

Smelt Monitoring Team
Tuesday, April 28, 2020
11:00 AM – 12:00 PM

Executive summary: In WY2020, larval Delta Smelt have been detected in the Lower Sacramento River and Deepwater Shipping Channel. One larval Delta Smelt (12 mm) was salvaged on April 13th at the Tracy Fish Collection Facility (TFCF). The expected OMR Index Values are -1,000 to -2,000 cfs for the next week. These OMR flows are more positive than the levels identified in Reclamation’s Action and USFWS BiOp necessary to limit larval entrainment mortality.

1. Introductions

2. Relevant Actions and Triggers:

Currently under larval and juvenile Delta Smelt protection of 2019 Biological Opinion:

“Reclamation and DWR to manage exports to limit entrainment to be protective of larval and juvenile Delta Smelt on or after March 15 of each year, 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 life stages...

Reclamation coordinated with the Service on the Life Cycle Model entrainment module and proposes to operationalize results through the management of OMR reverse flows. When the secchi depth in the south Delta is less than one meter as determined by the weekly assessments based on EDSM and other available data, Reclamation will operate to OMR no more negative than 3,500 cfs. When the secchi depth in the south Delta is greater than 1 meter, Reclamation and DWR will operate to OMR no more negative than -5,000 cfs.”

Currently under the Incidental Take Permit for Long-Term Operation of the State Water Project in the Sacramento-San Joaquin Delta (2081-2019-066-00) (relevant actions and triggers below):

Onset of OMR management 8.3: From onset of OMR Management (initiated as described in 8.3.1 through 8.3.3) to the end (8.8) Permittee shall maintain a 14-day average OMR index no more negative than -5000 cfs, except during OMR Flex operations (8.7) or if a more positive OMR index is required.

Longfin Smelt larvae and juvenile protections 8.4.2:

1. Detections at 4 of the 12 SLS/20-mm stations in south and central Delta, or,
2. Catch per tow > 5 at 2 of the 12 SLS/20-mm stations

High flow off-ramp for Longfin Smelt 8.4.3: OMR management for LFS as described in 8.4.1 and 8.4.2 are not required, or would cease if previously required, when river flows are >55,000 cfs in the Sacramento River at Rio Vista or >8,000 cfs in the San Joaquin

River at Vernalis. If flows subsequently drop <40,000 cfs in the Sacramento River at Rio Vista or <5,000 cfs in the San Joaquin River at Vernalis, the OMR limit previously required as a part of 8.4.1 and 8.4.2 shall resume.

Delta Smelt larvae and juvenile protection 8.5.2: Cumulative 5 day salvage $\geq 1 +$ average of 3 years' prior FMWT indices (rounded down), Permittee shall restrict south Delta exports for 7 consecutive days to maintain a 7 day average OMR index no more negative than -5,000 cfs. If 5 day cumulative salvage threshold is met or exceeded, SMT should immediately convene to conduct a risk assessment (8.1.5.2) and determine future risk of entrainment and take of larval and juvenile DS. SMT may provide advice to further restrict south Delta exports to maintain a more positive OMR than -5000 cfs.

End of OMR management 8.8: OMR Management season through June 30, or until the species-specific off-ramps occur. LFS and DS offramp- Daily mean water temperature at Clifton Court (CCF) > 25°C for three consecutive days.

3. Operations

Tributary/Division	Projected Intended Operations and Ranges for week
Clear Creek	Whiskeytown Release: 200 cfs
Sacramento River	Shasta Storage: 3.71 MAF Total Release to Sacramento: 9,500 cfs to 10,500 cfs (Releases are made to support observed legal diversion demands on the Sacramento River in addition to Delta demands)
Feather River	Oroville Storage: 2.48 MAF Total Release to Feather: 1,550 cfs to 2,000 cfs
American River	Folsom Storage: .67 MAF Total Release to American: 1,000 to 1,500 cfs

