## Smelt Monitoring Team Meeting Summary Tuesday, January 23, 2024

## **MEETING OBJECTIVE**

To collectively assess how current operations and environmental conditions could be impacting Delta Smelt and Longfin Smelt and to provide information to Water Operations Management Team (WOMT) on the status of Delta Smelt and Longfin Smelt, their exposure to operations of the CVP and SWP, and their potential sensitivity to environmental and operational changes; i.e., assess changes in risk week-to-week.

## 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**

• SMT requested to consider when to request the start of qualitative larval sampling by the facilities in coming meetings based on temperature updates as it approaches Delta Smelt spawning temperatures.

## **ADVICE TO WOMT**

- The "Integrated Early Winter Pulse Protection" action under both the Federal Biological Opinions and State ITP Conditions of Approval (COA) 8.3.1 were "triggered" on Sunday 1/21. As a result, CVP and SWP will reduce their combined exports for 14 consecutive days so that the 14-day averaged OMRI for the period shall be no more negative than 2,000 cfs beginning Tuesday 1/23/24 through 2/5/24.
- Although not controlling, SMT continues to recommend the State's share of OMRI be limited to -5,000 cfs on a 7-day average under COA 8.4.2, Larval and Juvenile Longfin Smelt Protection if the 3-day average QWEST remains above +3,000 cfs. If the 3-day

average QWEST falls below +3,000 cfs, then SMT recommends the State's share of OMRI limited to no more negative than -3,500 cfs on a 7-day average.

## ANNOUNCEMENTS

- Reclamation shared an operations update with the SMT: Goodwin Dam releases will change on 1/26 increasing flow from 1,000 cfs to 1,500 cfs for flood control purposes.
- CDFW reminded the SMT that COA 8.5.1 and PA (4.10.5.10.1) Turbidity Bridge Avoidance will become active on February 1, 2024.

### **MEETING SUMMARY**

# PART 1: Updates on Water Operations and Biological Conditions Updates *Relevant Actions & Triggers*

Integrated Early Winter Pulse Protection (IEWPP) ("First Flush" Turbidity Event) was triggered on 1/21/2024 due to a running 3-day average of daily flows at Freeport of >25,000 cfs and a running 3-day average of turbidity at Freeport of >50 NTU/FNU. The 14-day average OMRI for the following 14 days shall be no more negative than -2,000 cfs. OMR Management season, when the OMR Index is restricted to no more negative than -5,000 cfs, has been triggered and is now in effect as of January 1, 2024. CDFW reported on the ITP Conditions of Approval (COA) currently in effect and whether they have been triggered. COA 8.4.2 Larval and Juvenile Longfin Smelt Entrainment Protection remains triggered but is not controlling. 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 (IEWPP)("First Flush" Turbidity Event)	Reduce exports for 14	Dec 1 to Jan 31	<ul> <li>(1) Running 3-day average of daily flows at Freeport &gt;25,000 cfs; and</li> <li>(2) Running 3-day average of daily turbidity at Freeport ≥50 Nephelometric Turbidity Units (NTU<sup>1</sup>); or</li> <li>(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.</li> </ul>	Active,
	positive OMR than -5,000 cfs.	From the onset of OMR management to the end.	N/A	Active, Triggered 1/1/24 due to salmonid presence in the Delta
Avoidance ("South Delta Turbidity")	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.	flush or Feb 1 (whichever comes first) and until a	Average daily turbidity in Old River at Bacon Island (OBI) at a level of more than 12 NTU.	Not active

<sup>&</sup>lt;sup>1</sup> The current instrumentation measures turbidity in Formazin Nephelometric Units (FNUs).

OMR				
Management				
Measures	Requirement	Time Frame	Trigger	Triggered?
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	On or after March 15 of each year until off-ramp criteria are	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
	modeled recruitment levels.			
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.	management to June 30, or when the DS temperature off ramp has been	DS: when the daily mean water temperature at Clifton Court Forebay (CCF) reaches 77°F for 3 consecutive days	Not active

## ITP Conditions of Approval

Condition of				
Approval	Requirement	Time Frame	Trigger	Triggered?
8.1.5.2 (Smelt	Outlines contents for weekly	Nov 1st	N/A	Active
Monitoring	risk assessments of DS and	through June		
Team Risk	Longfin Smelt (LFS) required	30th or until		
Assessment)	under 8.1.5 and 8.1.1.	off-ramped by		
		8.8		

