

## PARTICIPANTS

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

## ACTION ITEMS

- USFWS will share the new paper discussing environmental correlates with Delta Smelt distribution once it is available.

## MEETING SUMMARY

### PART 1: Updates on Water Operations and Biological Updates

#### 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 <sup>1</sup> ); 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.	Not active; Not triggered

<sup>1</sup> The current instrumentation measures turbidity in Formazin Nephelometric Units (FNU).

<b>OMR Management Measures</b>	<b>Requirement</b>	<b>Time Frame</b>	<b>Trigger</b>	<b>Active? Triggered?</b>
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.	Will be active through 4/1; 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

IIP Conditions of Approval

<b>Condition of Approval</b>	<b>Requirement</b>	<b>Time Frame</b>	<b>Trigger</b>	<b>Active? Triggered?</b>
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 <sup>st</sup> through June 30 <sup>th</sup> 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	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	Not active

Condition of Approval	Requirement	Time Frame	Trigger	Active? Triggered?
	(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.		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.	
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 <sup>st</sup> through Feb 28 <sup>th</sup> , 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)				Off-ramped due to detection of Longfin Smelt larvae on December 28 <sup>th</sup>
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 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

Condition of Approval	Requirement	Time Frame	Trigger	Active? 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.	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	Will be active through 4/1; 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 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 <sup>st</sup> through June 30 <sup>th</sup> 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?
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 <sup>st</sup> through June 30 <sup>th</sup> 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  <i>*Note: the SMT is currently is a period of overlap when Condition 8.12 is in effect for LFS and DS, though it has only been triggered for LFS; condition will offramp for LFS on 4/1.</i>	Yes for Longfin Smelt (1/19/21, 2/2/21, 2/26/21, 3/16)

## Current Operations & Outlook

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

- USBR CVO reported that dry meteorological conditions continue; there are some higher wind gusts reported; over the weekend and early next week, some unstable conditions are forecasted, but precipitation is not anticipated to be significant.
- Releases from Whiskeytown Dam on Clear Creek are currently 225 cfs with no changes expected.
- Releases on the Sacramento River from Keswick Dam are currently at 3,500 cfs; they will be increased to 4,000 cfs on Friday.
- American River releases from Nimbus Dam are currently 1,200 cfs and will be increased to 1,500 cfs tomorrow (March 31<sup>st</sup>) and 1,750 cfs on Thursday (April 1<sup>st</sup>). Increased flows on the Sacramento and American are intended to support the ability to meet D-1641 outflow requirements in the Delta.
- Releases from Goodwin Dam on the Stanislaus River are currently 400 cfs, which reflects an increase from releases last week in order to manage salinity at Vernalis, another D-1641 requirement.
- Jones Pumping Plant exports are currently 800 cfs, and no changes are anticipated.
- The Delta Cross-channel Gates are currently closed and are expected to remain closed through mid-May per the PA and D-1641 requirements. Construction activities on the gates remain ongoing.
- DWR reported that Feather River releases from Oroville are currently at 1,050 cfs, will increase to 1,500 cfs on Thursday, and then ramp down to 1,300 cfs on Saturday, 1,100 cfs on Sunday, 900 cfs on Monday, finally holding at 800 cfs on Tuesday.
- Sacramento River flows at Freeport are currently 8,370 cfs and will range between 7,500 and 9,500 cfs for the rest of the week.
- Clifton Court inflow is 300 cfs and will likely remain stable.
- Delta outflows are 7,074 cfs today and with the increase in upstream releases will range between 6,000 and 8,500 cfs this week.
- QWEST was near 1,109 cfs yesterday and will range between 700 and 1,000 cfs in the coming days.
- The OMRI was -900 cfs yesterday and is expected to range between -800 and -1,100 cfs this week.
- X2 yesterday (March 29) > 81 km.
- DWR explained their agency's approach to calculating "Chipps Days": there have to be at least 10 days in a month with net Delta outflow at or above 11,400 cfs in order to be able to carry days over into the

next month. Therefore, the four additional days above 11,400 cfs outflow in March after meeting the required 2 days of “Chippis Days” in March will not be carried over.

## Review of Environmental Conditions and Survey Updates

CDFW shared survey updates.