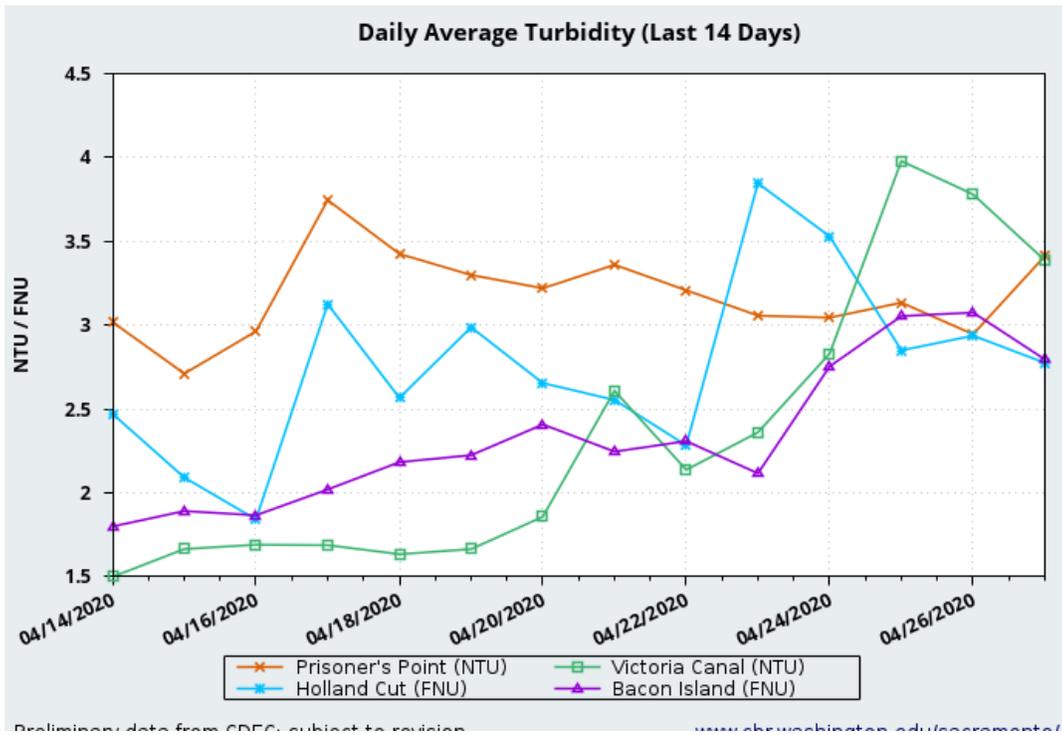
Stanislaus River	New Melones Storage: 1.91 MAF Total Release to Stanislaus: 400 cfs to 1,500 cfs (Spring Pulse Flow)
Delta	Freeport: 7,500 to 9,000 cfs Vernalis: 1,700 to 2,800 cfs Delta Outflow index: 7,100 to 8,500 cfs Combined Exports: 1,700 to 2,800 cfs JPP: 800 to 2,700cfs CC: 200 to 1,500 cfs Expected OMR Index Values: - 1,000 to -2,000 cfs (Max.: -5,000 cfs) X2 position: 74 to 81 km QWEST: +1,000 cfs to +2,000 cfs DCC: Closed

Discussion:

1. Construction of the ag barriers in the Old and Middle River already began; those will change hydrodynamics in the south Delta
2. Barker Slough pumping? has increased a little bit. Do they expect it to increase more?
 1. Response (R): Not sure about forecast. But looked at past years, rarely above 100 cfs during May and June.
3. In Delta row of ops table, it says that X2 could be 74-81 km. What could potentially cause that inward movement of X2?
 1. R: There has been more upstream water reaching the Delta, and there will probably be less going forward. With lower inflows and outflows, more influence=of tidal excursion is likely? .
4. There is also a notation about the possibility of a -5000 OMR. Is that likely?
 1. No, just establishing as reference to controlling factors that it could be that negative.. Potential earliest date for -5000 to control is unlikely for May and June. Will see how June plays out, but not likely to get to -5000 for a while.
5. The state side of exports is limited by spring outflow requirements through the end of May. Wouldn't export enough to get a -5000 OMR.
 1. Relatively likely that SJ will switch back to a dry instead of critical year determination. 2:1 ratio.

Review of Environmental Conditions:

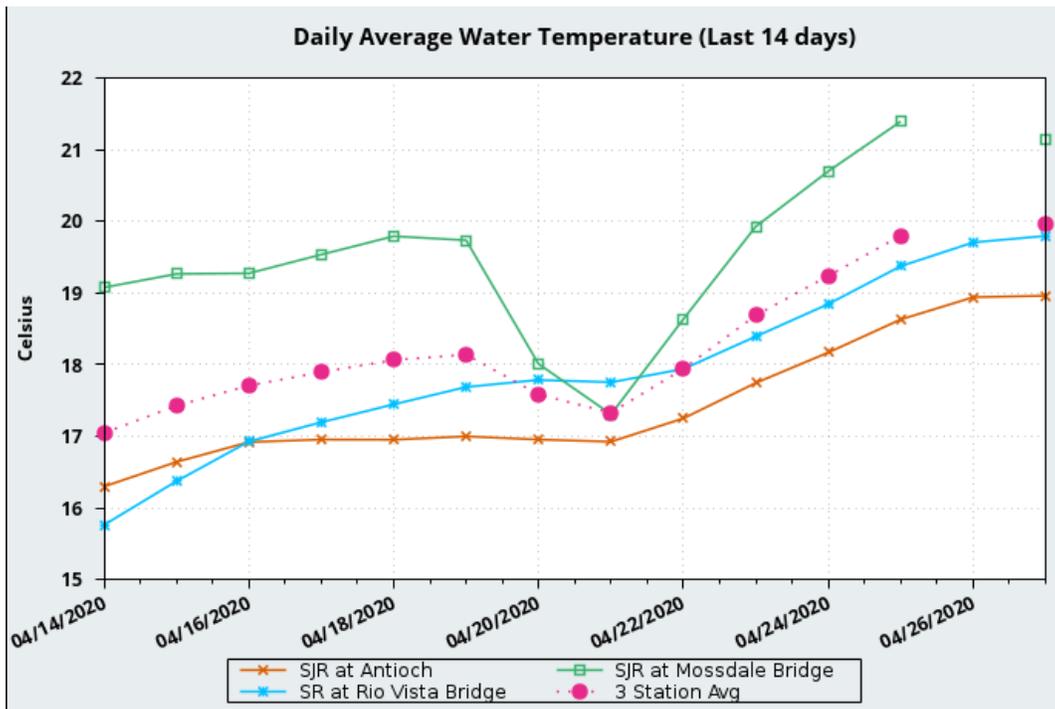
Turbidity:



