

Smelt Monitoring Team
Tuesday, June 16, 2020
11:00 AM – 12:00 PM

Executive summary: In Water Year, WY 2020, larval and juvenile Delta Smelt have been detected in the Lower Sacramento River, Suisun Marsh, and Sacramento Deepwater Shipping Channel. One larval Delta Smelt (12 mm) was salvaged on April 13th at the Tracy Fish Collection Facility. The expected OMR Index values are -3,000 cfs to -5,000 cfs. Based on real-time spatial distribution, turbidity data, and available PTM scenarios Reclamation identified -5,000 cfs as an OMR Index value to manage annual larval and juvenile entrainment levels.

1. Introductions

CDFW, NMFS, DWR, BOR, USFWS, K&W

- 2. Group Introduction:** The Smelt Monitoring Team (SMT) is a technical team that evaluates up-to-date biological and technical issues regarding Delta Smelt. The objective of the Smelt Monitoring Team is to provide information to the Water Operations Management Team (WOMT), Reclamation and California Department of Water Resources on measures to reduce adverse effects from Delta operations of the Central Valley Project (CVP) and the State Water Project (SWP) on Delta Smelt.

3. 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.”

End of OMR Management:

OMR criteria may control operations until June 30 or when the following species-specific off ramps have occurred, whichever is earlier:

- Delta Smelt: when the daily mean water temperature at CCF reaches 77°F for 3 consecutive days;

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 ≥ 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.

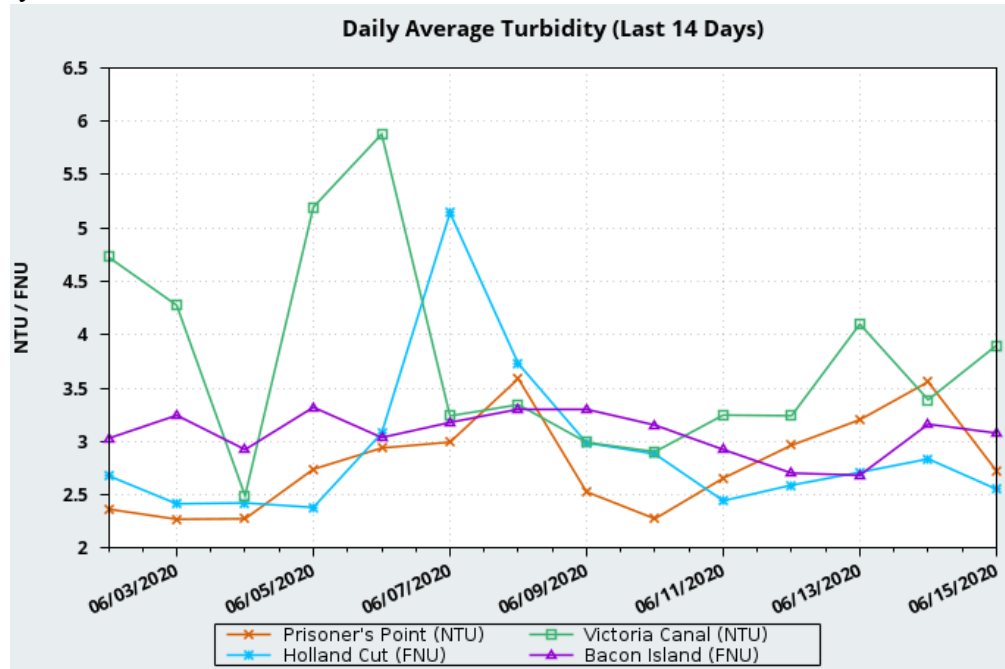
4. Operations

Tributary/Division	Projected Intended Operations and Ranges for week
Clear Creek	Whiskeytown Release: 150-500 cfs (continue spring pulse flow)
Sacramento River	<ul style="list-style-type: none"> • Shasta Storage: 3.38 MAF • Current Release: 12,000 cfs Anticipated Weekly Range of Releases to Sacramento: 12,000 cfs to 12,500 cfs

