

PARTICIPANTS

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

ACTION ITEMS

- Discuss a new PTM run at next week’s meeting.

MEETING SUMMARY

PART 1: Updates on Water Operations and Biological Updates

At the February 23rd Smelt Monitoring Team (SMT) meeting, in response to the triggering of Condition 8.4.2 for Longfin Smelt (LFS), the SMT determined that LFS in the Central Delta were at high risk of entrainment and recommended an Old and Middle River Index (OMRI) flow no more negative than -2,500 cfs. CDFW shared feedback on that recommendation from the subsequent Water Operations Management Team (WOMT) discussion: the SMT did not specify whether their recommended OMRI was a daily value or an average over a particular period; given that, WOMT understood it as a daily value (in contrast to the -5,000 cfs hard trigger, which is a seven-day average). In future recommendations, the SMT can specify that their recommended OMRI is an average over a particular period, and they should provide a justification for whatever period they recommend. WOMT also clarified that SMT members can call for an off-cycle SMT meeting and any recommendations from that meeting would be in effect until the next regular SMT meeting.

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. Those measures with yellow background are those that are in effect but not triggered; in green are triggered measures; in white are measures not yet in effect; in grey are measures that are no longer relevant. 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	Triggered?
Integrated Early Winter Pulse Protection (“First	Reduce exports for 14 consecutive days so that the 14-day averaged	Dec 1 to Jan 31	(1) Running three-day average of daily flows at Freeport >25,000 cfs; and	No

OMR Management Measures	Requirement	Time Frame	Trigger	Triggered?
Flush” Turbidity Event)	OMR index for the period shall not be more negative than -2,000 cfs		(2) Running three-day average of daily turbidity at Freeport \geq 50 Nephelometric Turbidity Units (NTU ¹); or (3) Real-time monitoring indicates a high risk of migration and dispersal into areas at high risk of future entrainment or a spent delta smelt 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.	No
Larval and Juvenile Delta Smelt	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 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 delta smelt are within the entrainment zone of the pumps based on real-time sampling of spawning adults or young of year life stages	No

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

ITP 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 Delta Smelt and Longfin Smelt required under 8.1.5 and 8.1.1	Nov 1 st through June 30 th 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 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 Smelt Monitoring Team 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.	No
8.3.3 (Adult Longfin Smelt Entrainment Protection)	After December 1, if an Integrated Early Winter Pulse Protection (Condition of Approval 8.3.1) has not yet initiated, Permittee shall reduce south Delta exports to maintain a 14-day average OMR index no more negative than -5,000 cfs and initiate OMR Management if: Cumulative expanded salvage, Dec 1 st through Feb 28 th , exceeds most recent FMWT Index divided by 10, or SMT determines that there is a high risk of entrainment.	Dec 1 through Feb 28 th	Salvage threshold is three Longfin Smelt for WY 2021.	No
8.4.1 (OMR Management for Adult Longfin Smelt)				Off-ramped due to detection of Longfin Smelt larvae on December 28 th
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	January 1st through June 30 th or until the temperature	(1) Longfin Smelt 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)	Triggered on 1/26, 2/2, and 2/23

Condition of Approval	Requirement	Time Frame	Trigger	Triggered?
	OMR flow limit between -1,250 and -5,000 cfs.	offramp occurs	Longfin Smelt 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	
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 end of OMR management or until CDFW is in agreement that the action may be ended or modified.	Turbidity at OBI > 12 FNU	No
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.	Nov 1 st through June 30 th or until off-ramped by 8.8	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 threshold for this year is one.	No

Condition of Approval	Requirement	Time Frame	Trigger	Triggered?
	Furthermore, if salvage of Delta Smelt 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.			
8.12 (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 Longfin Smelt, and from March 1 st through June 30 th for Delta Smelt	Larval Smelt are detected at SLS Station 716 during the period identified for each species, and/or when recommended by the SMT	Yes for Longfin Smelt (1/19/21, 2/2/21, 2/26/21)

CDFW noted that, in contrast to the Proposed Action’s Turbidity Bridge Avoidance Measure, Condition 8.5.1 of the ITP does not off-ramp once a ripe or spent female is collected; instead, it is in effect through April 1 regardless of whether a ripe or spent female is found. If a ripe or spent female was detected, the ITP and the Proposed Action would therefore be in contradiction. USFWS noted that the spent or ripe female off-ramp in the Proposed Action was clarified by USBR as a soft trigger; last year, a spent or ripe female was observed in the one of the trawls but the SMT did not off-ramp Turbidity Bridge Avoidance. At that time, USBR management indicated the off-ramp was something the SMT could consider but was not bound to; if agency management wants to provide additional guidance, that is also an option.

