PARTICIPANTS

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

ACTION ITEMS

- DWR to conduct a new PTM run with -3,500 and -2,500 cfs OMR Index scenarios (or other, as appropriate given current hydrology) and insertion points at Stations 809, 812, and 901.
- CDFW and USFWS to update their management on the source of data used to trigger turbidity bridge avoidance actions.

MEETING SUMMARY

PART 1: Updates on Water Operations and Biological Updates

Relevant Actions & Triggers

USBR reported on the OMR management measures currently in effect and whether they have been triggered; CDFW reported on the ITP Conditions of Approval that are currently in effect and whether they have been triggered. The descriptions below are intended as summaries and do not provide all the details related to each action or trigger. For full descriptions, please see the OMR guidance document or ITP as relevant.

OMR	Requirement	Time Frame	Trigger	Triggered?
Management				
Measures				
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 (NTU¹); or (3) Real-time monitoring indicates a high risk of migration and dispersal into areas at high risk of future entrainment or a spent 	No

Proposed Action

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

OMR	Requirement	Time Frame	Trigger	Triggered?
Management Measures				
			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

ITP Conditions of Approval

Condition of	Requirement	Time Frame	Trigger	Triggered?
Approval				
8.1.5.2 (Smelt	Outlines contents for weekly risk	Nov 1 st		Yes
Monitoring	assessments of Delta Smelt and	through June		
Team Risk	Longfin Smelt required under 8.1.5	30 th or until		
Assessment)	and 8.1.1	off-ramped by		
		8.8		
8.3.1	Reduce south Delta exports for 14	Dec 1 to Jan	Three day running average	No
(Integrated	consecutive days to maintain a 14-	31	daily flows at Freeport	
Early Winter	day average OMR index no more		greater than, or equal to,	
Pulse	negative than -2,000 cfs, and		25,000 cfs, AND Three day	
Protection)	convene the Smelt Monitoring Team		running average of daily	
	within one day of triggering. After		turbidity at Freeport is	

Condition of	Requirement	Time Frame	Trigger	Triggered?
Approval				
	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.		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.	
8.3.3 (Adult	After December 1, if an Integrated	Dec 1 through Feb 28th	Salvage threshold is three	No
Entrainment 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.			
8.4.1 (OMR Management				Off- ramned
for Adult Longfin Smelt)				due to detection of Longfin Smelt larvae on December 28 th
8.4.2 (Larval	If triggered, it will restrict south	January 1st	(1) Longfin Smelt larvae or	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	or more of the 12 Smelt Larval Survey (SLS) or 20 mm stations in the central or south Delta, Or (2) 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	2/2, 2/23, 3/9
8.4.3 High	If triggered, Conditions of Approval	Throughout	When river flows are (a)	No
for Longfin	would cease if previously required.	management	the Sacramento River at Rio	
Smelt			Vista or (b) greater than 8,000 cfs in the San Joaquin	

Condition of	Requirement	Time Frame	Trigger	Triggered?
Approval				
8.5.1 Turbidity	maintain daily average turbidity in Old River at Bacon Island (OBI) at a	After the first flush or Feb 1	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. Turbidity at OBI > 12 FNU	No
Bridge Avoidance	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.	until end of OMR management or until CDFW is in agreement that the action may be ended or modified.		
8.5.2 (Larval and Juvenile Delta Smelt Protection)	If triggered, this Condition of Approval will restrict south Delta exports for seven consecutive days in order to maintain a seven-day average OMR index no more negative than -5,000 cfs and SMT members will meet to assess the risk of entrainment. The SMT may provide further advice to restrict exports in order to maintain an OMR index more positive than - 5,000 cfs. In their assessment, SMT members will determine if risk of entrainment is low, medium, or high; subsequent OMR restrictions will be based on level of risk. Furthermore, if salvage of 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.	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.	Νο
8.12 (Barker Slough Pumping Plant Longfin and Delta	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	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,

Condition of Approval	Requirement	Time Frame	Trigger	Triggered?
Smelt		years for		2/2/21,
Protection)		Longfin Smelt, and from March 1 st through June 30 th for Delta Smelt		2/26/21)