- 20-mm Survey 1 was in the field last week (March 22 to 25), and about 60 percent of samples have been processed.
  - All South and Central Delta stations have been processed: 19 Longfin Smelt (LFS) (10-19mm) were detected at Station 809, 35 at Station 812, and 2 at Station 815.
  - 61 LFS (9-22 mm) were detected in the Upper Sacramento.
  - No LFS were detected in the Lower Sacramento, but two waksagi were detected – one at Station 711 and one at Station 716.
  - No Delta Smelt (DS) were observed.
- 20-mm Survey 2 will start on April 5<sup>th</sup>.

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

- Zero DS were detected last week (March 22<sup>nd</sup> to 25<sup>th</sup>), so there was no abundance estimate generated. It was the final week of Phase 1 sampling, and sampling was reduced due to COVID-mitigation measures.
- On March 24, two LFS (26 and 28 mm) were detected in the Suisun Marsh strata.
- Yesterday (March 29) Phase 2 sampling started; full crews are back on the water starting March 30 and will sample this week through Thursday (April 1). Today, crews are sampling in the Sacramento Deep Water Shipping Channel and the Suisun Marsh strata. Yesterday’s samples are being processed, but no osmerids have been reported.
- The Chippis Island Trawl caught a total of 17 LFS between March 22<sup>nd</sup> and March 29<sup>th</sup>.
  - 1 LFS (82 mm) on March 22<sup>nd</sup>; transferred to Fish Conservation and Culture Laboratory (FCCL)
  - 11 LFS (64 to 91 mm) on March 25<sup>th</sup>; 10 of the 11 were transferred to FCCL. The 64 mm fish was not transferred and was below the length for expression to be checked.
  - 1 LFS (91 mm) on March 26<sup>th</sup>; not transferred to FCCL because it was a university holiday; the crew did not check that fish for expression.
  - 2 LFS (83 and 89 mm) on March 28<sup>th</sup>; both transferred to FCCL.
  - 2 LFS (67 and 118 mm) on March 29<sup>th</sup>; the 67 mm was a mortality, no expression, and was returned to the office. The 118 LFS was transferred to FCCL.
- The unidentified osmerid caught on March 1<sup>st</sup> was genetically confirmed as a surf smelt after the meeting via email notification.
- EDSM is no longer transferring live Delta Smelt to FCCL due to the start of the larval sampling season.
- There was an update to the 3/26 EDSM report: it reported a change to the calculation of the abundance estimate, which altered the estimates reported the last time a Delta Smelt was caught. The last abundance estimate, based on the January 26<sup>th</sup> Delta Smelt detection, was reduced from 1,746 to 959 Delta Smelt.

CDFW provided a salvage update (March 23<sup>rd</sup> to 29<sup>th</sup>).

- No adult or larval DS were salvaged.
  - Note: The SWP did not sample March 23<sup>rd</sup>, 25<sup>th</sup>, 27<sup>th</sup>, or 29<sup>th</sup>, and it appears there were no exports on those days.
- No LFS were salvaged at the SWP, and eight LFS were salvaged at the CVP – four on March 28<sup>th</sup> and four on March 29<sup>th</sup>.

- The expanded salvage seasonal total is 28 LFS at the SWP and 20 LFS at the CVP as of March 30th.

USBR shared water quality data [three-station average daily water temperature as of March 29<sup>nd</sup> was 15.75° C; daily average turbidity at Old River at Bacon Island (OBI) was 6.90 FNU and is currently 2.10 FNU]. The seven-day weather forecast for Antioch is sunny and clear with winds from the NW at 5 to 15 mph with gusts up to 28 mph and potential rain over the weekend; the seven-day weather forecast for Stockton is sunny and clear with winds from the NW at 3 to 21 mph with gusts up to 29 mph and potential rain on Monday. X2 was 80 km as of March 29.

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

CDFW suggested updating which life stages the ITP Assessment reports as being present: currently, the ITP says that larvae, juveniles, or adults DS could be present. CDFW suggested changing that to larvae or adults. SMT members agreed. CDFW also noted that the time in the season when adult LFS become rare is approaching; adults are currently still being detected at Chipps Island, but once those detections disappear, the SMT should reassess the risk of adults moving into the San Joaquin.

