

# Smelt Monitoring Team – Tuesday, January 10<sup>th</sup>, 2023

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## 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 (K&W)

## ACTION ITEMS

- DWR to send update on Sacramento Valley water year type and relevant implications for Incidental Take Permit (ITP) Condition of Approval (COA) 8.12. (complete)
- DWR to notify Smelt Monitoring Team (SMT) of any plans to deviate from operating to an average Old and Middle River (OMR) index no more negative than -2,000 cfs between the off-ramp of COA 8.3.1 and potential on-ramp of COA 8.5.1.
- CDFW to update the SMT on WOMT's guidance for COA 8.5.1 OMR index averaging period.

## MEETING SUMMARY

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

#### Relevant Actions & Triggers

Both federal Integrated Early Winter Pulse Protection (IEWPP) action and the State ITP COA 8.3.1 (Integrated Early Winter Pulse Protection) are triggered and will mandate reduced exports such that the 14-day average OMR index is not more negative than -2,000 cfs through January 16<sup>th</sup>. COA 8.12 (Barker Slough Pumping Plant Longfin and Delta Smelt Protection) may go into effect January 15<sup>th</sup>, depending on the Sacramento Valley water year type (*Note: after the meeting, DWR confirmed the water year type as of January 1<sup>st</sup> is below normal, therefore COA 8.12 will not go into effect at this time*). 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 needed.

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 cubic feet per second (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 <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 Delta Smelt (DS) has been collected in monitoring surveys.	Active, triggered 12/31/22
OMR Management	Manage to a more positive OMR than -5,000 cfs.	From the onset of OMR management to the end.	N/A	Not active
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 DS 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.	Not active
Larval and Juvenile Delta Smelt	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.	Not active

<sup>1</sup> 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 Clifton Court Forebay (CCF) reaches 77°F for 3 consecutive days	Not active

IIP 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 <sup>st</sup> through June 30 <sup>th</sup> or until off-ramped by 8.8	N/A	Active
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.	Active, triggered 12/31/22
8.3.3 (Adult Longfin Smelt Entrainment Protection)	After December 1, if an Integrated Early Winter Pulse Protection (COA 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 Fall Midwater Trawl (FMWT) Index divided by 10, or SMT determines that there is a high risk of entrainment.	Dec 1 through Feb 28 <sup>th</sup>	Salvage threshold for water year (WY) 2023 is 40.	Off-ramped with COA 8.3.1 triggering on 12/31/22

Condition of Approval	Requirement	Time Frame	Trigger	Triggered?
8.4.1 (OMR Management for Adult Longfin Smelt)	<p>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:</p> <p>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</p>	Onset of OMR management through Feb 28 <sup>th</sup>	SMT recommendation based on weekly risk assessment.	Off-ramped with detection of LFS larvae 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 off-ramp 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.	Active, not triggered
8.4.3 High flow offramp for Longfin Smelt	If triggered, COA 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.	Triggered but not controlling

Condition of Approval	Requirement	Time Frame	Trigger	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	Not active
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 trigger (2) or (3) are met, this Condition of Approval will restrict south Delta exports to maintain a seven-day average OMR index no more negative than -3,500 cfs until the average Secchi depth is greater than 1 meter in the south Delta stations in a subsequent SLS or 20 mm survey. If average south Delta Secchi depth continues to be less than or equal to 1 meter in a subsequent SLS or 20mm survey then Permittee shall continue restrictions and request a risk assessment by the Smelt Monitoring Team to determine if additional advice and subsequent restrictions are warranted and provide advice to WOMT.	Nov 1 <sup>st</sup> through June 30 <sup>th</sup> or until off-ramped by 8.8	(1) When the five-day salvage of juvenile Delta Smelt is greater than or equal to one plus the average prior three years' FMWT index (rounded down). The 2022 September through November FMWT index for DS was zero.  Or (2) when a larval/juvenile DS is detected in SLS/20 mm  Or (3) the 3-day average water temperature at Jersey Point is $\geq 12^{\circ}\text{C}$ and Secchi from the most recent SLS/20 mm survey is $\leq 1\text{m}$ averaged across the 12 stations (809, 812, 815, 901, 902, 906, 910, 912, 914, 915, 918, and 919)	Active, not triggered

Condition of Approval	Requirement	Time Frame	Trigger	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 <sup>th</sup>	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 <sup>st</sup> through June 30 <sup>th</sup> for DS	Larval Smelt are detected at SLS Station 716 during the period identified for each species, and/or when recommended by the SMT.	Not active; water year type is below normal as of 01/01/23

