

PARTICIPANTS

- CDFW
- DWR
- NMFS
- SWRCB
- USBR
- USFWS
- Kearns & West

ACTION ITEMS

- K&W will add an item on the April 20th SMT meeting agenda for CDFW's presentation on historical size distribution data of Longfin Smelt (LFS).
- DWR will coordinate with KW to schedule a presentation on Bay Delta Live's new turbidity modeling to the SMT in mid-to-late May.
- KW will compile a list of topics to potentially address at an off-season SMT meeting to discuss process improvements/areas for future analysis; including discussing how to prevent larvae from entering the South and Central Delta and becoming destined for entrainment.

MEETING SUMMARY

PART 1: Updates on Water Operations and Biological Updates

CDFW discussed a discrepancy that had been pointed out between the range of OMRI reported in the ITP Risk Assessments for SMT and SaMT, and the draft Operations Outlook for the previous week. The range reported during the call, and assessed in the SMT ITP Risk Assessment, was narrower than that reported in the Operations Outlook. OMRI became more negative than what was assessed and reported in the draft ITP Risk Assessment but remained within the range reported in the Operations Outlook. CDFW requested that going forward the SMT evaluate the full range of OMRI levels reported in the Operations Outlook.

Relevant Actions & Triggers

USBR reported on the OMR management measures currently in effect and whether they have been triggered; CDFW reported on the 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.

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 Delta Smelt (DS) has been collected in monitoring surveys.	Not active; Not triggered
OMR Management	Manage to a more positive OMR than -5,000 cfs	From the onset of OMR management to the end	n.a	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 EDSM or other relevant survey data to estimate the percentage of larval and juvenile Delta smelt (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

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

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 LFS required under 8.1.5 and 8.1.1	Nov 1 st through June 30 th or until off-ramped by 8.8	n/a	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 FMWT Index divided by 10, or SMT determines that there is a high risk of entrainment.	Dec 1 through Feb 28th	Salvage threshold is three LFS for WY 2021.	Not active
8.4.1 (OMR Management for Adult Longfin Smelt)		n/a	n/an	Off-ramped due to detection of Longfin Smelt larvae on December 28 th

Condition of Approval	Requirement	Time Frame	Trigger	Active? Triggered?
8.4.2 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 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	Triggered on 1/26, 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	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	Active; Not Triggered

² DWR asked CDFW to confirm 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 LF reported at each station in the 20 mm Survey is divided by three to calculate average catch per tow. CDFW confirmed that was also their interpretation. They also shared their interpretation that 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?
	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.		threshold for this year is one.	
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 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

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

- USBR CVO reported persistent dry meteorological conditions with no precipitation in the 15-day forecast.
- Releases from Whiskeytown Dam on Clear Creek are currently 225 cfs.
- Releases on the Sacramento River from Keswick Dam are currently at 5,500 cfs and will increase to 6,000 cfs tomorrow (April 14) to accommodate increased instream demand.
- American River releases from Nimbus Dam are currently 2,000 cfs.
- Releases from Goodwin Dam on the Stanislaus River are currently 750 cfs; they are in the middle of a pulse, so releases will range from 400 to 1,250 cfs over the course of the week.
- Conditions in the Delta continue to be challenging given low inflows, but they are expected to be slightly improved as compared to last week given the San Joaquin pulse flow. Jones Pumping Plant had been cycling its pumps; exports are currently 800 cfs, and they hope to maintain those levels.
- The Delta Cross-channel Gates are currently closed, but there is the potential for testing of one gate in May as they approach more regular operations in mid-May per the PA and D-1641 requirements.

- DWR reported that Feather River releases from Oroville are 1,300 cfs; they hope to reduce to 800 cfs around April 15th.
- Sacramento River flows at Freeport have been bouncing between 8,000 and 9,000 cfs; yesterday (April 12th) flows were at 9,000 cfs. San Joaquin flows at Vernalis were just over 1,000 cfs; with the initial pulse flow arriving, they will reach 2,000 cfs later this week.
- Clifton Court exports have been between 300 and 700 cfs over the past week to keep Delta outflow at 7,100 cfs on average to meet D-1641 requirements. This week should be similar but will potentially allow slightly higher exports. It is not clear whether outflows will continue to control operations or whether the 1:1 San Joaquin requirement under the ITP will come into play.
- QWEST has been and will remain positive (between 700 and 1,700 cfs) in the next week
- The OMRI is projected between -400 cfs and -1,200 cfs this week; it could get as high as -1,500 cfs but will likely be closer to -1,000.
- X2 was >81 km yesterday (April 12th).

NMFS asked whether the pulse flow at Vernalis will reach the 3,110 cfs (or 3,540 cfs with Chipps Days) target identified in D-1641. DWR stated that they do not have any plans to contribute extra water on the San Joaquin. Reclamation explained that the Chipps Day requirement for April is 3 days. In general, they are having difficulty supporting extra water in the system with the current outflow requirement at 7,100 cfs. There will be additional San Joaquin flow, but it will not meet the 3,110 cfs level during the prescribed April 15 through May period.

Review of Environmental Conditions and Survey Updates

CDFW shared survey updates.

- 20-mm Survey 2 (April 5th to 8th) processing is underway. No DS have been detected so far. Highlights since CDFW's Friday email update include:
 - Processing has been completed at all 12 high priority South and Central Delta stations.
 - Station 809: 28 LFS (10-23 mm)
 - Station 901: 5 LFS (11-19 mm)
 - Five North Delta stations were processed since Friday – Stations 716, 718, 723, 724, and 726. No smelt were detected at these stations.
- The April Bay Study was initiated April 12th and will continue sampling through April 21st.
- 20-mm Survey 3 will start sampling April 19th.