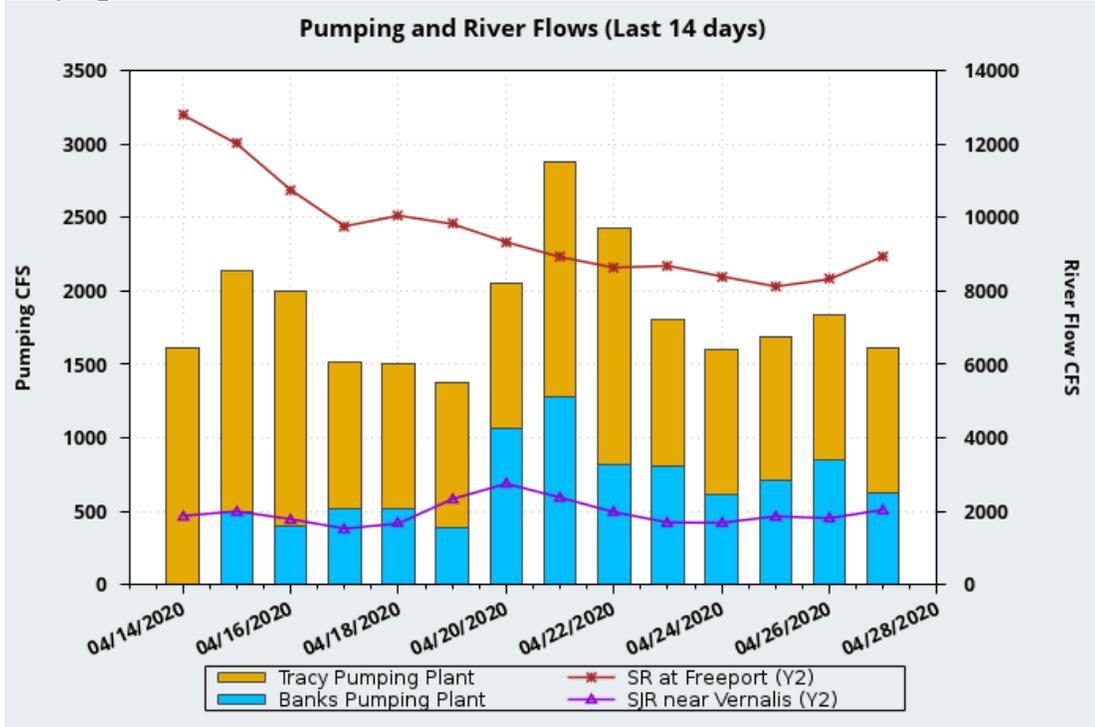
Preliminary data from CDFG, subject to revision.

www.chrv.washington.edu/assessments/

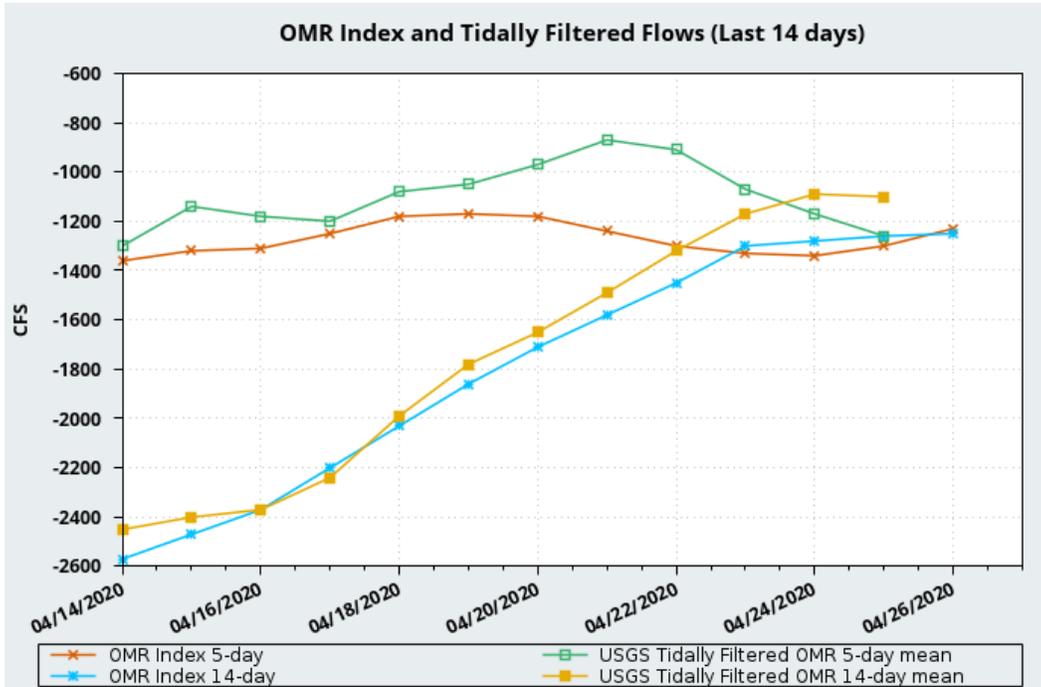
Temperature:

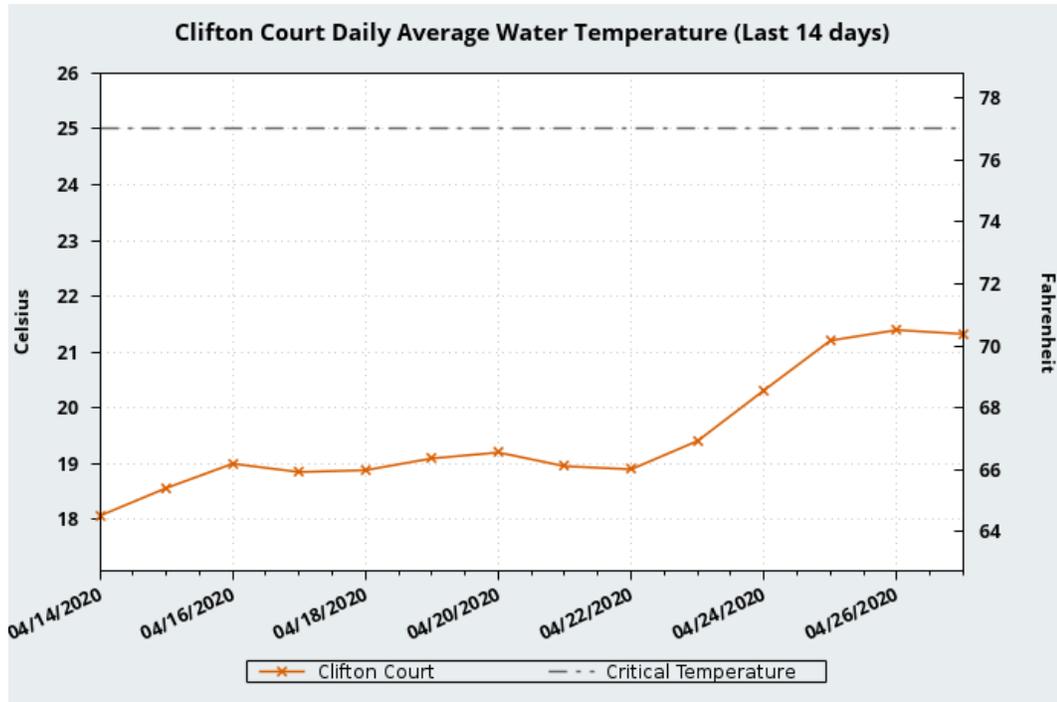


Pumping and Flows:



OMR Flows:





- As of April 27th the 3-station daily average temperature: 19.97 °C
- Daily average Turbidity at OBI on April 27 = 2.8 FNU; Current turbidity = 2.2 NTU
- Clifton Court daily average: 21.33 °C; 70.39 °F (0 days over 77 °F, so not triggered)
- Forecast for Antioch: mostly cloudy to sunny, no precipitation in next 7 days, wind gusts as high as 24 MPH in next 48 hours then tapering off

The data presented for conditions was accessed via SacPAS:

http://www.cbr.washington.edu/sacramento/data/delta_smelt.html

4. Fish Abundance, distribution, and lifestage:

A. Survey Updates:

- **20 mm survey 1 (3/16-3/18):**
 1. No delta smelt
- There was no **20 mm Survey 2**
- Completed **20mm Survey 3 (4/13-4/15)**: Only sampled at 12 Central and South Delta stations. No Delta Smelt. One Longfin Smelt caught at 809 (15mm).
- Completed **20 mm Survey 4 (4/27-4/29)**; did 3 tows at each station; processing is underway:
 1. Station 901 -- 1 longfin (22mm) (all three tows processed)
 2. Station 918 – no Delta Smelt or longfin (all three tows processed)
 3. Station 919 – no Delta Smelt or longfin (1 tow processed)
- **Survey 4** is in the field and sampling will be done 4/29/2020