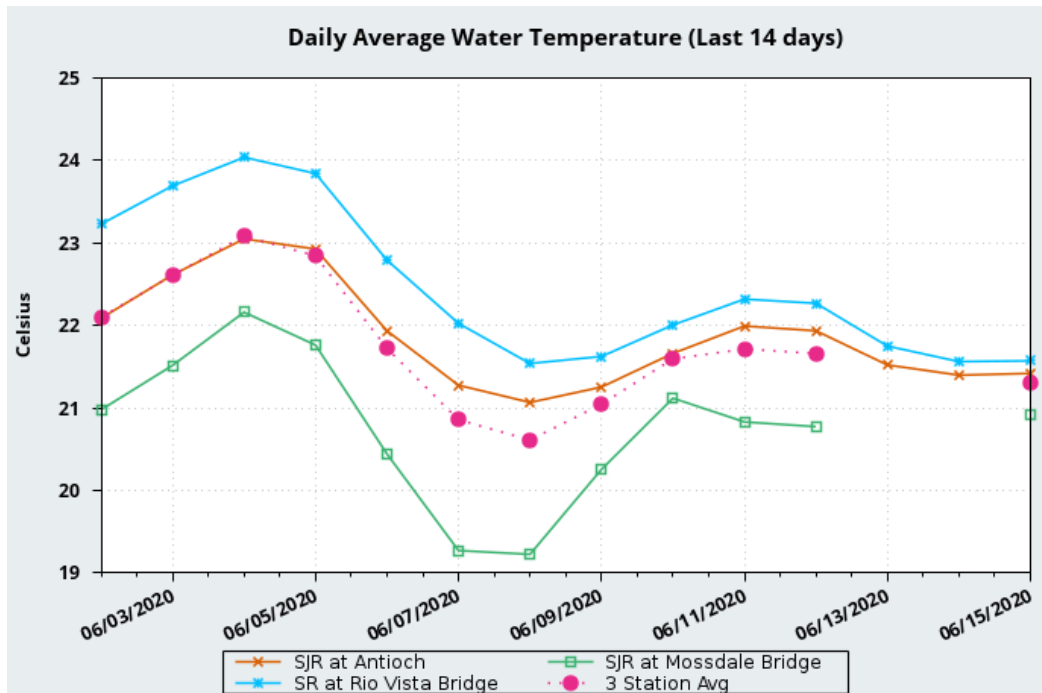
	(As needed to support legal diversions on the Sacramento River and Delta demands)
Feather River	<ul style="list-style-type: none"> • Oroville Storage: 2.33 MAF • Current Release: 3,300 cfs <p>Anticipated Weekly Range of Releases to Feather: 3,300 cfs to 4,000 cfs (As needed to support Delta water quality obligations)</p>
American River	<ul style="list-style-type: none"> • Folsom Storage: 0.78 MAF • Current Release: 2,750 cfs <p>Anticipated Weekly Range of Releases to American: 2,750 to 3,500 cfs (As needed to meet Delta water quality objectives)</p>
Stanislaus River	<ul style="list-style-type: none"> • New Melones Storage: 1.78 MAF • Current Release to Stanislaus: 1500 cfs <p>Anticipated Weekly Range of Releases to Stanislaus: 800 cfs to 1,500 cfs (As needed to meet D-1641 flow requirements at Vernalis)</p>
Delta	<ul style="list-style-type: none"> • Freeport: 11,000 to 13,500 cfs • Vernalis: 800 to 1,800 cfs • Delta Outflow index: 7,000 to 8,000 cfs • Combined Exports: 2,900 to 4,800 cfs • JPP: 2700 to 3500 cfs CC: 200 to 1,800 cfs • Expected OMR Index Values:- 3,000 to - 5,000 cfs • X2 position: 78 to > 81 km • QWEST: 0 to +2,000 cfs <p>DCC: Open during summer</p>

Review of Environmental Conditions:

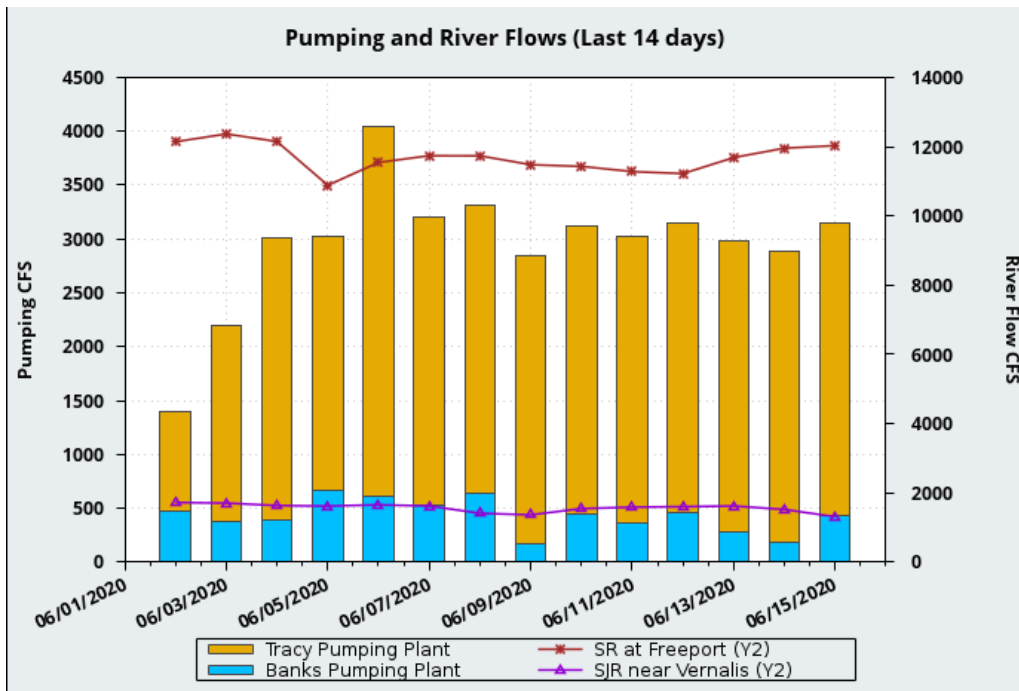
Turbidity:



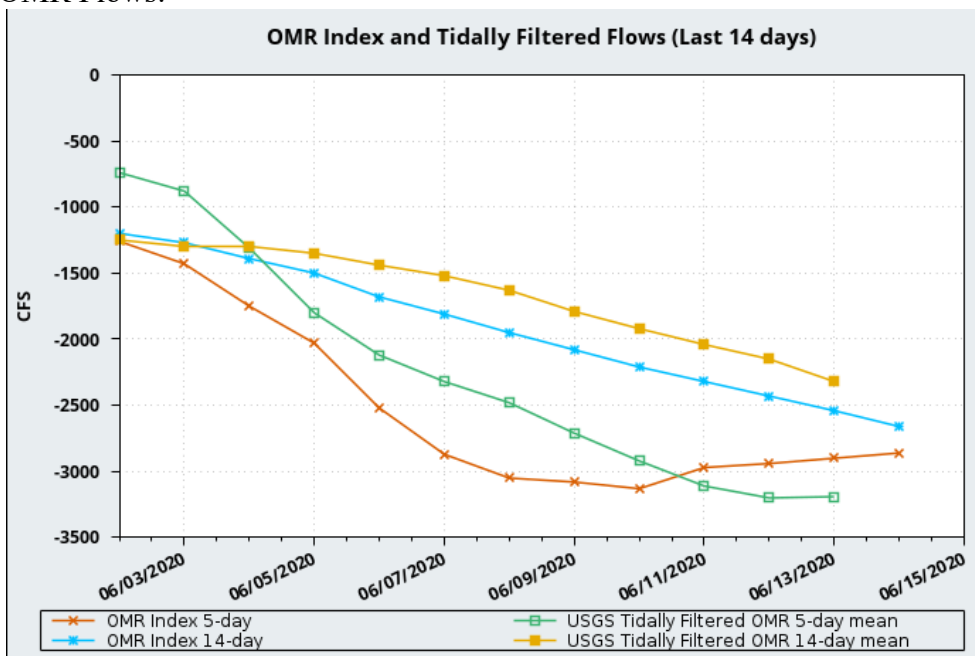
Temperature:

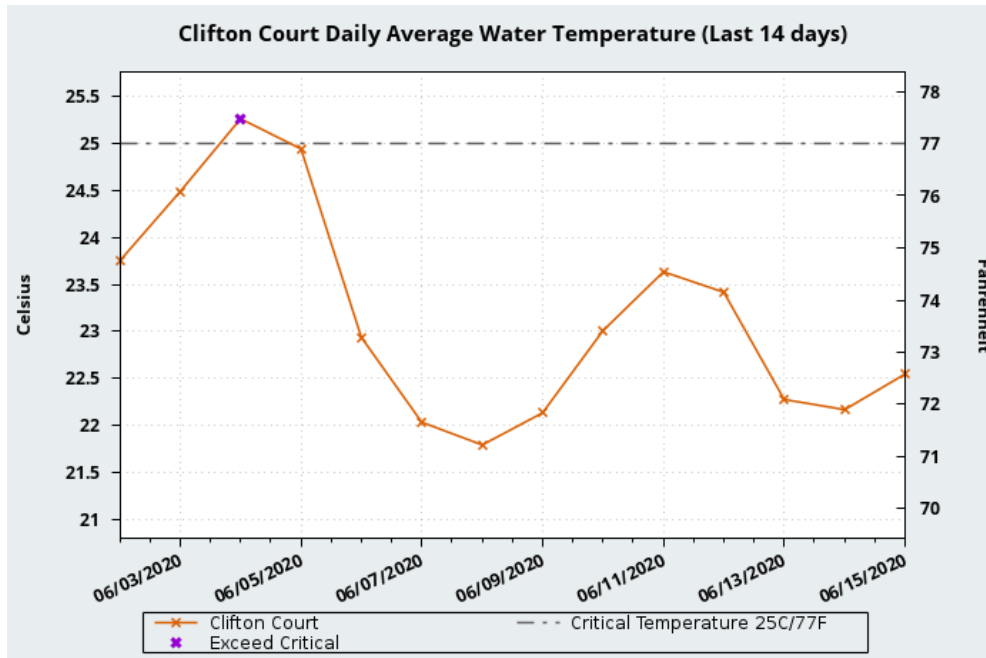


Pumping and Flows:



OMR Flows:





- As of June 15, the 3-station daily average temperature: 21.3°C
- Daily average turbidity at OBI on June 15 = 3.0 FNU; Current turbidity = 3.7 FNU
- Clifton Court daily average: 22.55°C; 72.59°F (0 days over 77°F, so not triggered)
- Forecast for Antioch: sunny and clear; NNW/W winds up to 21 mph; no precipitation
- NOTE: Tracy forecast is hovering around 100 degrees for next week (nearest location to Clifton Court), so that could drive up temperatures enough to hit the off-ramp;
 0. On the other hand, increased pumping (1500 cfs) at Clifton Court could mitigate that air temperature by bringing more water into Forebay.
 1. However, temperature gauge may actually be in the channel not the Forebay, so the pumping shouldn't make too much of a difference.

The data presented for conditions was accessed via SacPAS:

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

5. Fish Abundance, distribution, and lifestage:

A. Survey Updates:

B. 20 mm Survey 7 ran June 8-12:

- a. Unable to sample stations west of Chipps Island due to boat issues
- b. Processing ongoing (about 75% complete); all South Delta and some Sacramento stations completed

- i. In South Delta: no Delta smelt; no longfin smelt

- ii. 34 longfin (averaging 24mm) around confluence

C. Survey 8 is scheduled for June 22-26; will go forward if temperatures in Clifton Court Forebay do not exceed 25 degrees Celsius for 3 days

D. Summer Tow Net should be in the field now; believe they started sampling yesterday

- Published Week 10 (June 1-4) abundance estimate: 4,053
- Finished 11th week of EDSM sampling last Thurs
- Preliminary results from last week; they have completed the first ID of samples from Mon through Wed
 - o Delta Smelt: none
 - o Longfin: 1 in Suisun Bay on June 9 (28.5mm)
- Started 12th week of sampling yesterday; they will be sampling Monday through Friday.
- https://www.fws.gov/lodi/juvenile_fish_monitoring_program/jfmp_index.htm.