Condition of				
Approval	Requirement	Time Frame	Trigger	Triggered?
8.3.1	Reduce south Delta exports for	Dec 1 to Jan	3-day running average	Active,
(Integrated	14 consecutive days to	31	daily flows at Freeport	Triggered on
Early Winter	maintain a 14-day average		greater than, or equal to,	1/21/24 due to
Pulse	OMR index no more negative		25,000 cfs, AND Three-	elevated flows
Protection)	than -2,000 cfs, and convene		day running average of	and turbidity;
	the Smelt Monitoring Team		daily turbidity at Freeport	
	(SMT) within one day of		5	until 2/5/24
	triggering. After maintaining a		to, 50 FNU OR The SMT	
	14-day average OMR index no		determines that real-time	
	more negative than -2,000 cfs		monitoring of abiotic and	
	for 14 days, Permittee shall		biotic factors indicates a	
	maintain a 14-day average		high risk of DS migration	
	OMR index no more negative		and dispersal into areas	
	than -5,000 cfs, initiating the		at high risk of future	
	OMR Management season.		entrainment.	
8.3.3 (Adult	After December 1, if an	Dec 1 through	5	Off-ramped as
Longfin Smelt	Integrated Early Winter Pulse	Feb 28th	water year (WY) 2024 is	of 1/1/24 due to
Entrainment	Protection (COA 8.3.1) has not		46.4.	initiation of
Protection)	yet initiated, Permittee shall			OMR season by
	reduce south Delta exports to			COA 8.3.2
	maintain a 14-day average			
	OMR index no more negative			
	than -5,000 cfs and initiate			
	OMR Management (Condition			
	of Approval 8.3) if: Cumulative			
	combined LFS salvage (total			
	estimated LFS counts at the			
	CVP and SWP salvage			
	facilities beginning December			
	1 through February 28 exceeds			
	the most recent Fall			
	Midwater Trawl (FMWT) LFS			
	index divided by 10, Real-time			
	monitoring of abiotic and			
	biotic factors indicates a high risk of LFS movement into			
	areas at high risk of future			
	entrainment, as determined by			
	DWR and CDFW SMT staff.			

Condition of				
Approval	Requirement	Time Frame	Trigger	Triggered?
8.4.1 (OMR Management for Adult	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	Onset of OMR management through Feb 28th	SMT recommendation based on weekly risk assessment.	Off-ramped as of 12/18/23 due to detection of larval LFS by Smelt Larva Survey (SLS) 12
	cfs to -2,500 cfs 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 Larvae 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.	

Condition of				
Approval	Requirement	Time Frame	Trigger	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	00	Active, Not Triggered
8.5.1 Turbidity Bridge Avoidance	turbidity at OBI at a level of less than 12 FNU. If the daily average turbidity at OBI is greater than 12 FNU, Permittee shall restrict south Delta exports to achieve an OMR flow that is no more negative than -2,000 cfs until the daily	flush or Feb 1 until end of OMR	Turbidity at OBI > 12 FNU	Not active

Condition of				
	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	Nov 1st through June 30th or until off-ramped by 8.8	Trigger (1) 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 2023 September through December FWMT 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 ≥12°C and Secchi from the most recent SLS/20 mm survey is ≤1m averaged across the 12 stations (809, 812, 815, 901, 902, 906, 910, 912, 914, 915, 918, and 919)	
	lf triggered, OMR Management would be off-		temperature at CCF is	Active, Not Triggered
	ramped for LFS and DS.	management through June 30th	>25 <sup>°</sup> C for three consecutive days.	

Condition of				
Approval	Requirement	Time Frame	Trigger	Triggered?
8.12 (Barker	Barker Slough Pumping Plant	From January	Larval Smelt are detected	Not active due
Slough	will reduce exports so the	15 through	at SLS Station 716 during	to Below
Pumping Plant	maximum 7-day average is	March 31 in	the period identified for	Normal water
Longfin and	<60 cfs.	dry and critical	each species, and/or	year type
Delta Smelt		water years for	when recommended by	forecast
Protection)		LFS, and from	the SMT.	
		March 1st		
		through June		
		30th for DS		

