

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

ACTION ITEMS

MEETING SUMMARY

PART 1: Updates on Water Operations and Biological Updates

Relevant Actions & Triggers

USBR reported on the Old and Middle River (OMR) management measures currently in effect and whether they have been triggered; CDFW reported on the Incidental Take Permit (ITP) Conditions of Approval that are currently in effect and whether they have been triggered. The descriptions below are intended as summaries and do not provide all the details related to each action or trigger. For full descriptions, please see the OMR guidance document or ITP as relevant.

Last week, USBR started reporting water temperatures at Clifton Court Forebay to help the SMT determine if the “End of OMR management” action in USBR’s Proposed Action (PA) and ITP Condition of Approval 8.8 should be triggered – both of which occur when daily mean water temperatures at Clifton Court Forebay are > 77°F (PA)/25°C (ITP) for three consecutive days.

Proposed Action

OMR Management Measures	Requirement	Time Frame	Trigger	Active? 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	Not active; Not triggered

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

OMR Management Measures	Requirement	Time Frame	Trigger	Active? Triggered?
			Delta Smelt (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		Yes (initiated on 1/1/2021 for salmon)
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.	Off-ramped; not triggered
Larval and Juvenile DS	Run hydrodynamic models and forecasts of entrainment, informed by the Enhanced Delta Smelt Monitoring (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	Active; not 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 triggered

ITP Conditions of Approval

Condition of Approval	Requirement	Time Frame	Trigger	Active? Triggered?
8.1.5.2 (Smelt Monitoring Team Risk Assessment)	Outlines contents for weekly risk assessments of DS 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 (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	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 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.	Not active
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 is three LFS for WY 2021.	Not active
8.4.1 (OMR Management for Adult Longfin Smelt)				Off-ramped due to detection of Longfin Smelt larvae on December 28 th
8.4.2 ² (Larval and Juvenile)	If triggered, it will restrict south Delta exports for seven consecutive	January 1st through June	(1) LFS larvae or juveniles are found in four or more of	Triggered on 1/26,

² CDFW confirmed that the “average catch per tow > 5 larvae or juveniles” referred to by Condition 8.4.2 should be calculated as the average of the three tows done at each station, i.e., the total LFS reported at each station in the 20-mm Survey is divided by three to calculate average catch per tow. Also, the SMT should always use the most recent survey data to determine whether the Condition is triggered; if only partial data is available, they refer to the previous survey available.

Condition of Approval	Requirement	Time Frame	Trigger	Active? Triggered?
Longfin Smelt Entrainment Protection)	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.	30th or until the temperature offramp occurs	the 12 Smelt Larval Survey (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	2/2, 2/23, 3/9, 3/16, 3/30
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.	No
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 April 1st	Turbidity at OBI > 12 FNU	Off-ramped; not 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	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 threshold for this year is one.	Active; Not Triggered

Condition of Approval	Requirement	Time Frame	Trigger	Active? Triggered?
	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.			
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.	No
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 th through March 31 st in dry and critical water years for LFS, and from March 1 st through June 30 th of dry and critical water years for DS	Larval Smelt are detected at SLS Station 716 during the period identified for each species, and/or when recommended by the SMT	Off-ramped for LFS; Active but not triggered for DS

Current Operations & Outlook

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

- USBR Central Valley Office (CVO) reported that forecasted conditions continue to be dry and warming.
- Releases from Whiskeytown Dam on Clear Creek are variable due to the spring pulse flow; they are on the falling limb of those releases.
- Releases on the Sacramento River from Keswick Dam are currently at 9,000 cfs and will decrease to 800 cfs on Thursday.
- American River releases from Nimbus Dam are currently at 1,000 cfs and will decrease to 900 cfs on Thursday.
- Releases from Goodwin Dam on the Stanislaus River are currently 1,500 cfs and will decrease to 1,300 cfs on Thursday.
- CVO had anticipated cycling pumps at Jones Pumping Plant this week to meet the 4,000 cfs 14-day average outflow requirement, but given current outflows, they will postpone and may eliminate those cycling plans. In the meantime, exports will remain at 800 cfs.
- The Delta Cross-channel Gates are currently closed. The gates were successfully tested three times last week on May 5th and are now ready for normal operations. The gates are usually opened on or shortly after May 21st; ongoing salinity monitoring will determine when the gates can be opened this year.