Current Operations & Outlook

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

- USBR CVO reported that there is a chance of showers with snow at higher elevations this week. Weather conditions and hydrology will be uncertain over the upcoming seven days.
- 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 3,500 cfs. USBR does not anticipate changes.
- American River releases from Nimbus Dam are currently 1,200 cfs with no planned changes.
- Releases from Goodwin Dam on the Stanislaus River are currently 400 cfs to manage salinity at Vernalis.
- Jones Pumping Plant exports are currently 800 cfs. Last week, the pumps were cycled on and off to assist with meeting the D-1641 Delta outflow requirements.
- 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 this week, construction will extend through March. Testing of the gates was conducted on 2/16 and 2/17/2021 with a series of gate openings and closures. USBR plans to carry out additional testing of the DCC gates (opening/closing) in late March.
- DWR reported that Feather River releases remained at 1,050 cfs, which are minimum flows.
- Yesterday Sacramento River flows at Freeport were around 7,600 cfs and will likely increase slightly over the next couple of days from forecasted precipitation inflows. San Joaquin River flows at Vernalis were 1,050 cfs yesterday; flows at Vernalis are elevated due to increased releases on the Stanislaus River in support of Vernalis salinity requirements.
- Clifton Court exports are between 300 and 600 cfs. Banks Pumping Plant was operating every other day late last week and into the weekend.
- Annual maintenance began at Barker Slough Pumping Plant yesterday (March 8th); Barker Slough will be offline from March 9th through March 26th.
- Operators are targeting a Net Delta Outflow Index (NDOI) of 7,100 cfs; outflows have ranged between 6,800 cfs and 7,600 cfs with average outflows near the target of 7,100 cfs.
- QWEST was positive over the last week, with average values near 1,500 cfs.
- The OMR Index has been more positive than -1,000 cfs. Looking ahead, OMR Index values will depend on the magnitude of the predicted storm event for this week. If the Stockton gauge receives ~0.7 inches or more of rain, exports will not increase and the OMR Index will remain near -500 cfs until the weekend, when the OMR Index may reach closer to -1,300 cfs. If the storm bypasses the Delta (<0.3 inches of rain), the OMR Index will be limited to around -1,300 cfs and will likely range between -1,300 and -500 to maintain the outflow target of 7,100 cfs. The OMR Index could become more negative if

precipitation levels fall between ~0.3 to 0.5 inches and Delta operations are controlled by the E/I ratio or the current Longfin Smelt advice (i.e., an OMR Index limit of -2,500 cfs).

• X2 is upstream of Collinsville (> 81km).

CDFW noted that the Environmental Monitoring Program (EMP) was cancelled in December, January, and February but will be back on the water in March.

Review of Environmental Conditions and Survey Updates

CDFW shared survey updates.

- Spring Kodiak Trawl (SKT) 3 sampled last week (March 1st to 4th). All stations were sampled and processing is complete. No Delta Smelt were detected. Six Longfin Smelt were detected. CDFW shared full catch data with SMT members via email on Friday (March 5th).
- Smelt Larva Survey (SLS) 5 is sampling this week (March 8th to 10th). South and central Delta stations were sampled yesterday and eight of the 12 stations have been processed so far. Longfin Smelt were found at five of the 12 stations, triggering Condition of Approval 8.4.2.
 - Station 809: 12 Longfin Smelt (7 to 11 mm, no yolk sacs).
 - Station 812: Two Longfin Smelt (8 to 9 mm, no yolks sacs).
 - Station 815: One Longfin Smelt (9 mm, no yolk sac).
 - Station 901: One Longfin Smelt (7 mm, with yolk sac).
 - Station 902: Zero Longfin Smelt.
 - Station 914: Zero Longfin Smelt.
 - Station 915: Two Longfin Smelt (7 to 8 mm, no yolks sacs).
 - Station 918: Zero Longfin Smelt.
- SLS 6, the final SLS survey of the year, will begin on March 15th. SKT 4 will begin on March 29th. SKT runs through the beginning of May.

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

- Zero Delta Smelt were detected last week (March 1st to 4th), so there was no abundance estimate generated.
- The genetic analysis of a fin clip from the unidentified osmerid caught last week was inconclusive. Fish Culture and Conservation Laboratory (FCCL) will run a panel assay; results are anticipated in a few weeks.
- This week, crews plan to sample Monday through Friday, with no sampling on Wednesday due to COVID
 mitigation measures. Two crews are on the water this week instead of three, also due to COVID
 mitigation measures. Today, crews are sampling the lower Sacramento River, Cache Slough, and
 southern Delta strata.
- Five Longfin Smelt were detected last week (four in Suisun March and one in the lower Napa River; 25 to 83 mm). One Longfin Smelt at 75 mm was expressing eggs. No Longfin Smelt have been detected so far this week.
- The Chipps Island Trawl detected five Longfin Smelt in the last week (two on March 2nd, 83 and 86 mm, both were transferred to FCCL; one on March 4th, 71 mm, not expressing and not transferred; two on March 7th, 78 and 99 mm, 99 mm fish transferred, 78 mm fish was not expressing).
- EDSM will transition to Phase 2 (larval) sampling beginning March 29th.

