 1,000 cfs before returning to 500 cfs by the end of the week as part of the ongoing pulse flow.
- Federal facility exports are targeting 900 cfs with no changes expected for the week ahead.
- Delta Cross Channel gates are closed and will remain closed through May 20th.
- DWR reported that Feather River releases are 800 cfs.
- Freeport flows are below 9,800 cfs and will decrease as runoff from the last storm system dwindles.
- San Joaquin flows at Vernalis are around 1,400 cfs and will fluctuate with pulses from the Stanislaus River.
- State facility exports are 600 cfs and will remain constant for the week.
- Delta outflows are 11,800 cfs and will trend downwards through the week with the rain effect phasing out from the last storm to about 8,000 cfs.
- As of April 25th, QWEST was approximately 3,600 cfs and will decrease to 1,500 cfs by the end of the week.
- The daily OMR Index was -1,200 cfs on April 25th and will fluctuate between -1,500 and -1,000 cfs as Vernalis flows fluctuate.
- Rio Vista is within the 8,000 cfs range and will decrease with decreasing Freeport flows.
- X2 is upstream of Collinsville. The decreasing flows and neap cycle will likely result in X2 moving further upstream over the next week.
- DWR noted that construction on the emergency drought barrier concluded April 13th.
- The Survey Table was updated to reflect that Mossdale Trawl will be active for the foreseeable future.

Review of Environmental Conditions and Survey Updates

CDFW delivered catch updates on relevant surveys to the SMT.

- 20 mm Survey 3 results are as follows:
 - DS
 - Station 716: One detection² on April 20th (11 mm)
 - Station 706: One (12 mm)
 - LFS
 - Station 809: 53
 - Station 812: 20
 - Station 815: 3
 - Station 901: 1
 - Station 902: 3
 - Station 906: 1
 - Station 703: 135
 - Station 705: 46

² The detection is not fully QC'd and is still subject to change.

- Station 706: 100
 - Station 711: 21
 - Station 801: 20
 - Station 804: 17
- 20 mm Survey 2
 - DS
 - Station 707: One (11 mm)
 - LFS
 - Sacramento River System: 614
 - Confluence: 85
- 20 mm Survey 1 identification process is almost complete with four stations to go. No additional DS.
 - LFS
 - Suisun Bay: 310
 - Confluence: 178

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

- EDSM completed all 40 sites last week. Results are as follows:
 - Week of April 11th
 - DS
 - Lower Sacramento River: Four
 - Week of April 25th
 - DS
 - Sacramento Deepwater Ship Channel (SDWSC): One (28 mm)
 - LFS
 - Montezuma Slough: 125
- The week of April 18th the Directed Outflow Project (DOP) detected two larval DS. DOP samples in tandem with EDSM. EDSM detected almost 50 Wakasagi at the paired site in the SDWSC while nearly 20 LFS were detected at the paired site in the lower Sacramento River. Both DOP detections are preliminary.
 - USFWS clarified that the DOP samples were preserved in formalin and later moved to ethanol.
- The weekly abundance estimate is 981,449. The abundance estimate is based on size-based retention probabilities so the smaller the DS detected the higher the estimate. This explains why the estimate on the week of April 4th was so high given a DS detection of 8 mm.
- Chipps Island Trawl completed all scheduled sampling the week of April 18th. Results are as follows:
 - LFS: 27, including two juvenile detections at 31 and 32 mm.

CDFW provided a salvage and qualitative larval sampling update (April 18th to April 25th).

- No DS detected at either facility, but elevated LFS detections continue.
- Weekly salvage of LFS >20 mm was 2,184.
- The season total LFS salvage is 5,443 for both state and federal facilities.
- Additionally, 26 Wakasagi were salvaged in the last week.

USBR shared environmental data updates as of April 25th.

- Three-station daily average water temperature: 17.78° C.
- CCF daily average temperature: 18.79° C.

- Three-day running average turbidity at OBI: 2.41 FNU.
- Current turbidity at OBI: 2.20 FNU.
- X2 is > 81 km.
 - Estimated Sacramento River X2 is 85.9 km.
 - Estimated San Joaquin River X2 is 85.5 km.
- Weather forecast out of Antioch is clear and sunny with west to southwest winds from 10 to 14 mph and gusts up to 24 mph.
- Weather forecast out of Stockton is clear and sunny with west to west-southwest winds from 8 to 17 mph and gusts up to 23 mph.