USFWS reported on the Enhanced Delta Smelt Monitoring (EDSM) Program.

- There was no EDSM 20-mm sampling last week (April 5th to 9th) due to COVID mitigations.
- During March 29th to April 2nd EDSM sampling, zero DS were detected, so no abundance estimate was generated. 358 potential larval LFS were identified, with 137 now confirmed and an additional 221 identified in the first round of identification, including:
 - Eight LFS in the lower Sacramento River strata on March 29th (7.8 to 16.1 mm) – all confirmed.
 - Two LFS in the lower San Joaquin River strata on March 29th (13.4 and 22 mm) – all confirmed.
 - 127 LFS in the Suisun Marsh strata on March 30th (6.7 to 30.1 mm) – all confirmed.
 - 1 LFS in the Sacramento Deepwater Shipping Channel on March 31st (14.9mm) – primary round of identification.
 - 204 LFS in the Suisun Marsh strata on March 31 (8.1 to 33mm) – primary round of identification.
 - 16 in Suisun Bay on April 1 (9.5 to 19.5 mm) – primary round of identification.
 - 7 unidentified osmerids were also collected – 5 in Suisun Marsh on March 31st (8 to 15.1 mm) and 2 in Suisun Bay on April 1st (7 to 10.1 mm).

- The Chipps Island Trawl caught zero DS and 5 LFS in the last week:
 - Four LFS on April 7th (73 to 80 mm, no expression)
 - One LFS on April 11th (88 mm, no expression, not transferred to Fish Culture and Conservation Laboratory (FCCL)).

CDFW provided a salvage update (April 5th to April 12th).

- No adult or larval DS were salvaged at either facility.
- 100 LFS (all > 20mm) were salvaged at the SWP, bringing the expanded salvage season total to 168 LFS.
- 8 LFS (all > 20mm) were salvaged at the CVP, bringing the expanded salvage season total to 100 LFS.

USBR shared water quality data (three-station average daily water temperature as of April 12th was 17.4° C; daily average turbidity at Old River at Bacon Island (OBI) was 2.85 FNU and is currently 1.70 FNU). The seven-day weather forecast for Antioch is sunny and clear with winds from 7 to 14 mph and gusts up to 21 mph; the seven-day weather forecast for Stockton is sunny and clear with NW/SW winds from 6 to 15 mph and gusts up to 20 mph. X2 is >81 km; the estimated Sacramento River X2 is 84.7 km and the estimated San Joaquin River X2 is 84.30 km.

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

CDFW noted that Condition 8.4.2 for LFS has not been triggered by the latest survey, but the SMT is still required to do a risk assessment. There have not been additional LFS survey detections in the South and Central Delta, though fish are being salvaged, so they are present within Clifton Court Forebay and immediately outside the CVO. Detections suggest that abundances are higher in the Central Delta (e.g., Franks Tract, Lower San Joaquin). Under the continuing low export scenarios, the zone of influence of the pumps is not anticipated to extend beyond the OMR corridor.

The SMT's recommendations over the past two weeks have been based on their understanding that project operations would be more positive than they could recommend. This week, the most negative operations anticipated are -1,500 cfs OMRI; the most restrictive OMRI they can recommend would be -1,250 cfs. Therefore, the SMT must determine whether a -1,250 cfs OMRI would result in measurably less risk to LFS than -1,500 cfs OMRI. CDFW observed that the SMT does not have a PTM run or any other modeling that could help inform on the impact of that small of a difference in operations.

- DWR stated that they do not have the kind of information that would allow them to differentiate between the effects of those two scenarios.
- CDFW stated that they do not expect the salvage trajectory to change between the two scenarios.
- USFWS stated that they do not see a big risk to LFS under the projected OMRI. They noted that the SWP pumps were running intermittently in the last week; the 100 juvenile LFS salvaged at the SWP showed up in small numbers throughout the week, suggesting the fish are already inside Clifton Court Forebay.
- CDFW agreed that these are likely fish who were spawned or entrained and grew there. Therefore, there is likely to be more salvage, but any recommendations in terms of reduced OMRI would not benefit these fish already residing near or at the facilities.
- USFWS agreed that there is no need for a recommendation. Pumping is at, or near, health and safety minimums.

CDFW concluded that they will not provide a recommendation in the risk assessment based on the reasoning expressed above. For future discussion at an off-season meeting, they suggested discussing how to prevent larvae from entering the South and Central Delta and becoming destined for entrainment.

CDFW also noted that no DS were observed in monitoring at Station 716, so no advice for Barker Slough is warranted.

USBR asked whether seasonal timing made it necessary to change the assessment of adult DS in the Proposed Action Assessment in the context of the likelihood of their entrainment or in the context of their biological condition post spawn.

- DWR noted that DS spawning starts at 12 °C; most spawning typically occurs below 18 °C; however, it can occur up to 20 °C, but this is less common. Therefore, as water temperatures creep toward 18 °C in the south and central Delta (with 90 °F air temperatures expected next week), we would expect DS spawning to be winding down.
- CDFW cited the Damon et al. 2016 paper as identifying 9°C – 18°C as the approximate temperature range in which most Delta Smelt spawning takes place.
 - <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=141865>
- USBR suggested keeping the current language until they hit the upper limit of spawning tolerance and then revisiting it.

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 was limited to minor changes in anticipated conditions in the Delta (including OMR Index and QWEST values).

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 all questions either did not change at all or were updated to reflect the latest dates and data.

USBR reviewed the Executive Summary:

- Conditions have not changed since last week, so the SMT did not make any revisions.

No non-consensus issues were identified.

Additional Considerations/Discussion

Agencies reported no items for elevation to WOMT.