- DWR reported that Feather River releases from Oroville were 2,500 cfs over the weekend but demand for diversions was not as high as anticipated, so they are currently reducing releases to 2,300 cfs; they hope to reduce flows to 1,800 cfs later this week depending on demand.
- Sacramento River flows at Freeport are climbing as the increased releases arrive in the Delta and are anticipated to peak at 7,400 cfs. San Joaquin flows at Vernalis are 768 cfs and also climbing.
- Clifton Court exports were 400 cfs and were decreased to 300 cfs on Sunday. They will remain at that level until May 15, when they will close the radial gates and draw down the forebay for safety inspections of the surrounding levees on May 16th. The Banks Plant will remain offline for maintenance May 16 through May 21st, so there will be no fish monitoring during that time. Inflow to fill the forebay will resume after inspections are complete on the 16th.
- DWR is targeting Delta outflows of 4,000 cfs on a 14-day average.
- The OMRI is -1,200 cfs and should become more positive with reduced exports and additional San Joaquin flows this week, but will become more negative following resumption of CCF operations after the 16th.
- QWEST was slightly negative the last couple days but should move back into the positive based on San Joaquin flows.

Review of Environmental Conditions and Survey Updates

CDFW shared survey updates.

- The final tally from Spring Kodiak Trawl (SKT) 5 (April 26th to 29th) was 650 LFS larvae (19-43 mm), ranging in location from the Lower Sacramento to the Carquinez Bridge.
- 20-mm Survey 3 was in the field April 19th to 22nd and processing is almost complete, with only a few tows left to process. No Delta Smelt (DS) have been detected. 1,951 Longfin Smelt have been detected with details provided via email prior to the SMT meeting.
- 20-mm Survey 4 was in the field May 3rd to 6th and is still processing. Station 919 in the central Delta was not sampled due to excessive algae. All other stations in the south and central Delta have been processed: one Longfin Smelt (14mm) was detected at station 809.
 - CDFW reported that heavy vegetation, including hair algae, is making sampling difficult at Station 919, in Franks Tract, and in the Upper Sacramento.
 - *At the end of the call, as the SMT was completing the PA Risk Assessment, CDFW announced that they had just received confirmation of a DS (25mm) detected at Station 719 in the Sacramento Deep Water Ship Channel, which was collected on May 6th. This DS was reflected in edits made to the PA Risk Assessment Executive Summary during the call; edits to include this detection in other parts of the Assessment were made after the call.*
- 20-mm Survey 5 will sample next week, May 17th to 20th. CDFW crews are currently having boat issues and will have to plan around a bridge closure that will make sampling Station 918 challenging. They currently plan to sample at all stations but asked the SMT whether they should still prioritize Station 918 if logistics become further complicated. CDFW and DWR staff agreed that station is not their top priority, and they will be able to adapt if the crews cannot sample there.

USFWS reported on the EDSM Program.

- An abundance estimate for Delta Smelt in the Lower Sacramento/Sacramento Deep Water Ship Channel was generated for the April 26th to 29th sampling period: for age zero fish, the estimate was 1,739 DS; for age one fish, it was 2,685 DS.

- EDSM Phase 2 (20-mm) sampled last week Monday through Thursday (May 3rd to 6th); all samples are processed.
 - Four DS were detected: three (21.6-25.7 mm) on May 4th in the Sacramento Deep Water Ship Channel and one (24.8 mm) on May 6 in the Lower Sacramento.
 - Four unidentifiable osmerids were also detected; they could not be ID'd due to degraded body condition and contradictory body characteristics, but they will be transferred and genetically tested at the end of the season.
 - 41 LFS were detected last week, bringing the total number of LFS identified by EDSM Phase 2 sampling to 1,662.
 - Four LFS (16.6-26.2 mm) on May 3rd in Suisun Marsh strata.
 - 18 LFS (18-30.2 mm) on May 4th in Suisun Bay strata.
 - 19 LFS (15.2 – 31.5 mm) on May 6th in the Lower Sacramento strata.
- The Chipps Island Trawl caught zero DS and three LFS in the last week. The LFS were caught on May 7th (93 mm, no expression) and May 10th (30 and 84 mm, no expression).
 - The Chipps Island Trawl is scheduled to sample five days this week.

