

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 (KW)

ACTION ITEMS

- USBR will ask the export facilities to continue Qualitative Larval Sampling for one more week, through June 6th; sampling can cease at that time unless there are larval detections during that seven-day period, in which case the SMT will reconsider whether to continue sampling at their next meeting.

MEETING SUMMARY

- DWR and ICF will be developing a larval Longfin Smelt (LFS) entrainment modeling tool to support SMT risk assessment. The intent of the tool is to develop something similar to the winter run entrainment tool used by the Salmon Monitoring Team; i.e., a tool to inform risk assessments by integrating and synthesizing real-time data inputs. At this point the team is only beginning to dive into data sets and establish goals for the project. Team members will likely be consulted during the SMT off season to provide input on the tool. The LFS Technical Team will also be consulted for input. The tool will be completed at the end of the 2023 calendar year.
 - USFWS requested that DWR/ICF provide ample lead time for any workshops and/or feedback sessions, so that the appropriate staff can attend. USFWS suggested that the tool also be reviewed by external experts, e.g., convened by the Delta Science Program.

PART 1: Updates on Water Operations and Biological Updates

Relevant Actions & Triggers

USBR is at the end of Old and Middle River (OMR) Management action, in which 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, 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	Reduce exports for 14 consecutive days so that	Dec 1 to Jan 31	(1) Running 3-day average of daily flows at Freeport >25,000 cfs; and	Triggered 12/18/21;

OMR Management Measures	Requirement	Time Frame	Trigger	Triggered?
Protection (“First Flush” Turbidity Event)	the 14-day averaged OMR index for the period shall not be more negative than -2,000 cfs		(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.	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 possible shift from current windy and dry conditions to precipitation in northern California impacting the Smith River Basin and Shasta areas. They do not anticipate changes to influence operations significantly.
- Releases from Whiskeytown Dam on Clear Creek are currently 200 cfs with a change order for 150 cfs this week.

- Releases from Keswick Dam on the Sacramento River were increased to 3,750 cfs with flexibility to increase flows to manage delta outflows and salinity if needed.
- Releases from Nimbus Dam on the American River flow are 1,750 cfs with flexibility to increase flows to 2,000 cfs to meet Delta requirements if needed.
- Releases from Goodwin Dam on the Stanislaus are 800 cfs to meet the Vernalis D-1641 flow objective (a monthly average of 710 cfs) with a buffer (up to 900 cfs) in case additional flows are required.
- Federal facility exports are at 900 cfs with no changes expected for the week ahead with outflow and salinity as controlling factors.
- Emerging from a spring tidal sequence with the new moon on May 30th; a stronger spring tide is expected in the middle of June.
- Delta Cross Channel (DCC) gates were opened on Friday, May 27th and closed May 31st; at 10:00 am; they are considering keeping them closed in response to salinity concerns in the system.
- DWR reported that Feather River releases increased from 2,200 to 2,700 cfs in response to decreased flows at Freeport and increased salinity at Emmaton.
- May 30th Freeport flows were approximately 8,100 cfs after hitting a low of 6,300 cfs last week.
- San Joaquin flows at Vernalis were 755 cfs on May 30th.
- State facility exports were decreased to 300 cfs on May 28th in response to decreases in flow and water quality.
- Delta outflows were 5,300 cfs on the 30th with a low flow of 3,000 cfs on the 27th.
- As of May 30th, QWEST was 2,600 cfs with the DCC gates open. With the gates closed, QWEST will decrease to -100 cfs to -500 cfs over the next week.
- The daily OMR Index is near -1,400 cfs and will become increasingly negative as cross channel depletions increase.
- Rio Vista flows are currently about 3,000 cfs with the DCC gates open but will increase to 5,500 when the gates close.
- X2 is upstream of Emmaton.
- Vernalis was 755 cfs on May 30th.
- The survey table was updated to note the conclusion of the Larval Entrainment Pilot Study (LEPS)

Review of Environmental Conditions and Survey Updates

CDFW delivered catch updates on relevant surveys to the SMT.

- 20 mm Survey statuses are as follows:
 - Survey 2 has one tow still in processing.
 - Survey 3 is complete.
 - Survey 4 and 5 are processing.
 - Survey 6 is on the water this week.
- There are no changes to last week's catch tables, however the DS previously reported from survey 4 was determined to be a Wakasagi during quality control checks. The season total for 20mm is now 9 DS.
- 20 mm DS detections for the WY 22 are (9 total):
 - Survey 1
 - Seven DS
 - Survey 2
 - Two DS
 - Survey 3
 - No DS

- Survey 4 and 5
 - No DS (but still processing)

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

- EDSM reported four DS since the last meeting on May 24th in the Sacramento Deep Water Ship Channel on May 23rd ranging from 26 to 38 mm; all are still in the primary ID stage. Seven LFS were detected in the same timeframe. All data is still processing.
- The most recent juvenile DS abundance estimate remains 13,086 from the week of May 9 due to the Memorial Day holiday.
- Chipps Island Trawl had one adult LFS detection at 90 mm in length last week.