CDFW asked what the Chipps Island Trawl protocol is for transfer of Longfin Smelt to FCCL. USFWS confirmed that fish with fork lengths ≥80 mm are transferred.

CDFW provided a salvage update (March 2nd to 8th).

- No adult osmerids or larval Delta Smelt were salvaged.
- Five larval Longfin Smelt were detected in larval monitoring:
 - One on March 1st (16.1 mm, SWP facility).
 - $\circ~$ Two on March 3rd (13.6 mm and 20.0 mm, CVP facility).
 - Two on March 6th (16 and 17 mm, CVP facility).
- There were several outages at the pumping facilities:
 - At the CVP, there was no export or salvage on March 4th (noon to midnight), March 5th (1:00 am to noon), or March 7th (1:00 am to noon).
 - \circ At the SWP, there was no export on March 4th or 6th.

USBR shared water quality data [three-station average daily water temperature as of March 8th was 13.41° C; daily average turbidity at Old River at Bacon Island (OBI) was 2.71 FNU and is currently 11.7 FNU; and the sevenday weather forecast for Antioch calls for an 80% chance of showers today and tomorrow (0.1 to 0.25 inches of rain total) with SE winds up to 14 mph. Conditions will be sunny to mostly cloudy for the remainder of the seven-day period. X2 is > 82 km; the estimated Sacramento River X2 is 86.7 km and the estimated San Joaquin River X2 is 86.6 km.

DWR noted the CDEC turbidity data for OBI indicated a reading >50 FNU this morning, bracketed by values <2 FNU 15 minutes before and after. DWR determined the >50 FNU values was likely erroneous.

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

SMT members agreed with CDFW's proposal to carry forward the export restrictions for Barker Slough outlined in Condition of Approval 8.12. There is currently no risk of entrainment since Barker Slough is offline for maintenance. The SMT will discuss again at the next SMT meeting when new SLS data is available.

SMT members agreed that adult Longfin Smelt in the Sacramento River and confluence remain at moderate risk of moving into the central and south Delta of their own volition. CDFW noted this assessment is supported by the detection of Longfin Smelt by SKT at Station 704, the continued detection of Longfin Smelt by the Chipps Island Trawl, and the presence of ripe females.

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

- CDFW noted that the OMR Index has been more positive than the SMT's recommended limit of -2,500 cfs for the last two weeks. Although the upcoming storm introduces some uncertainty into the hydrological conditions, the OMR Index is unlikely to reach the -2,500 cfs threshold in the upcoming seven days.
- DWR pointed out that QWEST has been more positive than anticipated when the SMT originally made the -2,500 cfs recommendation. CDFW confirmed that QWEST has been positive since February 27th and >1,000 cfs since March 2nd.
- CDFW observed that salvage has continued at the facilities and salvaged fish have been in the size range not efficiently retained by SLS. Furthermore, the detection of Longfin Smelt at Station 915 in SLS 5 represents the farthest upstream detection by SLS so far this season.
- NMFS remarked that salmonids are also being entrained at both the CVP and SWP facilities, despite low exports, more positive OMR Index values, and salmonids being stronger swimmers than Longfin Smelt.

- CDFW noted that fewer yolk sacs were detected on Longfin Smelt from the central and south Delta in SLS 5 compared to SLS 4, which might suggest this is a smaller hatching event, or perhaps there is no new hatching event.
- CDFW proposed three potential options:
 - Continue the current advice (i.e., recommend an OMR Index no more negative than -2,500 cfs).
 - Discontinue the current advice (i.e., an OMR Index more negative than -2,500 cfs would represent a low or moderate risk of entrainment).
 - Create new advice.
- DWR asked SMT members to consider which fish would benefit from a recommendation, i.e., if limiting the OMR Index would continue to have a positive effect on fish in the northern portion of the OMR Corridor, or should the SMT focus on fish in the lower San Joaquin River.
- CDFW observed that a large pulse of water would likely be required to push fish out of the OMR Corridor given the recent constraints on exports.
- USFWS suggested retaining the recommendation from the previous week given the uncertainty in how much precipitation would be delivered by the upcoming storm event. They also suggested the previous SMT advice may have prevented additional larval entrainment in recent weeks.
- CDFW noted that the density of Longfin Smelt in the Lower San Joaquin River decreased from SLS 4 (27 fish) to SLS 5 (15 fish) and catch data does not indicate higher densities in the south Delta.
- DWR pointed out the February 16th particle tracking model (PTM) run results indicate low entrainment (1 to 2%) of larvae in the south Delta at an OMR Index of -3,500 cfs and suggested an OMR Index limit of -3,500 cfs would be protective for Longfin Smelt in the lower San Joaquin River. If the SMT wanted to retain their -2,500 cfs recommendation targeting larvae in the northern OMR Corridor, DWR recommended SMT members clearly articulate the objectives of their advice.
- CDFW agreed that an OMR Index more negative than -3,500 cfs would represent a high likelihood of entrainment and pointed out that the mitigating effect of more positive QWEST values could support changing the recommended OMR Index limit from -2,500 cfs to -3,500 cfs.
- CDFW noted that the current extent of the zone of entrainment is uncertain, especially given the recent OMR Index levels near -500 cfs. Therefore, retaining the -2,500 cfs recommendation could still provide protection to fish in the northern portion of the OMR Corridor.
- USFWS reminded the group to consider the cumulative entrainment over the course of the season.
- CDFW cautioned that the mitigative effects of QWEST on OMRI gleaned from CDFW's qualitative presentation on 01/29/2021 is most evident when QWEST is substantially positive for a prolonged period and that assessing the more nuanced interaction between less substantial QWEST and OMRI would require additional analysis.
- SMT members agreed to continue last week's advice, given that the risk identified previously is still present. Although hydrology has been beneficial recently, SLS 5 triggered Condition of Approval 8.4.2 again, salvage is still occurring, and the distribution of Longfin Smelt continues to shift upstream.