E. Salvage Monitoring:

- Salvage update: no smelt were salvaged or detected in larval sampling this week.

6. Evaluation:

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

Group Response: Turbidity at OBI is not expected to exceed 12 FNU in the next week. Daily average turbidity at Old River Bacon Island (Station ID: OBI) on 6/15/2020 was 3.0 FNU. The weather forecast does not predict precipitation events in the next seven days and the predicted West and North northwest winds are not expected to raise turbidity past 12 FNU. The units of NTU were changed to FNU based on new information about the instrument recording units (June 5th 2020 DWR Memorandum YSI Turbidity Measurement).

i. Discussion:

1. Should stick with just using FNU in the response, and refer to DWR's memo describing the change from NTU to FNU (rather than saying the two measurements can be used interchangeably).
 - a. That change makes sense. All data we are pulling from CDEC should be in FNU; turbidity measurements associated with fish surveys may still be using NTU measurements.
 - b. Is there any issue with adjusting the question based on the BiOp?
 - i. The BiOp, ITP, and guidance document all use NTU and that won't be resolved soon.
 - c. Group decided to leave the reference to NTU in the question itself since it corresponds to the guidance document, but to use FNU in the response and explain why at the end.

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 Response:* Larval and juvenile Delta Smelt have been detected in the Lower Sacramento, Suisun Marsh, and the Sacramento Deepwater Ship Channel. The Lower Sacramento River, Suisun Marsh, and Sacramento 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 indicates 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. 20mm Survey 2 was cancelled due to COVID-19. 20mm Surveys have since been able to sample the South Delta. EDSM is not currently sampling the South Delta stratum. The rarity of Delta Smelt may limit the ability of salvage and surveys to detect Delta Smelt. In the Operations Outlook, QWEST is predicted to be positive between 500 cfs to +2,500 cfs and OMR Index values are bounded between -3,000 cfs to -5,000 cfs. The Delta Cross Channel Gates will remain open for the summer and create a positive response in QWEST and may facilitate outmigration.

i. *Discussion:*

2. Need to update QWEST projection (500 to 2000 cfs).
3. Is it still appropriate to say that size is an issue with regarding to sampling Delta smelt?
 - a. Should be changed to just the "rarity" of Delta Smelt being an issue with respect to sampling.

C. Based on real-time spatial distribution of Delta Smelt and currently available turbidity information, what is the OMR level between -3,500 and -5,000 cfs that manages weekly entrainment in the context of annual larval and juvenile entrainment levels?

-*Group Response:* Within the previous 30 days, Delta Smelt have been detected in the Sacramento Deep Water Ship Channel and in Suisun Marsh which are outside of the entrainment zone. However, the rarity of Delta Smelt may limit the ability of salvage and surveys to detect Delta Smelt. South Delta CDEC reporting for Clifton Court (Station ID: CLC) has not exceeded 12 NTU since 6/1/2020, and OBI is expected to remain stable. The 20 mm Survey #8 did record secchi depths at two South Delta stations (901 and 918) less than 1.0 m. Off ramp criteria were not met because Clifton Court Forebay temperatures have not reached the 77 °F threshold for temperature for three consecutive days. Based on real-time spatial distribution, turbidity data, and available PTM scenarios Reclamation identified -5,000 cfs as the OMR level to manage weekly entrainment in the context of annual larval and juvenile entrainment levels.