Condition 8.12 for Barker Slough was triggered between meetings when two larval LFS were identified at Station 716 on February 25th; DWR was notified via email on February 26th and has initiated export restrictions for Barker Slough. DWR asked how CDFW was interpreting the appropriate onramp and offramp of this condition given the rolling nature of the surveys and processing of results. CDFW confirmed that they understood the detection of larval fish at Station 716 as a hard onramp; in subsequent survey results, a zero detection can be considered a “soft offramp” under which the SMT must discuss the broader distribution of larvae and deliberate whether or not to keep the export restrictions in effect.

Current Operations & Outlook

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

- USBR CVO reported that dry conditions persist in the Delta, though there is a slight chance of precipitation on Friday and Saturday and possibly into Monday for the upcoming week.
- Releases from Whiskeytown Dam on Clear Creek are currently 200 cfs with no anticipated changes.

- Releases on the Sacramento River from Keswick Dam are currently at minimum winter flows of 3,250 cfs; they will increase to 3,500 cfs tomorrow in response to Delta water quality needs. USBR and DWR are struggling to meet the D-1641 7,100 cfs Delta outflow requirement.
- American River releases from Nimbus Dam were at 950 cfs, but at 9 am today, CVO expedited a change order to increase releases by 200 cfs, also in response to Delta outflow needs.
- Releases from Goodwin Dam on the Stanislaus River are currently 200 cfs and will increase to 400 cfs tomorrow.
- Jones Pumping Plant exports decreased to 800 cfs, which is the minimum export level for that plant. Management is considering the possibility of cycling the pumps on and off to assist with meeting the D-1641 Delta outflow requirements, although this contributes to the physical degradation of the pumps.
- 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, although completion was anticipated for early March; USBR will provide an update on that schedule as soon as they receive it.
- Yesterday Sacramento River flows at Freeport were around 8,000 cfs and are anticipated to continue to drop in response to decreased inflows. Precipitation at the end of this week could alleviate those falling outflows next week. San Joaquin flows at Vernalis are at 950 cfs and will decrease, likely to around 880 cfs where they were before the instability flows reached the Delta.
- DWR reported that Feather River releases were decreased to 1,050 cfs, which are minimum flows.
- Clifton Court exports decreased to 300 cfs today and are expected to remain around that value for the rest of the week. When there are low export rates at Clifton Court, there are times when the export value as measured will be at zero.
- Due to decreased exports, QWEST was 600 cfs yesterday and should be around 1,300 cfs today.
- The OMR Index was around -1,500 cfs yesterday, -800 cfs today, and will likely remain close to that value looking forward.
- X2 is upstream of Collinsville (> 81km).

SMT members contributed the following updates:

- On Thursday morning, February 25, 2021, the Tracy Fish Collection Facility had an outage between 0930-1030 to inspect and adjust the Hydrolox traveling screen. No salvage occurred during this time while exports continued. In addition, the Tracy Fish Collection Facility holding tank discharge meter was not operational from February 20 to February 26, 2021. Due to this, flow tables were temporarily used to estimate holding tank flow and it is unknown if the actual holding tank flows were within the operational and regulatory criteria. Pumping at Jones Pumping Plant was not affected and salvage at the TFCF continued during this period but was potentially out of compliance for salvage of salmonids.
- The Outlook should note when ITP Conditions are triggered along with the date; for instance, last week, Conditions 8.4.2 and 8.12 were both triggered.

Review of Environmental Conditions and Survey Updates

CDFW shared survey updates.