#### **Current Operations & Outlook**

- Releases from Whiskeytown Dam on Clear Creek are currently 200 cfs with no anticipated changes for the week.
- Releases from Keswick Dam on the Sacramento River are currently 5,000 cfs with no anticipated changes for the week.
- Releases from Oroville Dam on the Feather River are currently 1,750 cfs with no anticipated changes for the week.
- Releases from Nimbus Dam on the American River are 1,750 cfs with no anticipated changes for the week.
- Releases from Goodwin Dam on the Stanislaus River are currently 1,000 cfs with no anticipated changes for the week.
  - Reclamation shared an operations update with the SMT: Goodwin Dam releases will change on 1/26 increasing flow from 1,000 cfs to 1,500 cfs for flood control purposes.
- Delta Cross Channel (DCC) gates closed on 11/27/2023 and are expected to remain closed for the season.
- Jones Pumping Plant is currently exporting 3,600 cfs with a range of 1,800 cfs to 3,600 cfs.
- The State facility is currently exporting 300 cfs, with a range of 300 cfs to 2,000 cfs.
- Expected Daily OMR Index Values are between -1,500 cfs to -2,500 cfs.
- Sacramento River flows at Freeport range between 35,000 cfs and 40,000 cfs.
- San Joaquin River flows at Vernalis range between 2,000 cfs to 5,500 cfs.
- The Delta Outflow index ranges from 30,000 to 55,000 cfs.
- X2 is around 74 km.

#### *Review of Environmental Conditions and Survey Updates*

CDFW delivered catch updates on relevant surveys to the SMT.

- FMWT
  - The Bay Study finished January sampling and detected 124 juvenile LFS and 15 adult LFS.
  - SLS 1 processing is complete. SLS 1 detected 77 new larval LFS in the Confluence, Suisun Bay, and Napa River regions with fork lengths ranging from 6-11mm since our last meeting.
  - SLS 2 is on water this week 1/22-1/25 and samples are being processed. The average Secchi depth for the 12 south and central stations is 118cm.

USFWS provided catch updates on EDSM and Chipps Island Trawl.

- EDSM sampled last week Tuesday-Friday at 32 sites and captured 1 DS measuring 63mm which was ad clipped from the 1/10 Experimental Release.
  - The DS abundance estimate for the week of 1/21 is 2,970.
  - EDSM detected 6 LFS in the lower Sacramento River region, 23 LFS in Suisun Bay, and 187 LFS in Suisun Marsh.
  - On 1/22 EDSM detected 2 DS in Suisun Marsh. Both were originally designated as wild DS and sent to the FCCL for broodstock. 1 DS survived and the other died on arrival at FCCL and the FCCL thinks it was a hatchery origin fish with a bad ad clip. The DS is undergoing further evaluation to determine its origin.
  - EDSM is sampling Monday-Thursday this week.
  - CDFW asked how it would be determined whether the DS was ad clipped.
    - USFWS shared that FCCL staff would need to confirm whether the fish was ad clipped. If the DS is determined to be of hatchery origin it will be delivered to Bruce Hammock's lab for the Directed Outflow Program (DOP).
  - DWR asked if the DS that died was captured in Montezuma Slough.
    - USFWS shared that both DS were detected in Suisun Marsh. The potentially ad clipped fish was detected in Montezuma Slough and the unmarked fish was detected in Suisun Slough.
- Chipps Island Trawl completed all 30 tows and detected 23 LFS.
  - Normal Chipps Island Trawl sampling will continue this week.

CDFW shared the following salvage update.

• No operational variances were reported and no osmerids were detected in salvage.

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

DS

- Reclamation shared that given IEWPP is active, it is assumed that DS will begin population scale migration, and accordingly more fish movement which could have contributed to elevated detections.
- Reclamation shared that the planning would need to begin for the qualitative larval sampling in salvage to allow for 2-3 weeks for staff to prepare. CDFW shared that although qualitative sampling began on March 1 last year, in previous years sampling began in February in both 2021 and 2022. In 2021 and 2022, despite starting in early to mid-February did not detect larvae until late February and early March. The SMT should monitor water temperature as a key indicator of spawning and potential larval presence. CDFW added as a caveat that qualitative larval sampling has unknown efficiency for larval detections. In 2022 there were survey detections of larvae in January in West Canal by the Larval Entrainment Pilot Study, but larvae were not detected at the salvage facilities until March.
  - USFWS suggested beginning preparations for larval sampling sooner rather than later to allow for adequate preparation time.
- DWR shared that there are paired hard and soft releases happening this week and next week with ~13,000 fish being released each week near Rio Vista. With the first flush conditions those DS should be more detectable by monitoring and conditions more conducive to their survival after they are released.
- CDFW agreed that DS should begin their population scale migration and shared that it is interesting to see that some of the DS from the most recent Experimental Release went to Suisun Marsh whereas some seemingly stayed in the lower Sacramento River.