Discussion:

1. It looks like Clifton Court turbidity has dropped over the past couple weeks, so maybe we should remove that piece of the answer? Clifton Court turbidity hasn't been above 12 FNU since June 1. It was 7 FNU yesterday.
 - b. Think we should have turbidity info in the answer because it is referred to in the question so it needs to be referenced somehow.
 - c. Note: Believe that station is still reporting in NTU.
 - d. Maybe modify it to refer to the secchi depths that were recorded by the 20 mm survey– they are low, below the 1 meter mark.
 - e. What was the last 20 mm survey turbidity like in the South and Central Delta?
 - i. In South and Central Delta, turbidity values did not exceed 10 NTU; only in two spots (stations 901 and 918) were secchi depths less than 1 meter.
 - f. Proposed revisions: “Turbidity at has not exceeded 12 NTU since June 1. The 20mm Survey #8 did record less than 1 meter secchi depths at two South Delta Stations.”
2. CDFW noted that they are ok not recommending the more conservative -3500 cfs OMR level described in the USBR OMR management memo, because 97 cm (one of the <1m secchi depths in the South Delta) is so close to 1m. If it was more turbid, the SMT might need further discussion.

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 Response: Larval and juvenile Delta Smelt in the South Delta are at high risk of entrainment into the water export facilities. The expected OMR Index values are bounded between -3,000 cfs to -5,000 cfs. PTM results from 6/2/2020 suggest the low export scenario (-3500 cfs) results in <26%, and the high export scenario (-5000 cfs) results in <38% of particles injected into the Central Delta could arrive at the CVP and SWP after 21 days. The high export scenario results in <59% of particles being entrained into the Old and Middle River corridor. 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.

i. Discussion:

4. Change OMR index values to -3000 cfs to -5000 cfs (from a -3500 cfs lower bound).
5. Since exports are supposed to ramp up this week, will it still be true that many particles will remain unresolved? I.e., will PTM run remain true given export conditions?
 - a. Will still be within the 21-day window of relevance.

7. Delta Smelt (ITP-related)

- a. Whether or not SMT is making a recommendation?
 - i. The SMT is not making a recommendation.
- b. OMR Bins?
 - i. No change in risk across the OMR Index bins (i.e., regardless of the OMR levels, there is no change of risk). Any Delta Smelt in South Delta are at high risk; outside the entrainment zone, smelt are at low risk.

Barker Slough Update

- Have not been detections at Station 716. There was a turbidity event in the vicinity (over 12 FNU) over the past two weeks, but given that no Delta Smelt have been detected in that area all season, don't believe the risk is high. No advice.

The Barker Slough visualization for data is now up on SacPas:

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

LONGFIN SMELT UPDATE:

- SMT not making a recommendation for longfin smelt. Consider the risk to longfin the same across all bins of OMR Index. At this time of year and at this life stage, they begin to transition downstream. No longfin smelt detected in the entrainment zone.

8. Additional Considerations

- a. **If we reach temperature off-ramp before the next meeting, does there need to be a closeout meeting?**
 - i. USBR management feels there doesn't need to be a wrap-up meeting if we hit the offramp during the week, but staff is open to either approach if there is historical precedent or strong feeling from SMT participants.
 - ii. For historical precedent: SWG did not usually have a meeting after the off-ramp was hit. Generally, work group members just chimed in via email with any final conclusions. USFWS is ok with not have a meeting if we hit the 3 day off-ramp.
 - iii. CDFW has a call with their management today; if they have any problems with not having a meeting, will let the group know, but they do not anticipate it any concerns
 - iv. Typically there was a report at the end of the year.