- SLS 4 sampled last week (currently February 22nd to 25th), and 54 percent of the samples have now been processed, detecting a total of 138 LFS so far.
 - Last week, 18 LFS were reported at Station 809; that number has been updated to 19 LFS.
 - A total of 30 LFS were detected at four of the high-priority stations in the central and south Delta.

- Two LFS were detected at Station 716 in Barker Slough, triggering Condition 8.12.
- Spring Kodiak Trawl (SKT) 3 started yesterday (March 1) and will sample through Thursday (March 4). No smelt have been caught so far.
- SLS 5 will begin sampling next week.
- The Bay Study planned to sample March 1 to 18, so it should be underway.

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

- Zero Delta Smelt were detected last week (February 22nd to 26th), so there was no abundance estimate generated.
- One LFS was detected last week in the western Delta (84mm, no expression).
- This week, crews plan to sample Monday through Thursday.
- Yesterday, an osmerid was caught in the Carquinez Strait (101 mm); its identification was debated in the field but based on its physical characteristics, the crew could not rule out that it might be a Delta Smelt. The fish was transferred to the Fish Culture and Conservation Laboratory (FCCL) in good condition, though it was later reported that it died after arrival at the FCCL. The FCCL took a fin clip for a genetic sample. FCCL staff's professional judgement at this point is that it was a Wakasagi or a Delta Smelt-Wakasagi hybrid. They will likely be able to provide the genetic results next week.
- LFS detections this week include:
 - Yesterday, 1 LFS (25 mm) in the Lower Napa Subregion
 - Today, two (80 and 81 mm) where Montezuma Slough meets Grizzly Bay and two more (75 mm expressing eggs and 83mm, no expression) in Montezuma Slough
- The Chippis Island Trawl detected six LFS in the last week (one on Feb 25, 83mm; four on Feb 28, 81-96 mm; one on March 1, 93mm), all of which were transferred to FCCL and were not checked for expression.

CDFW provided a salvage update (February 23th to March 1st).

- One LFS (14.6 mm) was detected in larval fish monitoring at the CVP Facility on February 28th.
- There was a one-hour outage in salvage at the Tracy Fish Collection Facility on 2/25 from 9:30-10:30.

USBR shared water quality data [three-station average daily water temperature as of March 1st was 12.42° C; daily average turbidity at Old River at Bacon Island (OBI) was 6.79 FNU and is currently 5.0 FNU; and the seven-day weather forecast for Antioch was mostly sunny to mostly cloudy with WSW winds as high as 18 mph. X2 is > 82 km; the estimated Sacramento River X2 is 84.4 km and the estimated San Joaquin River X2 is 84.2 km.

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

SMT members agreed with CDFW's proposal that, since the hard trigger for Condition 8.12 at Barker Slough was met since the last meeting and there is no additional data, there is no reason to off-ramp the export restrictions outlined in that Condition at this time. The SMT will discuss again at the next SMT meeting depending on the availability of new data.

Condition 8.4.2 remains in effect, so SMT members discussed whether last week's recommendation of maintaining OMRs no more negative than -2,500 cfs to protect LFS in the Central Delta is still warranted or whether it should be off-ramped. Input included:

- CDFW noted that OMRI flow is projected to be close to -800 cfs for the next week, which is substantially more positive than the SMT recommendation. Given that, they have three options: one, they could state that operations are sufficiently protective so there is no need for advice; two, they could acknowledge

that operations are sufficiently protective but state that LFS would still be at high risk above -2,500 cfs OMRI, so the recommendation remains the same; or three, they could recommend a different OMRI level. CDFW considered the third option the least reasonable given that D-1641 is currently controlling OMRI flows through Delta outflow requirements.

- USFWS confirmed that under Condition 8.4.2, the SMT can recommend an OMRI anywhere within the range of -1,250 cfs to -5,000 cfs.
- CDFW observed that with QWEST being higher than last week and the OMRI close to -800 cfs, operations are sufficiently protective; however, if the OMRI decreased to less than -2,500 cfs, LFS would still be at high risk.
- DWR stated that with larvae detected at the CVP facility this week, it moves the potential distribution of LFS much further south/upstream than was previously considered by the SMT . This suggests that detections of larvae at the facilities may continue.
- SMT members agreed to continue last week's advice with the acknowledgement that the current hydrology represents a lower risk of entrainment and OMRI values are unlikely to become as negative as -2,500 cfs, but that caution is warranted given that the presence of LFS larvae at the CVP suggests that LFS distribution is farther upstream than was previously considered.