SMT members discussed whether another PTM run would be beneficial.

- DWR suggested it could be helpful to compare an OMR Index of -2,500 cfs and -3,500 cfs in order to better understand the difference between these two scenarios.
- DWR noted that an OMR Index of -3,500 cfs may not be realistic. DWR suggested the SMT share recommended OMR Index scenarios and DWR will make adjustments if needed based on the outlook when they generate the PTM run on Monday.

- SMT members agreed to use the same injection points as previous PTM runs (Stations 809, 812, and 901).
- SMT members agreed to propose -2,500 cfs and -3,500 cfs as the two OMR Index scenarios, but DWR will revise these scenarios based on what is realistic at the time of the PTM run if needed. Based on guidance from DWR, the group agreed that if an OMR Index of -2,500 cfs is not realistic, a PTM run would not be needed.
- DWR shared that they are working to standardize and automate the PTM runs and should have a more streamlined process in place in a few weeks. At this time, runs with three OMR Index scenarios will be possible.

SMT members discussed how current conditions may affect the risk of entrainment and distribution of Delta Smelt.

- USBR asked if any other historical information or analyses (i.e., in addition to historical SKT analyses) could help inform the distribution of adult Delta Smelt.
 - USFWS confirmed that historical SKT analyses remained the primary source of information through May (when SKT sampling ends).
- USBR asked if precipitation or wind from the upcoming storm event might lead to turbidity values >12 FNU at OBI in the coming days.
 - CDFW noted turbidity is difficult to predict.
 - SMT members agreed to include language in the assessment that indicates possible storm conditions are more conducive to higher turbidity.
- CDFW asked about the current tidal cycle.
 - NMFS confirmed that conditions are moving towards a spring tide which will peak on March 13th or 14th.

PART 3: Live-edit Assessments

ITP Longfin Smelt Risk Assessment

CDFW updated the ITP assessment based on the discussion documented in Part 2 above.

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

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

• A statement in the abiotic conditions section noting that precipitation and wind may elevate turbidity in the south Delta and turbidity at OBI could reach 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 and wind may elevate turbidity at OBI to >12 NTU/FNU which would warrant a turbidity bridge avoidance action.

USBR pointed out that assessment questions seven through nine will be relevant starting next week.

USBR reviewed updates to the Executive Summary:

- The SMT revised the first sentence to clarify that Delta Smelt detections have been rare this water year.
- The SMT included language stating the predicted precipitation and winds may influence turbidity and turbidity at OBI could reach 12 NTU/FNU in the coming week.

No non-consensus issues were identified.

Additional Considerations/Discussion

CDFW shared that they identified some discrepancies between the March 4th and 5th turbidity reports and wanted to clarify which data source should be used to trigger the turbidity bridge avoidance actions, as the ITP does not specify a data source for the daily average turbidity at OBI.

- DWR confirmed that they monitor turbidity data for unusual readings.
- CDFW noted that the ITP allows the permittee to provide additional data for consideration and recommended DWR continue to use the CDEC daily average in the turbidity report.
- CDFW and USFWS will update their management to note that CDFW identified spurious turbidity data but no actions were triggered and DWR is tracking the issue and can provide additional data if needed.
- USFWS noted that the SMT likely has discretion to describe how they will define turbidity at OBI in detail if needed.
- The group agreed to revisit this topic if needed at a future meeting.

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.