CDFW provided a salvage and qualitative larval sampling update (May 23rd to the 30th).

- The sampling period is eight days due to the Monday holiday.
- No larval osmerids were detected at either facility.
- Weekly salvage of LFS ≥ 20 mm:
 - Federal Facility: 0
 - Salvage did not occur any day of the week.
 - State Facility: 64
 - Salvage occurred May 23rd to the 26th and the 30th.
 - Weekly total for both facilities: 64
- The seasonal total LFS juvenile salvage is 7,448 for both state and federal facilities.

USBR shared environmental data updates as of May 30th.

- Three-station daily average water temperature: 20.30° C.
- CCF daily average temperature: 21.80° C.
- Current turbidity at OBI: 3.48 FNU.
- The estimated X2 is approximately 93.6 km.
- The weather forecast out of Antioch has highs ranging from 76 to 90° F with lows from 56 to 64° F and western winds with no precipitation.
- The weather forecast out of Stockton has highs ranging from 78 to 95° F with lows from 54 to 61° F and west-northwest winds with no precipitation.

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

The SMT discussed the merits of continuing or concluding qualitative larval sampling for the season.

- USFWS shared results from an analysis of relative volumes of water sampled by the 20 mm Survey versus the Qualitative Larval Sampling, using the acre feet of water exported since the first LFS detection:
 - With all stations sampled in a month (n=47), the 20 mm Survey samples only 2.72% of the volume sampled by Qualitative Larval Sampling.
 - The Qualitative Larval Sampling occurs four times a day for 30 minutes accounting for 8% of the water exported per day.
 - Only 0.35% of the water volume exported per day at the six south delta stations is sampled.
- CDFW reviewed the current temperatures versus temperatures observed when Qualitative Larval Sampling was stopped in previous years and noted that temperatures are currently a little colder. Due to the abnormal year in terms of high salvage and the experimental release, CDFW suggests maintaining

Qualitative Larval Sampling for one more week and then ending the program June 6th assuming there are no larval detections in the next seven-day period. If there are larval detections during that seven-day period, the SMT will reconsider whether to continue sampling at their next meeting.

The SMT agreed with CDFW's suggestion, and USBR committed to relay the agreement back to the Qualitative Larval Sampling team.

CDFW noted this week's decreased salvage, which was likely driven by increasing temperatures, and hopefully marks a consistent trend in decreased entrainment risk for fish. COA 8.4.2 was not triggered by 20 mm Survey 5 so there is no need to issue advice to WOMT.

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 included updating the latest dates, detections, and data as well as:

- The Lower Sacramento River was removed from areas of juvenile DS presence in the Biological Conditions section.

ITP Longfin Smelt Risk Assessment

The SMT reviewed and discussed updates to the ITP Risk Assessment for LFS, which included updating the latest dates, detections, and data as well as:

Delta Smelt Summary

- Moved the update on COA 8.12 Barker Slough to the Delta Smelt section, since the COA has been off-ramped for LFS. If the SMT stops meeting prior to June 30, CDFW will provide email updates if this COA is triggered since it runs through the end of June.

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 in risk since last week.
 - LFS: No changes in risk since last week. Date of last larval detection was added.
- Routing Risk (behavior and life history)
 - DS: No changes in risk since last week.
 - LFS: No changes in risk 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 in risk since last week. The section now acknowledges that spawning is winding down for the season.
 - Juveniles: Risk reduced to "Low".

- Larvae: No changes to risk since last week and no DS detections in the OMR corridor or salvage facilities during the last week. Language was added to identify the new X2 location further upstream and its impact on increasing risk as fish may move further upstream of X2 where they could be exposed to areas of higher entrainment risk despite lack of detections.
 - LFS:
 - No changes to adult risk since last week.
 - No changes since last week for larvae and juveniles in the lower San Joaquin River. Language was added to identify the new X2 location further upstream and note its potential impact on increasing risk: with juvenile LFS distribution generally around X2 ([Dege and Brown, 2004](#)), this could possibly place juvenile LFS in areas at higher entrainment risk. Despite the lack of detections in monitoring surveys
 - Note: the SMT agreed to only state additional risk to juveniles (and not larval LFS < 20 mm) since Dege and Brown (2004) did not show how the distribution of LFS larvae since mid-May to early June relates to the position of X2.
 - No changes in risk since last week for larvae and juveniles in the OMR corridor. The section now acknowledges that spawning is winding down for the season.
- Change in exposure from last week
 - DS: No changes since last week.
 - LFS: No changes since last week.

Part 4: Additional Considerations/Discussion

Agencies reported no items for elevation to WOMT.