- **-EDSM Week 18:**
- Finished 4th week larval sampling last week
- Publish week 3 (April 13-17) larval sampling abundance report estimate on 4/24: 8,382
- Provided preliminary data from samples taken Mon– Thurs last week:
 1. 5 Delta Smelt in Upper Sac Shipping Channel (14.6-19.8 mm)
 2. 226 Longfin Smelt in Suisun Marsh (9-23.9 mm)
 3. 2 Longfin Smelt in Lower Sac River (11.9 and 20.5 mm)
 4. 42 Longfin Smelt in Suisun Bay (8-23.5 mm)
- As of last Monday April 20: 5 new Delta Smelt detections and 39 total for the water year; Check the EDSM daily reports that will be released this week to see if any additional osmerids are identified from sampling last week from Tuesday April 21 through Thursday April 23)
- Note: the daily and weekly EDSM reports are found on the USFWS Lodi website: https://www.fws.gov/loDI/juvenile_fish_monitoring_program/jfmp_index.htm.

B. Salvage Monitoring:

- Between the 20th and 26th, the longfin salvage numbers dropped off at the federal facility and rose at the state facility:
 - o State Facility: 364 longfin, none larval
 - o Federal Facility: 88 longfin; larvae detected on 22nd (1 in 10am count)
- No operational updates.
- Our reports for yesterday show that State facility continued to salvage high numbers (n=230).

Discussion: FWS: Is there any sign of precipitation in the long range forecast or is it looking dry?

1. R: Maybe some light precipitation in northern part of state, but very little out there long range.
 2. Thought there might be a minor chance of precipitation long term.
- ii. Concern about salvage of longfin smelt – do we know where else they are distributed? Does EDSM show they are elsewhere in the upper estuary?
1. We have been tracking the EDSM for longfin. They are not doing EDSM sampling in the south delta, so we do not have much info other than the 20mm survey about distribution in south Delta. Those results appear to show the longfin numbers – just 1 off Jersey Point; EDSM has not reported any in the lower San Joaquin since week 1 of larval sampling (3/31).

5. Evaluation:

A. Is OBI turbidity likely to exceed 12NTU during the next week? What conditions are likely to create this turbidity event?

Group consensus: Turbidity at OBI is not expected to exceed 12 NTU in the next week. Daily average turbidity at Old River Bacon Island (Station ID: OBI) on 4/27/2020 was 2.8 FNU. The weather forecast does not predict a precipitation events in the next seven days and the predicted West southwest winds are not expected to raise turbidity past 12 NTU.

Discussion:

- i. Higher winds are forecasted this week. Would people expect turbidity increases?
 - From an Old River perspective, it would take a sizeable wind event to make turbidity get to OBI given the more positive OMRs.
 - Proposed revision: “Winds not expected to raise turbidity to 12 NTU.”
 - Are there particular levels of winds that would stir up turbidity? We should bolster our statement with a firmer justification. I know we’ve talked about north winds in the past.
 - North winds provide the longest fetch. W/SW winds are not likely to stir up as much turbidity in Franks Tract – they indicate a low coming in.
- ii. Is the proposed answer suitable?
 - yes – but at some point, it would be helpful to do some modeling on winds and resulting turbidity, so we’re not just basing our answers based on memory of past events; I may work with management to get someone to do that work.
 - some years ago, there were turbidity models provided to smelt group.
 - Everything we’ve looked at in the past explicitly did not include wind – but now that we have a wind gauge in franks tract, maybe that data is more reliable.

B. After March 15 and if QWEST is negative, are larval or juvenile Delta Smelt within the entrainment zone of the CVP and SWP pumps based on surveys?

- *Group Consensus:* Larval Delta Smelt have been detected in the Lower Sacramento River and Deepwater Ship Channel. The Lower Sacramento River and Deepwater Ship Channel are outside of the entrainment zone of the CVP and SWP pumps. However, the larval Delta Smelt observed at the CVP’s Tracy Fish Collection Facility (TFCF) on 4/13/2020 implies larval delta smelt may be present in the entrainment zone. Since this

detection, no other larval, juvenile, or adult Delta Smelt have been seen in the entrainment zone of the CVP and SWP pumps. Surveys in the South Delta have been limited due to COVID-19 and the size of recently hatched Delta Smelt may limit the ability of salvage to detect Delta Smelt. In the Operations Outlook, QWEST continues to be predicted to be positive between 1,000 and 3,000, and OMR Index Values are predicted to be between -1,000 to -2,000 cfs.

Discussion:

- i. The overall conditions we saw last week, remain the same. There are no new detections of larval delta smelt and still see some high turbidity at Clifton Court; OMR is slightly more negative but still within range. It is concerning to see this level of salvage for longfin smelt; this low OMR levels still seem inadequate to prevent salvage, at least for longfin.

