

## 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

- KW to add the question of whether to off-ramp larval sampling at the facilities to the “Additional Considerations” part of the agenda as a standing item for the remainder of the season.
- USBR to propose a framework for how to organize the post-season meeting discussions, review it with CDFW, and then share it with the group.

## 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.

#### 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	Not active; Not triggered

<sup>1</sup> 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 <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 (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 <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 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 <sup>2</sup> (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,

<sup>2</sup> 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 <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?
	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 <sup>th</sup>	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 <sup>th</sup> through March 31 <sup>st</sup> 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	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 releases on the Sacramento River from Keswick Dam will be reduced tomorrow (May 26<sup>th</sup>) to 7,100 cfs; the cut is being timed to reach the Delta after the peak of spring tide.
- American River releases from Nimbus Dam are currently at 1,000 cfs; CVO is monitoring for opportunities to cut releases but no opportunities have been identified thus far.
- Releases from Goodwin Dam on the Stanislaus River are 600 cfs and are anticipated to remain stable into June.
- Jones Pumping Plant exports will remain at 800 cfs.
- The Delta Cross-channel Gates are currently closed. CVO reported that they issued a press release sharing their plans to keep the gates closed for the foreseeable future to support water quality at Emmaton.
- DWR reported that Feather River releases from Oroville are currently 2,050 cfs and will be decreased to 1,850 cfs tomorrow (May 26<sup>th</sup>).
- Sacramento River flows at Freeport are currently 8,300 cfs and will decrease to around 6,000 cfs as the new, lower releases from Keswick and Oroville make their way downstream; exact flows will depend on

upstream diversions. San Joaquin River flows at Vernalis are 800 cfs and will decrease to 700 cfs in coming days.

- Clifton Court inflows are 300 cfs; the Banks Plant will be offline for maintenance the morning of May 30<sup>th</sup> to June 4<sup>th</sup>, so fish sampling will also be paused for those periods.
- Delta outflows are 6,000 cfs today and will decrease.
- The OMRI is in the -1,200 cfs range with exports and Vernalis stable; once the Grant Line barrier is closed on May 27<sup>th</sup>, OMRI will jump to the -1,500 cfs range.
- QWEST is currently positive by a couple hundred cfs but will decrease to approximately -500 cfs with the reduced flows and the Grant Line barrier closure.

## Review of Environmental Conditions and Survey Updates

CDFW shared survey updates.

- 20-mm Surveys 3 and 4 are still being processed. When there is a backlog, CDFW staff prioritize the newest survey data in the queue (most recently, Survey 5) and then work their way backwards.
- 20-mm Survey 5 was in the field between May 17<sup>th</sup> and 20<sup>th</sup>. Three criteria stations were not sampled due to boat issues (Stations 910, 912, and 919); all other criteria stations have been processed.
  - No Delta Smelt (DS) were detected.
  - One Longfin Smelt (LFS) was detected at Station 809 (20 mm).
- The Bay Study caught 349 juvenile LFS – 1 in the Lower San Joaquin, 99 in the in the Sacramento, and 249 downstream of the confluence – and 12 adult LFS downstream of the confluence (29 to 105 mm).
- 20-mm Survey 6 will be in the field next week (June 1<sup>st</sup> to 4<sup>th</sup>).
- The Summer Towntnet Survey will start on June 7<sup>th</sup>.

USFWS reported on the EDSM Program.

- EDSM Phase 2 (20-mm) sampled last week Monday through Friday (May 17<sup>th</sup> to 21<sup>st</sup>); they sampled in all six strata but because of boat issues were only able to sample 26 of 40 sites.
  - No DS were detected, so no abundance estimate was generated.
  - Two LFS were detected last week, bringing the total number of LFS identified by EDSM Phase 2 sampling to 1,678.
    - One LFS (15 mm) on May 21<sup>st</sup> in the Suisun Bay strata.
    - One LFS (22.9 mm) on May 21<sup>st</sup> in the Lower Sacramento River strata.
- EDSM crews will sample Monday through Thursday this week (May 24<sup>th</sup> to 28<sup>th</sup>).
- The Chipps Island Trawl caught zero DS and zero LFS in the last week.
  - The Chipps Island Trawl is scheduled to sample three days per week starting this week.

CDFW provided a salvage update (May 18<sup>th</sup> to May 24<sup>th</sup>).

- No adult or larval DS were salvaged at either facility.
- In the last three days, the SWP salvaged 10 LFS (31-43 mm), bringing the expanded salvage season total to 615 LFS.

USBR shared water quality data (three-station average daily water temperature as of May 24<sup>th</sup> was 19.61° C; daily average turbidity at Old River at Bacon Island (OBI) was 4.19 FNU and is currently 3.50 FNU). The seven-day weather forecast for Antioch is sunny and clear with winds from the west at 9 to 17 mph and gusts up to 23 mph; the seven-day weather forecast for Stockton is sunny and clear with west to WNW winds from 5 to 15 mph and gusts up to 20 mph. X2>81km; the estimated Sacramento River X2 is 90.32 km; the estimated San Joaquin

River X2 is 91.5 km. The water temperature at Clifton Court Forebay on May 25<sup>th</sup> was 19.66° C (63.79° F); there have been zero days with temperatures >77° F.