CDFW provided a salvage update (May 4th to May 10th).

- No adult or larval DS were salvaged at either facility.
- 82 LFS (22-40 mm) were salvaged at the SWP, bringing the expanded salvage season total to 531 LFS.
- 8 LFS (20-21 mm) were salvaged at the CVP, bringing the expanded salvage season total to 184 LFS.
- No larval (under 20 mm) LFS were detected at either project.

USBR shared water quality data (three-station average daily water temperature as of May 20th was 20.24° C; daily average turbidity at Old River at Bacon Island (OBI) was 2.92 FNU and is currently 1.60 FNU). The seven-day weather forecast for Antioch is sunny to clear with NW to WSW winds from 6 to 14 mph and gusts up to 22 mph; the seven-day weather forecast for Stockton is sunny and clear with WNW to NNW winds from 5 to 9 mph. X2 is > 81 km; the estimated Sacramento River X2 is 90.8 km; the estimated San Joaquin River X2 is 91.40 km. The water temperature at Clifton Court Forebay on May 10th was 21.22° C (70.2° F); there have been zero days with temperatures >77° F.

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

At the last SMT meeting, CDFW referred to Figure 2 in [Jeffries et al. \(2016\)](#) as illustrating the temperature distribution of 20-mm survey detections of LFS and DS. Current temperatures (~20° C) are at the upper range of LFS detections in this dataset (1995 to 2015) and detections of LFS will likely become rarer throughout the rest of this season. USFWS noted that [Grimaldo et al. \(2009\)](#) analyzes total salvage of LFS, which peaks in May. Therefore, USFWS would not rule out additional salvage taking place in the coming weeks. CDFW agreed that additional salvage is to be expected as temperatures approach 20° C and clarified that the Jeffries et al. (2016) paper looks at the temperature distribution of LFS detections not salvage.

- To follow up on this conversation, CDFW developed a visualization of salvage patterns in 2020 and 2021 alongside water temperature at Clifton Court Forebay for both years. CDFW observed that last year (2020) there were three spikes in salvage with the final spike occurring in May; this year's salvage pattern is harder to discern because salvage levels have been so much lower, likely in part due to reduced pumping.
- USFWS thanked CDFW for providing the most recent year's datasets to build on the Grimaldo (2009) analysis showing peak Longfin Smelt salvage in May. USFWS inquired whether the Longfin Smelt ITP offramp criteria use Clifton Court Forebay temperatures as the PA, and pointed out South Delta

temperatures are the hottest at this time of year, compared to using other areas which could delay the offramp trigger such as Central Delta or Lower San Joaquin temperatures.

- CDFW confirmed Longfin Smelt ITP offramp criteria consider CCF temperatures and voiced their interest in conducting a post-season analysis to determine whether the dates of last salvage are happening earlier and temperatures are rising.
- DWR noted that since Clifton Court Forebay levels will be very low on May 16th, it will be interesting to see if any fish are encouraged to move.
- CDFW reminded the group that the low water level in Clifton Court could also result in strange water temperature readings on the 16th, depending on where the gauge is located in the Forebay.

For this week's ITP Risk Assessment, CDFW recommended the following:

- Retain language from the previous week's ITP Risk Assessment noting that there was only one LFS detection at a criteria station and Clifton Court will be reducing operations even further, with Banks Power Plant offline for at least five days and Clifton Court inflow reduced for two days.³ Therefore, a recommended OMRI limit from the SMT would not change the salvage trajectory and risk of entrainment for fish outside of the OMR corridor is lower compared to last week.
- USFWS and DWR agreed.
- CDFW also noted that no DS were observed in monitoring at Station 716, so no advice for Barker Slough is warranted.