-Probably stable conditions for now -- will start ag barrier constructions at Old Middle River; the 10th is the end of the pulse at Vernalis; next week conditions will be different

-Some of the wording here is confusing – what does “West Delta” mean? Try to be more specific: Lower Sacramento River. When you identify the Sacramento Deepwater Shipping Channel but not the Lower Sac River, it is confusing.

- a. R: Agree to change West Delta to Lower Sac River wherever it occurs

-Important to include a caveat that sampling in the area has been limited (only 12 stations being sampled by 20mm and EDSM isn't sampling at all in South Delta). Also, most delta smelt are still smaller than longfin right now; given the magnitude of longfin salvage, there could be lots of fish salvaged that just aren't being detected.

C. What is the OMR level to manage the annual larval entrainment based on DSM recruitment level from the FWS LCM? How does this information from the real-time spatial distribution of DSM operationalize the LCM?

-Group Consensus: Based on the life cycle model, low south Delta turbidity, and the limited observations of larval Delta smelt, Reclamation identified an OMR more positive than -5,000 should be used for export management. Based on surveys, larval Delta Smelt have been observed in the TFCF, Lower Sacramento River, and Sacramento Deepwater Ship Channel, suggesting the spatial distribution of Delta Smelt extends into the entrainment zone of the CVP and SWP pumps, which extends into Franks Tract under the

OMR conditions in the Operations Outlook. OMR levels are projected to be more protective than the levels identified in the LTO Action and USFWS BiOp.

Discussion:

- i. answer says “larval and juvenile” surveys – would need to look back at Kodiak trawling depending on how far back we are looking for this answer; maybe need to provide strata rather than regional areas
 - R: Aiming for 30 days; not sure if that reaches back into that data
 - R: There has been only larval sampling for EDSM in the past 30 days as of this week; take out references to adults
- ii. if we are looking at data from the last 30 days and trying to fit it to a 2 month scale LCM, that doesn’t apply well to real time applications
 - the group was explicitly advised against using this as a real time tool by FWS, particularly in this time scale. We could use data to ground truth the model afterward, but not sure that it is capable of predicting entrainment. Very concerned about using this model for these purposes.
 - Has USBR talked with management about reviewing this question? If it is going to remain for this year, maybe we need to have a standard answer that reflects the mismatch between the model and the time frame.
- b. USBR: discussion is ongoing. Don’t have answer yet.
- iii. Want to reemphasize that we are coming off 30 day Vernalis inflow to exports; not sure how that will change if OMRs become less protective

D. What do hydrodynamic models, informed by EDSM or other relevant data, suggest the estimated percentage of larval and juvenile DSM that could be entrained may be?

Group Consensus: Larval Delta smelt in the south Delta are at high risk of entrainment into the water export facilities. The expected OMR Index values are -1,000 to -2,000 cfs for the next week. PTM results suggest the <5% particles injected into the Central Delta could arrive at the CVP and SWP after 21 days and the modeled entrainment zone extends into Franks Tract under the OMR conditions in the Operations Outlook. These results leave a large number of the fates of injected particles unresolved. Under current OMR conditions particle movement may be limited due to the stagnant conditions in parts of the South Delta.

Discussion:

- i. That part of the Delta is so stagnant that any particles are staying put; there are lots of particles that are not exiting the central Delta.
- ii. This week, we are using the same model run as the last week. Comments from last week apply. The two stations near the central and south delta produce a slightly different pictures: one suggests an unresolved fate of those particles, the other (Franks Tract station) shows a little more movement towards south Delta.
- iii. Under current OMR conditions, particle movement may be limited due to stagnant conditions as indicated by a high percentage of unresolved particles; of the particles injected, the fate of fewer than 15% of particles is known. Bottom line: PTM only tells us what is happening to a small percentage of particles and it is likely that a large percent of particles will remain near insertion points.
- iv. agree, a large number of the “fates” of the particles remain unresolved
- iv. I agree with what CDFW and USFWS are saying
- v. : based on my knowledge of the Particle Tracking model, that sounds accurate
- vii. Does PT model it incorporate additional barriers during construction?
 1. R: the model reflects ag barriers are a binary (in or out) – doesn’t represent gradual construction.
 2. Then this answer is good through next Monday

8. Additional Considerations

Barker Slough Pumping Plant was mentioned earlier, the 7-day average pumping was 93 cfs as of April 26th. However, 20mm survey is not currently sampling station 716 due to social distancing requirements. CoA 8.12 in ITP requires a 7-day average pumping rate of no more than 60 cfs if Delta Smelt are detected at 716, but a recommendation on pumping rate can also be based on environmental conditions or other pertinent factors. At this time no Delta Smelt have been detected by EDSM in the Cache Slough and turbidities are low. So we can look at surrogates, however Delta Smelt distribution is not always determined by turbidity. Recently EDSM caught a Delta Smelt in the Upper Deepwater Ship Channel when turbidity was only 8 NTU, and the Delta Smelt larva collected at the CVP showed up when turbidity was low. we’ll need to keep an eye on Delta Smelt distribution and turbidity in the Cache Slough complex.