1. Yes, USBR will generate a report, but timing is uncertain.
Looking at format, etc. Trying to figure out how to meld the two different meeting priorities/formats of the SWG and SMT, given that the group transitioned mid-year.
- b. **PTM results question:** when you run a new PTM model, is it a new batch of particles or is it using the fates of the particles from the last run?
 - i. It is a new batch. Particles injected on 5/26 were pushed out by 6/2.
Results from 6/2 do not necessarily mean that risk has increased, just means that some of smelt that were there on 5/26 are no longer there.
- c. **Request from Fish Facilities about whether larval monitoring is still relevant**
 - i. Have not detected any Delta Smelt larvae at facilities in two months since April 13th salvage event. Given rising temps and lack of detections in 20mm survey, USFWS is ok with stopping larval sampling.
 - ii. Larval sampling off-ramps are the same as those for OMR.
 1. If the Proposed Action says there are specific off-ramps for larval sampling, then maybe it is not appropriate for us to weigh in. The way it used to be was there was no specific rules (i.e., fixed offramps) for when to stop larval monitoring at the facilities except what the SWG recommended.
 - iii. DWR supports ceasing larval sampling. Can't recall sampling ever continuing through the technical off-ramping date. Usually stops in early June when it is no longer relevant.
 - iv. Last Delta Smelt larvae was caught on May 20th in Deepwater Shipping Channel. CDFW doesn't see any need to continue larval sampling.
 1. CDFW: On the fence. Delta Smelt that was caught recently was 37/38 mm. Am concerned that conditions in the South Delta might not have been as great and the fish there might not reflect that level of growth – but recognize that the likelihood of detection is small. Ok with deferring to other CDFW SMT members.
 - v. USFWS and NMFS: feels it is reasonable to stop larval monitoring.
 - vi. USBR will work with Federal Facility to confirm that the Proposed Action allows for this. And will let DWR know about their decision so they can inform the State Facility.

9. Next Meeting:

June 23, 2020 at 11:00am

Weekly Advice for Longfin Smelt

16 June 2020

Summary of Risk

Current Lifestage(s) in the Delta: Juveniles

South Delta Entrainment Risk: Low

Advice: No OMR restrictions are warranted. Recent distribution data and abiotic conditions suggest that Longfin Smelt are not present within the hydraulic footprint of the export facilities. No Longfin Smelt were detected in the south or central Delta according to the most recently available data from 20mm Survey 7 and Enhanced Delta Smelt Monitoring (EDSM). Furthermore, daily average water temperature within the Delta has increased above levels at which Longfin Smelt are typically detected.

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 was disrupted due to precautions in place to prevent the spread of COVID-19 and boat issues. 20 mm Survey 2 was canceled. 20 mm Surveys 3 and 4 sampled the 12 south and central Delta stations listed in Condition of Approval 8.4.2. 20 mm Survey 5 sampled 43 of the 47 regular stations. Station 901 (Franks Tract in central Delta) was not sampled due to excessive vegetation. Vessel related issues prevented sampling of all stations downstream of Chipps Island during 20 mm Survey 7.

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 (FL = 15 mm) was collected at station 809 in in the lower San Joaquin River. See the [20-mm webpage](#) for reported catch and more information.

20 mm 4: (April 27 through 29) One juvenile LFS (FL = 22 mm) was collected at station 901 (Franks Tract).

20 mm 5: (May 11 through 18) sampled 41 of the 47 regular stations and did not report any Longfin Smelt in the south or central Delta. Stations 901, 720, 724, 726, 703, and 346 were not sampled. 20 mm Survey 5 collected 635 Longfin Smelt in Suisun Bay, Suisun Marsh and near the confluence of the Sacramento and San Joaquin Rivers. Fork lengths ranged from 16 to 32 mm.

20 mm 6: (May 25 – 29) sampled 42 stations and collected 210 juvenile Longfin Smelt with fork lengths ranging from 22 to 39 mm. No Longfin Smelt were detected in the 12 south and central Delta stations listed in Condition of Approval 4.5.2.

20 mm 7: (June 8 – 12) sampled 26 stations including 11 in the south and central Delta. Sample processing is ongoing. No Longfin Smelt were collected in the south or central Delta. Six were collected near the confluence of the Sacramento and San Joaquin Rivers. See attachment “2020_20mm_Sur7_SmeltCatch_061520.pdf” for more details.

EDSM collected 1 juvenile Longfin Smelt in Suisun Bay on June 9th with a fork length of 28.5mm.