LFS

- CDFW shared that in the 1/18 Off-Cycle meeting, the risk level was kept at Moderate and was contingent on a positive QWEST. With the OMRI limit of -2,000 cfs and QWEST anticipated between +5,000 and +10,000 cfs, CDFW proposed changing risk level in the central and south Delta for LFS larvae to Low. DWR agreed with CDFW's proposal to change the risk level to Low.
  - USFWS asked how long the -2,000 OMR would last. CDFW responded that COA 8.3.1 will continue to be active through 2/5/2024.
  - USFWS followed up by asking if COA 8.3.1 could be interrupted or off ramped by anything including changing flows. CDFW clarified that there is no off-ramp for COA 8.3.1, and it will remain in effect for 14 days.
- CDFW also shared that SLS 2 is on the water this week. The conditional -3,500/-5,000 cfs OMRI recommendation under COA 8.4.2 will be in place until SLS 2

finishes processing the priority stations, but the recommendation will not be controlling while restrictions from COA 8.3.1 is in effect. COA 8.4.2 may re-trigger or not be in effect depending on the detections by SLS 2.

#### PART 3: Live-edit Assessments

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

#### **Delta Smelt (DS)**

The SMT reviewed and discussed updates to the PA Assessment for DS, which include the latest dates, detections, conditions, data, and reflects the discussion documented in Part 2 above.

- Abundance Estimate was updated to 2,970.
- Biological Conditions updates included:
  - updated language to reflect population scale migration of DS.
  - replaced "Low Salinity Zone" with "Suisun Marsh".
  - added detection location in "...the lower Sacramento River".
- USFWS shared that historically there is not much migration at this time of year but that this year could be an outlier given the detections and suggested adding this historical context language to the Biological Conditions section.
- The SMT discussed the published literature on first flush timing and conditions as it relates to DS movement, migration, and spawning.
  - USFWS added that First Flush timing is being expanded in the upcoming PA.
  - Reclamation acknowledged USFWS' desire to reflect historical DS distribution which itself may not reflect current conditions due to changing hydrology and weather patterns.
  - DWR noted that the September-December relationship was about the centroid being associated with X2 in low salinity conditions/settings. The Sommer et al. (2011) paper still reinforced that the spawning migration happens in response to first flush conditions. Migration for spawning is still tied to these first flush conditions. For first flush conditions the Grimaldo et al. 2009 is a good paper to cite as well.
- Distribution
  - Highlighted and updated COA 8.5.2: Water temperatures are not conducive to spawning.
- Table 8

- Updated EDSM detections
- USFWS shared that FCCL broodstock collections are ending on 1/26.
  - DWR asked if the targeted FCCL broodstock collections would end. USFWS responded that targeted broodstock collecting would end, however potential broodstock collecting during USFWS trawling surveys would continue to be transferred to FCCL. CDFW asked why the collection would be ending now, and if it was due to water temperatures. USFWS shared that it is mostly a resource limitation. FCCL was hoping for additional collection, but USFWS would be unable to do regular sampling if the collection continued.
- Table 9
  - Updated detections showing 1 ad clipped DS and 1 unmarked DS detected.
- Abiotic Conditions
  - Updated based on the week's forecast.
  - Turbidity is below 12 FNU at OBI and other stations in the central and south Delta.
- CDFW asked DWR if there was a forecast of whether turbidity would reach the central and south Delta. DWR responded they do not forecast turbidity, only monitor it. USFWS liked the addition of turbidity conditions in SJR and noted that keeping information updated would be helpful and appreciated. Asked if any of the reservoirs will have flood control releases and possibly adding those to the Abiotic Conditions section. DWR shared that Vernalis turbidity is approximately 30 FNU, similar to the turbidity values around the major flow events from winter 2022/2023. The duration and magnitude of the flow event is the main difference because this year's flows are substantially lower than last year and thus the total amount of turbid water is lower.
- Other Environmental Conditions
  - OMR and QWEST values were updated.
- Evaluation
  - Updated the proposed operations language from the Outlook.
- Questions
  - 1) First Flush conditions were exceeded on 1/21/2024, triggering IEWPP, which will be implemented from 1/23/2024 through 2/5/2024.
  - 2) Updated language based on the Proposed Action Assessment