9. Next Meeting: May 5, 2020 at 11:00am

Weekly Advice for Longfin Smelt

28 April 2020

Summary of Risk

Current Lifestage(s) in the Delta: Larvae and Juveniles

South Delta Entrainment Risk: High

Advice: Substantial entrainment of Longfin Smelt larvae and juveniles is currently occurring at the south Delta export facilities. Because of this, the Smelt Monitoring Team has determined that juveniles and larvae within the south and central Delta are at a high risk of entrainment. However, the State Water Project exports are currently limited due to Condition of Approval 8.17 (Export Curtailments for Spring Outflow). As a result, OMR is projected to be between -1000 cfs and -2000 cfs, which is roughly equivalent to the most protective levels identified in the ITP. Therefore, advice for this week will defer to the implementation of CoA 8.17.

Basis for Advice

The 2020 [Incidental Take Permit for Long-Term Operation of the State Water Project in the Sacramento-San Joaquin Delta 2081-2019-066-00](#) (ITP) states that advice to Water Operations Management Team (WOMT) shall be based the following Conditions of Approval.

Larvae and Juveniles

8.4.2 Larval and Juvenile Longfin Smelt Entrainment Protection. From January 1 through June 30, when a single Smelt Larva Survey (SLS) or 20 mm Survey (20 mm) sampling period exceeds one of the following thresholds:

- LFS larvae or juveniles found in four or more of the 12 SLS or 20 mm station in the central Delta and south Delta (Stations 809, 812, 815, 901, 902, 906, 910, 912, 914, 915, 918, 919), or
- LFS catch per tow exceeds five LFS larvae or juveniles in two or more of the 12 stations in the central Delta and south Delta (Stations 809, 812, 815, 901, 902, 906, 910, 912, 914, 915, 918, 919).

Permittee shall restrict south Delta exports for seven consecutive days to maintain a seven-day average OMR index no more negative than -5000 cfs. Permittee shall also immediately convene the SMT to conduct a risk assessment (see Condition of Approval 8.5.1.2) to assess the risk of larval and juvenile LFS entrainment into south Delta export facilities, determine if an OMR flow restriction is warranted, and recommend an OMR flow limit between -1250 cfs and -5000 cfs. The SMT risk assessment and operational advice shall be reviewed by WOMT (Condition of Approval 8.1.3) via the Collaborative Real-time Decision-making process (Condition of Approval 8.1.4). Permittee shall operate to the export restriction and OMR flow target approved through Conditions of Approval 8.1.3 and 8.1.4. Each week the SMT shall convene to conduct a new risk assessment and determine whether to maintain, or

offramp from, export restrictions based on the risk to LFS, or until the DS and LFS off-ramp has been met as described in Condition of Approval 8.8 (End of OMR Management).

From January 1 through June 30, DWR and CDFW SMT staff shall conduct weekly, or more often as needed, risk assessments (see Condition of Approval 8.5.1.2) to assess the risk of larval and juvenile LFS entrainment into the South Delta Export Facilities. As part of the risk assessment the SMT shall provide advice on the appropriate OMR flow targets to minimize LFS entrainment or risk of entrainment, or both. The SMT shall provide its advice to WOMT (Condition of Approval 8.1.3) and use the Collaborative Approach to Real-time Risk Assessment process described in Condition of Approval 8.1.4 to determine if OMR flow restriction is warranted and determine the OMR flow limit between -1250 and -5000 cfs. The OMR flow limit shall be in place until the next risk assessment conducted by the SMT determines that it is no longer necessary to minimize take or related impacts to LFS, or until the DS and LFS off-ramp has been met as described in the Condition of Approval 8.8 (End of OMR Management).

8.8 End of OMR management

Conditions of Approval in place to minimize take of Delta and Longfin Smelt shall remain in effect until June 30th or until daily mean water temperature at Clifton Court Forebay (CCF) is greater than 25°C for 3 consecutive days.

Discussion of Criteria

Larvae and Juveniles

8.4.2 Larval and Juvenile Longfin Smelt Entrainment Protection

Note: Regular field sampling has been disrupted due to precautions in place to prevent the spread of COVID-19. Distribution data is limited. 20 mm Survey 2 was canceled. 20 mm Survey 3 sampled the 12 south and central Delta stations listed in CoA 8.4.2.

SLS 6: (March 16 through 18) LFS larvae or juveniles were collected at 6 of the 12 relevant stations (809, 812, 815, 901, 902, 906). Catch per tow was greater than 5 at 3 of the 12 relevant stations (809, 812 and 901).