CDFW noted that no LFS or Delta Smelt were detected at Station 716 in 20-mm Survey 1, and the Condition 8.12 protection period for Longfin Smelt ends on March 31<sup>st</sup>. Therefore, CDFW advised that the SMT should not issue advice for any restrictions on pumping at Barker Slough.

- SMT members agreed with this recommendation.
- CDFW shared that there was a wakasagi (13mm) caught at Station 716.

Condition 8.4.2 remains in effect, triggered by catch per tow of more than five fish at Stations 809 and 812 in 20-mm Survey 1. CDFW observed that conditions are similar to last week but even drier, so neither project is pumping much; as a result, OMRI is not expected to go more negative than -1,100 cfs in the next week. CDFW noted that a recommendation of -1,250 cfs OMRI is the lowest allowed by the ITP, so no recommendation they could make would be change operations.

- USFWS agreed with CDFW's analysis.
- DWR agreed that CDFW's analysis seems reasonable given conditions and survey data.
- In the ITP Assessment, CDFW will acknowledge that Condition 8.4.2 was triggered and state that projected operations are more positive than anything they could recommend.

SMT members discussed what their operating assumptions are about where DS should be distributed now given the lack of detections. The current language in the PA Assessment states that "*adults should be holding in the Suisun Marsh and west of the Sacramento-San Joaquin confluence in anticipation of migration, but analysis of historic Spring Kodiak Trawl (SKT) supports Delta Smelt distribution being above the confluence and less tightly correlated to X2 position.*"

- USFWS noted that the analysis mentioned in the Assessment language was done when Delta Smelt were much more common, but April is generally the transition period in which adults historically stop being collected in large numbers. USFWS suggested keeping the current language until early April and then indicating the likelihood of a transition from more adults to more larval-juveniles.
- The SMT agreed with USFWS' approach.

USBR shared their assessment that, although there is some wind-driven turbidity, it is unlikely to rise to 12 FNU at OBI. They asked if other SMT members felt differently.

- CDFW agreed and noted that even if turbidity reached 12 FNU, there is nothing that would be implemented since the Turbidity Bridge Avoidance condition states that the “Permittee shall restrict south Delta exports to achieve an OMR flow that is no more negative than -2,000 cfs,” and OMRI is much more positive than that.
- USFWS observed that surveys have not detected a Delta Smelt since January, so understanding environmental correlates for their presence is increasingly important. There is a soon-to-be-published paper which looks at environmental correlates with fish distribution, and USFWS suggested it might provide useful information in thinking about turbidity. USFWS reminded the group that turbidity has been declining since monitoring began in the 1970s, so there will be fewer turbidity events >12 NTU over time; regulatory agencies may need to consider whether to establish standards to identify turbidity events/patterns that may not exceed the PA threshold but still could be an important indicator of risk for DS entrainment. USFWS will share the new paper when it is available.

## 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 largely focused on the latest detection data and anticipated changes in conditions (including turbidity, OMR Index, and QWEST values). Edits to the assessment included:

- An update that EDSM will no longer provide broodstock to FCCL, now that they are in Phase 2.
- Clarifications throughout the document that the SMT considers the life stages currently present and under consideration to be larvae and adults. In early April, they will update the language to note that adults are less likely to be present.
- Elimination of references to precipitation as a potential driver of fish distribution this week.
- A clarification that that turbidity is less than 12 FNU at OBI and stable at other South and Central Delta stations and is not expected to exceed 12 FNU.
- A note that high Northern winds on 3/23/21 did not elevate daily average turbidity at OBI above 12 FNU.

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, two, three, four, six, seven, eight, and nine did not change at all or were updated to reflect the latest dates and data.

- The response to question five referenced current wind conditions, stated that turbidity is not expected to rise above 12 FNU, and concluded that the Turbidity Bridge Avoidance measure is not expected to be triggered in next two days and will offramp on April 1.

USBR reviewed updates to the Executive Summary:

- The SMT removed language to referring to the potential impacts of high wind event.

No non-consensus issues were identified.

### **Additional Considerations/Discussion**

Agencies reported no items for elevation to WOMT.