USBR asked the group to reevaluate how they have been describing DS distribution in the PA Risk Assessment. To date, their evaluation of DS distribution has been based on an analysis of historical SKT data (Polansky et al 2018); since the SKT has now finished for the season, however, that evaluation may not be relevant to the current period. USBR asked whether there are other historical data analyses they should refer to, or whether they should base their justification on the recent detection information, since there have been more detections than at any other point this water year.

- DWR stated that the recent detections paired with current temperatures (which inform when the SMT can expect spawning to stop) are sufficient justification for where they expect DS to be distributed. There is no reason to think there is DS presence in the South Delta or risk of entrainment.

PART 3: Live-edit Assessments

ITP Longfin Smelt Risk Assessment

CDFW updated the ITP assessment based on the discussion documented in Part 2 above.

Proposed Action Weekly Evaluation of Delta Smelt, including Distribution, Abiotic Conditions, Risk Assessment Questions, and Executive Summary

USBR reviewed updates to the assessment, which included:

- Minor changes in anticipated conditions in the Delta (including OMR Index, turbidity, X2, and QWEST values);
- The abundance estimate for year zero and year one fish for April 26 to 29 -- 1,739 DS and 2,685 DS respectively;

³ Closure on the 15th with drawdown and inspection on the 16th with refilling starting on the 17th.

- The most recent four DS detections: three (21.6-25.7 mm) on May 4 and one on May 6th (25 mm) in the Sacramento Deep Water Ship Channel and one (24.8 mm) on May 6 in the Lower Sacramento⁴;
- Removal of references to the historical SKT analysis (Polansky et al 2018) (discussed in Part 2 above);
- An acknowledgement of the eight total DS detections since April, most of which occurred in the Sacramento Deep Water Ship Channel with one in Lower Sacramento;
- And clarification that the Lower Sacramento stratum is in the North region.

The group reviewed the relevant assessment questions: (1) Between December 1 and January 31, has any first flush condition been exceeded? (2) Do DS have a high risk of migration and dispersal into areas at high risk of future entrainment? (3) Has a spent female DS been collected? (4) If OMR of -2,000 cfs does not reduce daily average OBI turbidity below 12 NTU/FNU, what OMR target is deemed protective between -2,000 and -5,000 cfs? (5) If daily average OBI turbidity is greater than 12 NTU/FNU, what do other station locations show? (6) If daily average OBI is greater than 12 NTU/FNU, is a turbidity bridge avoidance action not warranted? What is the supporting information? (7) After March 15 and if QWEST is negative, are larval or juvenile DS within the entrainment zone of the CVP and SWP pumps based on surveys? (8) Based on real-time spatial distribution of DS and currently available turbidity information, should OMR be managed to no more negative than -3,500? (9) What do hydrodynamic models, informed by EDSM or other relevant data, suggest the estimated percentage of larval and juvenile DS that could be entrained may be?

- The responses to questions one through nine either did not change at all or were updated to reflect the latest dates, abiotic data, and survey detections.

As the SMT was completing the PA Risk Assessment, CDFW announced that they had just received confirmation of a DS (25mm) detected by 20-mm Survey 4 at Station 719 in the Sacramento Deep Water Ship Channel on May 6th. USBR committed to going back through the Risk Assessment to add the new detection.

USBR reviewed the Executive Summary:

- The SMT added language referencing the nine DS detections from April and May – eight in the Sacramento Deep Water Shipping Channel and one in the Lower Sacramento.

No non-consensus issues were identified.

Additional Considerations/Discussion

USFWS had proposed via email that going forward, they will report any DS captures that have not been through the entire ID process (two independent blind IDs and a third if needed) as preliminary IDs until confirmed. They will then follow up on any preliminary IDs at the next meeting (sooner if needed) with a confirmation ID or a status of the sample. If there are corrections between meetings, USFWS or CDFW will alert the group to the correction in the subject line of their email. Any corrections will be acknowledged in the notes.

Agencies reported no items for elevation to WOMT.

⁴ This was updated to five DS detections after the call, based on the additional 20-mm detection announced at the tail end of the call. The final detection was on May 6th (25 mm) in the Sacramento Deep Water Ship Channel.