20 mm 1: (March 16 through 18) LFS larvae or juveniles were collected at 4 of the 12 relevant stations (809, 812, 815, 901). Average catch per tow was greater than 5 at 2 of the 12 relevant stations (809 and 812).

20 mm 3: (April 13 through 15) One LFS larvae (15 mm) was collected at station 809 in in the lower San Joaquin River. See attachment "2020_20mm_Sur3_SmeltCatch_041620.pdf" and the [20-mm webpage](#) for reported catch and more information.

20 mm 4: (April 27 through 29) Sample collection and processing is ongoing. Sample processing is complete for 2 of the 12 south and central Delta stations. One juvenile LFS (FL = 22 mm) was collected at station 901 (Franks Tract).

Salvage: The rate of juvenile LFS salvage has increased at the SWP salvage facility. As of April 27, estimated juvenile Longfin Smelt salvage for WY 2020 was 1246 for CVP and 636 for SWP. LFS larvae were detected at the federal facility on the March 27, 28, 29, 30 and April 3, 5, 6, April 9 through 16 and

April 18. One larval LFS was detected at the state salvage facility on April 1, three on April 10, and two on April 13. See the table below for a summary of salvage and larval detections

Estimated salvage and larval detections at SWP and CVP for Water Year 2020. Note: Larval detections are reported as presence only.

DATE	State Daily Salvage	State Season Total	SWP Larvae Y or N	Federal Daily Salvage	Federal Season Total	CVP Larvae Y or N
3/17/2020	0	0	NC	4	4	N
3/24/2020	0	0	N	12	16	N
3/25/2020	0	0	N	8	24	N
3/27/2020	0	0	N	0	24	Y
3/28/2020	0	0	N	4	28	Y
3/29/2020	0	0	N	0	28	Y
3/30/2020	0	0	N	0	28	Y
4/1/2020	0	0	Y	8	36	N
4/3/2020	0	0	N	0	36	Y
4/5/2020	0	0	N	0	36	Y
4/6/2020	0	0	N	4	40	Y
4/9/2020	4	4	N	4	44	Y
4/10/2020	0	0	Y	8	52	Y
4/11/2020	0	0	N	48	100	Y
4/12/2020	2	6	N	100	200	Y
4/13/2020	6	12	Y	311.8	511.8	Y
4/14/2020	0	12	N	118.6	630.4	Y
4/15/2020	0	12	N	156.0	786.3	Y
4/16/2020	0	12	N	208.0	994.3	Y
4/17/2020	8	20	N	84.0	1078.3	N
4/18/2020	14	34	N	80.0	1158.3	Y
4/19/2020	8	42	W	0.0	1158.3	N
4/20/2020	0	42	W	12.0	1170.3	N
4/21/2020	4	46	N	28.0	1198.3	N
4/22/2020	8	54	N	0.0	1198.3	N
4/23/2020	12	66	W	16.0	1214.3	N
4/24/2020	28.0	94	W	12	1226.3	N

4/25/2020	94.0	188	W	8	1234.3	N
4/26/2020	218.0	406	W	12	1246.3	N
4/27/2020	230.0	636	W	0	1246.3	N

8.8 End of OMR management. Daily average water temperature at CCF has not exceeded 25°C.

Current Conditions

As of April 27, 2020

Sacramento River flow at Freeport = 8800 cfs. San Joaquin River flow at Vernalis = 2060 cfs. X2 = 74 km. Qwest was approximately + 1800 cfs. Daily average OMR Index = -1300 cfs. Daily average water temperature at Clifton Court Forebay was 21.3°C.

Attachments

2020_20mm_Sur3_SmeltCatch_041620.pdf

Table 1. Delta Smelt and Longfin Smelt catch per station from 2020 20-mm Survey 3, which was in the field 4/13/2020 – 4/15/2020. Only the 12 priority stations in the south and central delta were sampled due to COVID 19. These data are preliminary and subject to change.

Year	Survey	Station	Date	# Tows Processe	Species	Total Catch	Min Length	Max Length	Avg Length	Central & South Delta
2020	3	809	15-Apr-20	3	Longfin Smelt	1	15	15	15.00	
2020	3	812*	15-Apr-20	3	No Smelt Catch	0				
2020	3	815	15-Apr-20	3	No Smelt Catch	0				
2020	3	901	13-Apr-20	3	No Smelt Catch	0				
2020	3	902	13-Apr-20	3	No Smelt Catch	0				
2020	3	906	14-Apr-20	3	No Smelt Catch	0				
2020	3	910	14-Apr-20	3	No Smelt Catch	0				
2020	3	912	14-Apr-20	3	No Smelt Catch	0				
2020	3	914	14-Apr-20	3	No Smelt Catch	0				
2020	3	915	13-Apr-20	3	No Smelt Catch	0				
2020	3	918	13-Apr-20	3	No Smelt Catch	0				
2020	3	919	15-Apr-20	3	No Smelt Catch	0				

* Indicates reduced tow time