- CDFW suggested specifying increased flow and turbidity rather than generalizing it as environmental conditions meeting the first flush conditions.
- 3) Turbidity Bridge Avoidance begins on February 1.
- CDFW asked if the current (2023) Interim Operations Plan (IOP) included language related to off-ramping turbidity bridge avoidance due to detection of spent females. USFWS answered they are unsure if this language was changed in the 2024 IOP, however the 2024 IOP has not been ordered by the court, and we should be using the 2023 IOP until then. In past years Reclamation has off ramped turbidity bridge avoidance due to detection of a ripe or spent female, per the current PA. The current IOP includes language for larval and juvenile DS protections, but not for Turbidity Bridge Avoidance.
- Executive Summary
  - DS
    - Updated language with the latest dates, detections, OMRI and QWEST values.
    - Added "implemented"

#### 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, data, and reflects the discussion documented in Part 2 above.

#### Advice to WOMT and LFS Executive Summary

- QWEST is anticipated to be between +5,000 cfs to +10,000 cfs this week.
- USFWS noted that the LFS OMR recommendation language is somewhat unclear and suggested that CDFW clarify. The SMT engaged in a discussion about the language used in the CDFW Executive Summary including keeping the language clear and still expressing the layers of actions and protections for LFS.
  - CDFW updated the LFS Executive Summary to reflect the discussion around clarifying the language showing what actions are controlling, the SMT's recommendations, low entrainment risk in all regions, and the forecasted OMRI and QWEST values.
- CDFW added language saying: "Although not controlling, SMT continues to recommend the State's share of OMRI limit to -5,000 cfs on a 7-day average under COA 8.4.2, Larval and Juvenile Smelt Protection if the 3-day average QWEST remains above +3,000 cfs. If the 3-day average QWEST falls below 3,000 cfs, then SMT recommends the State's share of OMRI limit to -3,500 cfs on a 7-day average."

- USFWS asked why this section was included if the SMT's recommendations are not controlling. CDFW responded that it is important for record keeping and DWR agreed, noting that it is the responsibility of the SMT to make recommendations under the ITP regardless of it the COA is controlling or not.
- OMRI is limited to -2,000 cfs on a 14-day average between 01/23/24 and 02/05/24 under Condition of Approval (COA) 8.3.1.

#### Section 1-A: Sacramento River and Confluence

Delta Smelt

- No change in risk.
- DS are expected to begin their population-level, upstream spawning migration in response to high flow and turbidity conditions. OMRI is limited to -2,000 cfs this week.
- DWR asked if the DS detected in Suisun Marsh on 01/22/24 would be included. CDFW said that this table is for the Sacramento River and Confluence and that Suisun Marsh was outside of the geographic scope of the table. DWR thought that was fine but suggested removing the reference to the DS detection on 11/15/23.

Longfin Smelt

- No change in risk.
- Added language to the rationale: "98 larvae were detected by SLS 1 and 40 larvae from SLS 13. QWEST is anticipated to be between +5,000 and +10,000 cfs this week.

#### Section 1-B: Central Delta

Delta Smelt

- No changes in risk.
- Added language to the rationale: "Turbidity south of the lower San Joaquin River is low."

Longfin Smelt

- Larvae Exposure Risk changed from Moderate to Low.
- QWEST is anticipated to be between +5,000 cfs and +10,000 cfs and OMRI is limited to no more negative than -2,000 cfs.

Change in Exposure:

• Delta Smelt: No changes.

- DS are expected to begin their population-level, upstream spawning migration in response to high flow and turbidity (i.e. "first flush") conditions. OMRI is limited to -2,000 cfs on a 14-day average until 2/5/2024 which will help maintain low risk.
- Longfin Smelt: Risk to larval LFS in the central Delt has been reduced from Moderate to Low given the improved hydrology and OMRI being limited to no more negative than -2,000 cfs until 2/5/2024.

Life Stages Present

- Delta Smelt: Sub-Adults and Adults.
- Longfin Smelt: Larvae, Sub-Adults, Adults.

#### Part 4: Additional Considerations/Discussion

Agencies reported no items for elevation to WOMT.

## **Next SMT Meeting**

The next SMT meeting will be held on Tuesday 01/30/2024 on Microsoft Teams.