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

CDFW shared several observations to inform the risk assessment for LFS:

- 20-mm Surveys 4 and 5 only detected LFS at one priority station in the South and Central Delta (Station 809).
- Water temperatures did decrease slightly in the last week, but they remain at the upper limit for LFS presence. At this point in the year, LFS are generally expected to have moved or be moving downstream.
- There appears to have been a qualitative decrease in salvage, though SWP pumping was offline for several days. There was zero salvage of LFS at the CVP.
- Exports remain low and while the OMRI will become more negative when the Grant Line barrier is closed on May 27<sup>th</sup>, it is not expected to become more negative than -1,500 cfs.

CDFW proposed retaining language from last week's ITP Risk Assessment as risk has not changed in the last week. The risk to fish outside the OMR corridor is low; risk within the OMR corridor is high, but a recommendation from the SMT would not change the salvage trajectory of fish currently in the south Delta.

- SMT members agreed.

CDFW also noted that no DS were detected at Station 716, so there is no advice warranted for Barker Slough operations under Condition 8.12.

USBR stated that conditions do not appear to have changed for Delta Smelt in the last week. Turbidity did go up, likely due to wind events over the past week, but levels are not exceeding the 12 NTU threshold at criteria stations.

- SMT members agreed.

USBR also reported back on how the SMT has approached larval sampling this year versus last year.

- This year sampling was started earlier – February 22<sup>nd</sup> versus March 16<sup>th</sup> in 2020.
- Last year, the SMT began considering off-ramping sampling as of June 1<sup>st</sup> and made the decision to off-ramp on June 17<sup>th</sup> at the Skinner Facility and June 19<sup>th</sup> at the Tracy Facility.
- USBR feels it is the appropriate time to begin conversations about off-ramping but did not feel comfortable making that decision yet and asked for SMT input.

SMT feedback on off-ramping larval sampling included:

- CDFW reported that the single DS detected in larval sampling at salvage last year was on April 13<sup>th</sup>.
- DWR noted that recent LFS salvage lengths are between 30 and 40 mm. While some larvae are still in the system (as evidenced by the detection of the 15 mm LFS in Suisun Bay), those are downstream of the confluence and not necessarily be representative of what fish are in the South Delta.
- DWR's concern is focused on the possibility of detecting a larval Delta Smelt at the salvage facilities.
- CDFW agreed that continued recent salvage of only juvenile LFS suggests that larvae are no longer present in the South Delta. Detecting a Delta Smelt larvae, however, is still a possibility – though probably a low one.
- The SMT agreed to continue larval sampling for now but to revisit the question each week.

## 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:

- Mention that the SMT has started to consider off-ramping larval sampling at the facilities;
- Addition of the turbidity conditions (“Some increases in turbidity were observed due to higher winds over the last seven days but remained below 12 FNU at the criteria stations”);
- Mention that the SMT began monitoring the end of OMR management temperature criteria on May 17<sup>th</sup>.

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 and abiotic data.
  - The answer for Question 5 noted that Clifton Court Forebay measured turbidity levels of 26.61 NTU as of May 25<sup>th</sup>.

USBR reviewed the Executive Summary. There were no changes.

No non-consensus issues were identified.

### Additional Considerations/Discussion

#### *Post-Season Meeting Planning*

SMT members discussed how to organize topics they want to address as part of a post-season meeting.

- USBR suggested organizing discussions around key seasonal milestones within OMR management (e.g., what specific concerns/challenges there were during the first flush period).
  - CDFW supported the general approach of walking through the season and further suggested that topics should be sorted into (a) potential analyses to inform decision-making and (b) process improvements. For instance, CDFW would like to dig deeper into the case study on Delta Smelt they shared earlier in the season, and they also have some process suggestions.



- DWR suggested doing a prioritization exercise, given that there could be a sizeable list of suggestions, to determine which should be addressed immediately and which can be deferred for a later time.
- KW suggested that over the coming weeks, the group could divide up the periods to discuss sequentially at the end of each meeting. The SMT can bring suggestions for each planning period and prioritize them as a group to build the agenda for the post-season meeting.
- KW asked how the SMT wanted to divide up the OMR management timeline for DS and LFS. CDFW noted that the periods for the two species do not align exactly (e.g., the first flush window is different), so it could be more useful to think about various windows from a two species, two life stage perspective.
- USBR volunteered to propose a framework for how to organize the discussions, to review it with CDFW, and then to share it with the group.
- USFWS offered that larval entrainment losses are a concern for both species, particularly because fish under 30mm are under-sampled in salvage compared to larger fish. The SMT could discuss a new larval monitoring entertainment plan, and in the short-term potentially considering extending the larval sampling window to improve detections in both directions – earlier for LFS and later for DS..
- CDFW stressed that the intention of the post-season meeting is to improve the process and decision-making for future years, so everyone’s input will be important.
- USBR agreed that just the step of developing a list of potential analyses will be a useful step in documenting what could be explored over the longer term, even if it does not rise to the level of priority for this year.

Agencies reported no items for elevation to WOMT.