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

Regarding DS, USBR noted consistent conditions since the previous SMT meeting with the exception of the potential Barker Slough DS detection. USBR also commented that the most pressing need is the continued consideration of fish in the OMR corridor. CDFW added that just because 20 mm Survey 3 did not detect DS in the OMR corridor does not mean that fish are not present in low densities. Furthermore, CDFW relayed that Randy Baxter is not aware of a correlation between Wakasagi and DS salvage and establishing one may be difficult due to the rarity of Wakasagi salvage.

CDFW highlighted another week of increased LFS salvage. CDFW hypothesized that as temperatures increase fish large enough to migrate downstream may be miscued and think they are exiting the estuary, but are heading toward the export facilities. CDFW also shared updated graphs comparing total salvage for each date, exports, and OMRI for the years of 2020 through 2022. In particular, for 2022 the dates in which COA 8.4.2 was triggered were added and when recommendations were in effect were highlighted.

USFWS noted that the 2022 water year is taking on a tri-modal salvage distribution for LFS. USFWS commented that if an elevated salvage pattern represents a new normal, the SMT will need a different process for evaluating entrainment risk. USBR hypothesized that this could be the product of separate spawning cohorts and reviewing the size distribution of LFS salvage could provide insight on this topic. CDFW agreed that the hatching events appear to be episodic but given the time of the year and temperatures the spawning season should be concluding or already concluded.

DWR inquired if CDFW had updated their calculations of salvage relative to the FMWT Index to reflect the latest salvage data. CDFW noted that the new salvage numbers increased the total salvage to FMWT Index ratio to 17, but this is still not as high as 2020 or 2021, though higher than 2013 to 2015 (the previous drought). USFWS suggested that the SMT invite outside expertise to review and discuss LFS salvage data with the SMT and offer a third-party perspective on the matter.

CDFW suggested that with no change to risk for LFS in the OMR corridor the SMT should continue its advice to WOMT under COA 8.4.2. The SMT agreed.

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:

- The abundance estimate was updated.

- Juveniles were added to current life stages.
- Evaluation questions four and five were revised to note that turbidity is expected to remain stable.
- The SMT discussed circumstances surrounding evaluation question nine, specifically noting that the lack of detections near the export facilities does not mean there are no DS in the region and the residence time in the OMR corridor is low which poses sampling challenges.
- Evaluation question nine was updated to reflect that DS may still be present in the OMR corridor despite not being detected in the most recent 20 mm Survey.

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:

The SMT maintains its advice to WOMT and acknowledges that while there is no trigger met to offer advice for DS there is risk to larval DS in the OMR corridor which would otherwise merit a recommendation.

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 since last week.
- 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 to risk since last week.
 - Larvae: No changes to risk since last week. Abiotic conditions such as X2 and QWEST were updated. In this section and throughout the Risk Assessment, language citing the March 29th particle tracking model (PTM) results was replaced with a general reference to past PTM runs.
 - LFS:
 - No changes to adult risk since last week. Language updated to reflect no recent detections of adults or subadults in the central Delta.
 - 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. The pronounced increase in salvage was highlighted.
- Change in exposure from last week
 - DS: No changes since last week.
 - LFS: No changes since last week. Continued increase in salvage was highlighted along with an acknowledgement that salvage will likely continue until temperatures become warm enough to limit LFS survival.
- Reporting OMR Index

- Updated to reflect the latest detections and projected OMR Index range.
- The executive summary notes the sharp increase in juvenile LFS salvage over the last week and that total salvage in 2022 is already significantly greater than in 2020 and 2021.
- Barker Slough
 - Updated to reference the preliminary detection of a DS at station 716 by 20 mm Survey 3.

Part 4: Additional Considerations/Discussion

USFWS briefly followed up on their discussion with CDFW regarding the two recent salvage outages at the Tracy Fish Salvage Facility. Since there was no collection of salvaged fish during those unscreened export periods, there was no basis for estimating salvage during the outage periods. USFWS suggested that other indices could be considered to estimate future unaccounted entrainment losses.

Agencies reported no items for elevation to WOMT other than maintaining a recommendation under COA 8.4.2 to manage the seven-day average OMR Index to be no more negative than -1,250 cfs for the protection of larval and juvenile LFS.