## Current Operations & Outlook

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

- USBR reported on weather conditions noting a continued wet pattern for the coming six-day outlook. Storms are forecasted to produce upwards of 10 inches in favorable regions within the Shasta system and five inches in the Sacramento basin.
- Releases from Whiskeytown Dam on Clear Creek are currently 200 cfs. Overall releases are higher than anticipated as spillways continue to contribute water to the system.
- Releases from Keswick Dam on the Sacramento River are 4,250 cfs. Releases are anticipated to be variable to manage Keswick side flows.
- Releases from Nimbus Dam on the American River are 25,000 cfs. A change order was issued to decrease flows to 20,000 cfs as of January 10<sup>th</sup>.
- Releases from Goodwin Dam on the Stanislaus River are 2,500 cfs. Releases are anticipated to be variable to manage Tulloch side flows.
- The federal facility is exporting 3,500 cfs with the potential to modify flows in reaction to stormwater.
- Delta Cross Channel (DCC) gates remain closed. No changes expected for the next seven-day period.
- Tides are entering a neap cycle.
- DWR reported that Feather River releases are holding at 950 cfs.
- As of January 9<sup>th</sup>, Sacramento River flows at Freeport were just below 80,000 cfs. The upper river is spilling over the Freemont Weir resulting in additional flows of up to 50,000 cfs.
- For the week of January 9<sup>th</sup>, San Joaquin River flow at Vernalis was just below 7,000 cfs, but flows may reach 16,000 cfs depending on upstream reservoir management.
- State facility exports are approximately 2,700 cfs and may reach 6,000 cfs with increased San Joaquin River flows. Exports are expected to fluctuate to target a -2,000 cfs OMR through January 17<sup>th</sup>.
- Delta outflows were 96,000 cfs as of January 9<sup>th</sup>, with the possibility of reaching 150,000 cfs.
- As of January 9<sup>th</sup>, QWEST was just below 20,000 cfs. It will remain variable but above 10,000 cfs for the six-day forecast period.
- Rio Vista flows were 76,000 cfs as of January 9<sup>th</sup>, but the coming storm systems may push flows above 110,000 cfs.
- X2 is west of Martinez (< 56 km).

- Turbidity is elevated across the Delta.
- The expected daily OMR index values as of January 9<sup>th</sup> are -1,800 to -2,200 cfs.
  - January 7<sup>th</sup> OMR at USGS gauge:
    - Daily: -2,400 cfs
    - Five-Day: -2,400 cfs
    - 14-Day: -4,100 cfs
  - January 7<sup>th</sup> OMR Index:
    - Daily: -2,100 cfs
    - Five-Day: -2,000 cfs
    - 14-Day: -4,000 cfs
  - January 9<sup>th</sup> OMR Index:
    - Daily: -2,000 cfs
    - Five-Day: -2,000 cfs
    - 14-Day: -3,900 cfs

The survey table was updated to note that the Spring Kodiak Trawl (SKT) is now active.

## Review of Environmental Conditions and Survey Updates

CDFW delivered catch updates on relevant surveys to the SMT.

- SLS 1 processing is ongoing with South Delta, San Pablo, and Carquinez Strait stations completed. Napa River and station 918 in the Central and South Delta were not sampled due to complications.
  - No LFS or DS detected in the Central and South Delta.
  - Thus far, larval LFS have been detected at stations in San Pablo Bay and Carquinez Strait.
    - In total 89 larval LFS were detected with 79 originating from one station in San Pablo Bay.
    - Juvenile fork lengths ranged from six to eight mm.
    - About half had yolk sacs present.
- SKT is on the water this week from the 9<sup>th</sup> to 12<sup>th</sup>.
  - LEPS: Two days of sampling were cancelled due to weather. The 15 tows detected no osmerids.

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

- EDSM sampled Tuesday through Friday the week of January 2<sup>nd</sup>, completing 26 of 36 sites due to weather complications. Three sites were completed in all strata.
  - DS: Zero
  - LFS: 33 in San Joaquin, Suisun Marsh, and Suisun Bay strata (FL: 60 to 104 mm).
    - The LFS detected in the lower San Joaquin River on January 5<sup>th</sup> was 70 mm.
- EDSM is scheduled to sample Monday through Thursday this week (week of January 9<sup>th</sup>). The forecasted weather may force the crew to deviate from established sampling plans and make up sites on Friday.
  - Next week the Western Delta stratum will be added due to X2 shifting downstream.
- The week of January 2<sup>nd</sup> Chipps Island crews completed all 30 scheduled tows.
  - DS: Zero
  - LFS: 33 (FL: 73 to 116 mm)
- This week Chipps Island will sample Monday, Wednesday, and Friday.
- The DS abundance estimate for the week of January 2<sup>nd</sup> was zero due to no detections.
  - The last non-zero abundance estimate is from the week of November 7<sup>th</sup> at 1,240.

CDFW provided a salvage update (January 2<sup>nd</sup> to January 8<sup>th</sup>).

- The Tracy Fish Collection Facility detected a 74 mm adult DS in salvage on January 7<sup>th</sup> at the 14:00 fish count. This fish was part of the hard release group from the experimental release on November 30<sup>th</sup>.
  - Since the DS was collected during the normal count, it represents a salvage of four fish.