SMT members discussed whether another PTM run would be beneficial.

- DWR reported that some WOMT members observed that the SMT recommended an OMRI no more negative than -2,500 cfs without a PTM run to back it up (the previous run had scenarios of -3,500 and -5,000).
 - CDFW stated that the SMT's professional judgment should be the litmus test for determining a recommendation. In this case, CDFW questioned whether a PTM would be informative given that PTM outputs allow for comparison across scenarios, but it does not appear that there is any likelihood of reaching a higher export scenario in the next week.
- DWR noted that they should think about the PTM run with respect to next week's hydrology, which could be different from this week's depending on precipitation.
 - DWR stressed the importance of apple-to-apples comparisons and shared that the modeling team is working to automate the Smelt PTM runs, so that they could feasibly do them weekly for future operations seasons.
- CDFW acknowledged that the prior PTM runs could be out of date next week and questioned whether they will be missing information to make informed recommendations next week without a new run.
- DWR asked whether future model runs incorporate precipitation/weather into the PTM hydrology or whether the run only reflects current conditions.
 - DWR modelers explained that the model does not include precipitation, though it does have inputs for accretions and depletions. Beyond six days out, those estimates are based on educated guesses, so they are rough.
- The SMT agreed to discuss a PTM run next week.
- USFWS observed that the impacts of flow and exports on the fish need to be understood better. For instance, there is less risk of entrainment because of low exports creating a less negative OMR, but there is also low outflow because of the lack of precipitation, not a negative OMR, as evidenced by the serious water quality conditions and difficulty meeting the D-1641 Delta outflow requirements. Next week, once the group better understands the precipitation event, the group should request a PTM run.
 - CDFW described two mechanisms currently at play in determining where fish are in the system: first, a positive QWEST is good for larvae in the San Joaquin. Second, with lower OMRIs, the rate at which larvae are being moved toward the pumps is slower, which will hopefully give them

time to grow and out-migrate. There is a range of ages in the system; for instance, the 14.6 mm larvae salvaged last week probably hatched in January, and there are still ripe females being detected in Suisun Marsh, so hatching may be ongoing.

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). The SMT agreed not to discuss the unidentified osmerid from EDSM until it has been genetically tested, particularly in that it will not inform overall Delta Smelt fish movement/distribution given how far downstream it was collected. Edits to the assessment included:

- A statement in the distribution section saying that no larval Delta Smelt have been detected.
- A description in the turbidity section about the high winds over the weekend that caused short-lived and now decreasing turbidity at some stations, and a statement that turbidity and other environmental conditions could vary depending on the amount of precipitation received but that turbidity is not expected to increase above the 12 NTU/FNU threshold.

The group reviewed the relevant assessment questions: (1) Between December 1 and January 31, has any first flush condition been exceeded? (2) Do Delta Smelt have a high risk of migration and dispersal into areas at high risk of future entrainment? (3) Has a spent female 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?

- There were no changes to the responses to questions one and two.
- The responses to questions three, four, five, and six were updated to reflect the latest dates and data.
- The response to question six noted that precipitation is forecasted; while the total amount is unclear, it is not expected to trigger turbidity bridge avoidance.

USBR reviewed updates to the Executive Summary:

- The SMT included the language on recent high winds and their short-lived impacts on turbidity.
- The SMT revised the last sentence to state, "The less negative limits of the OMR index decrease the potential for entrainment of Delta Smelt in the Central Delta, which includes the lower San Joaquin River into the South Delta."

DWR noted that the OBI turbidity readings have been somewhat unusual suggesting something might be awry with that sensor; there is a backup sensor, however, that they can crosswalk the readings with if members are concerned.

No non-consensus issues were identified.

Additional Considerations/Discussion

Agencies reported no items for elevation to WOMT other than the recommendation Condition 8.12 remain in effect and that operations target an OMR Index no more negative than -2,500 cfs under Condition of Approval 8.4.2.