#### Experimental Release Update

- The experimental releases originally scheduled for this week are postponed due to weather. The second and third releases will likely be rescheduled for the weeks of January 16<sup>th</sup> and 23<sup>rd</sup> respectively.

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

The SMT focused discussions on current turbid conditions in the Delta and the possibility of a turbidity bridge avoidance action going into effect at the conclusion of the IEWPP action on January 17<sup>th</sup>.

- USFWS noted that turbidity in the OMR corridor is unlikely to drop below 12 NTU before the end of the IEWPP resulting in a turbidity bridge avoidance action (i.e., continuing to manage exports to an OMR index no more negative than -2,000 cfs for five days).
- Given anticipated hydrologic conditions, DWR is preparing to operate to COA 8.5.1 (Turbidity Bridge Avoidance) starting January 17<sup>th</sup> (i.e., with no lag between the end of the IEWPP action and the beginning of a potential turbidity bridge avoidance action) and noted that strong hydrologic conditions may maintain turbidity levels above 12 NTU for more than five days.
- DWR noted that COA 8.5.1 has not previously been a controlling measure and asked the SMT for input on the appropriate OMR index averaging period to use if COA 8.5.1 is triggered and implemented next week. Neither the PA nor the ITP specify an OMR averaging period for the -2,000 cfs OMR index for a turbidity bridge avoidance action.
- DWR pointed out that COA 8.5.1 was not intended to always follow an IEWPP action, e.g., it can also be triggered by more rapid wind-driven events or flow events that occur after first flush.
- DWR proposed a three-day averaging period, which would provide operators with sufficient flexibility to adapt to variable San Joaquin River flows.
- CDFW suggested the ITP language could be interpreted to indicate the use of daily flow values for COA 8.5.1.
  - DWR acknowledged a daily average would be well-suited to turbidity bridge avoidance actions taken in response to shorter duration turbidity events.
- CDFW highlighted that language exists in the ITP for the SMT to generate its own recommendation (between -2,000 cfs and -5,000 cfs) if turbidity continues to be above 12 NTU after the five-day turbidity bridge avoidance action. Thus, at next week's meeting the SMT could recommend that the OMR index be no more negative than -2,000 cfs through the 21<sup>st</sup> and potentially preemptively draft a recommendation for the 22<sup>nd</sup> to avoid an off-cycle meeting

The SMT agreed to bring the topic to WOMT and request clarification on the OMR averaging period for a turbidity bridge avoidance action given ambiguity in the regulatory language.

CDFW proposed elevating the risk for DS in the Central and South Delta to moderate.

- USFWS agreed, citing the detection of a DS in salvage and continuation of elevated turbidity levels despite less negative OMR index values.
- DWR suggested that the highly positive QWEST values may help mitigate risk for fish in the Central Delta.



- DWR agreed that risk should be elevated but recommended limiting the rationale to the recent DS salvage and the high turbidity as export rates are not currently responsible for increased risk due to the current -2000 cfs OMR action.

CDFW noted the increased larval LFS detections from last week to this week which is likely the result of increased population and the increased flow from the storm systems pushing fish downstream. The SMT agreed that risk for LFS remains low.

- CDFW and DWR agree that the on-going high flows from the storms are dispersing LFS widely in the system.
- CDFW notes that although risk remains low, EDSM detected one LFS in the Lower San Joaquin River after the storm and resulting increased flows pushed X2 downstream.

### **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, conditions, data, and the following:

- Evaluation question 2 was updated to note the DS detected in salvage January 7<sup>th</sup>, which indicates the presence of DS in the South Delta and elevates risk to moderate.
- Evaluation question 6 was updated to note the likelihood of a turbidity bridge avoidance action at the end of the IEWPP action on January 17<sup>th</sup>.
- Executive summary was updated to note the recent distribution and salvage of DS in the Delta with possible movement into areas with a higher likelihood of entertainment and elevated turbidity.

#### **ITP Longfin Smelt and Delta Smelt Risk Assessment**

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

##### **Advice to WOMT**

- No advice to WOMT.

##### **Sections 1-A and 1-B**

- 1-B DS Subadult and adult: Exposure risk elevated to moderate given the January 7<sup>th</sup> salvage and the presence of a turbidity bridge, which increases the possibility that DS could migrate into the Central and South Delta.

##### **Change in exposure from last week**

- Risk for DS in the Central and South Delta increased to moderate due to recent salvage and increased turbidity across the system including the OMR corridor.
- LFS no change to risk.

##### **Executive Summary**

- The LFS executive summary notes that recent storm systems have likely widely distributed fish throughout the Delta, which lowers overall risk.

#### Part 4: Additional Considerations/Discussion

The SMT will request clarification from WOMT on the OMR index averaging period for COA 8.5.1 (daily or three-days) in anticipation that this COA may be triggered January 17<sup>th</sup> once the IEWPP action ends.