Salvage: Longfin Smelt salvage has not been observed since May 17th. Total salvage to date is 1360 for SWP and 1326 for CVP. Longfin Smelt larvae were detected at the federal facility on the March 27, 28, 29, 30 and April 3, 5, 6, April 9 through 16, April 18, and April 28. Larval LFS were detected at the state salvage facility on April 1, April 10, April 13, and April 29. 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	4	Y	8	52	Y
4/11/2020	0	4	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	N	0.0	1158.3	N
4/20/2020	0	42	N	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	N	16.0	1214.3	N
4/24/2020	28.0	94	N	12	1226.3	N
4/25/2020	94.0	188	N	8	1234.3	N
4/26/2020	218.0	406	N	12	1246.3	N
4/27/2020	230.0	636	N	0	1246.3	N
4/28/2020	58.0	694.0	N	12	1258.3	Y
4/29/2020	224.0	918.0	Y	16	1274.3	N
4/30/2020	118.0	1036.0	N	24	1298.3	N
5/1/2020	40.0	1076.0	N	4	1302.3	N
5/2/2020	24.0	1100.0	N	0	1302.3	N
5/3/2020	8.0	1108.0	N	4	1306.3	N
5/4/2020	18.0	1126.0	N	0	1306.3	N
5/5/2020	76.0	1202.0	N	0	1306.3	N
5/6/2020	76.0	1278.0	N	0	1306.3	N
5/7/2020	62.0	1340.0	N	0	1306.3	N
5/8/2020	12.0	1352.0	N	0	1306.3	N
5/9/2020	2.0	1354.0	N	4	1310.3	N
5/10/2020	0.0	1354.0	N	8	1318.3	N
5/11/2020	6.0	1360.0	N	4	1322.3	N
5/17/2020	0.0	1360.0	N	4	1326.3	N

8.8 End of OMR management. Daily average water temperature at CCF exceeded 25°C for 1 day on June 4th, and has since decreased below 25°C.

Current Conditions

As of June 15, 2020

Sacramento River flow at Freeport = 11,900 cfs. San Joaquin River flow at Vernalis = 1,300 cfs. X2 = 80 km and is expected to shift upstream. Qwest was approximately +2,000 cfs and is expected to remain positive. Daily average OMR Index = -3,300 cfs but may become as negative as -4500 cfs as CVP and SWP exports increase. Daily average water temperature at Clifton Court Forebay was 22.6°C.

Attachments

2020_20mm_Sur7_SmeltCatch_061520.pdf

Table 1. Delta Smelt and Longfin Smelt catch per station from 2020 20-mm Survey 7, which was in the field 6/08/2020 – 6/12/2020. These data are preliminary and subject to change.

Year	Survey	Station	Date	# Tows Processed	Species	Total Catch	MinOfLength	MaxOfLength	AvgOfLength
2020	7	328		0	Not Sampled	0			
2020	7	329		0	Not Sampled	0			
2020	7	334		0	Not Sampled	0			
2020	7	335		0	Not Sampled	0			
2020	7	336		0	Not Sampled	0			
2020	7	323		0	Not Sampled	0			
2020	7	340		0	Not Sampled	0			
2020	7	342		0	Not Sampled	0			
2020	7	343		0	Not Sampled	0			
2020	7	344		0	Not Sampled	0			
2020	7	345		0	Not Sampled	0			
2020	7	346		0	Not Sampled	0			
2020	7	405		0	Not Sampled	0			
2020	7	411		0	Not Sampled	0			
2020	7	418		0	Not Sampled	0			
2020	7	501		0	Not Sampled	0			
2020	7	504		0	Not Sampled	0			
2020	7	519		0	Not Sampled	0			
2020	7	602		0	Not Sampled	0			
2020	7	606		0	Not Sampled	0			
2020	7	609		0	Not Sampled	0			
2020	7	610		0	Not Sampled	0			
2020	7	508		0	Not Yet Processed	0			
2020	7	513		0	Not Yet Processed	0			
2020	7	520	08-Jun-20	3	Longfin Smelt	6	25	34	28.33
2020	7	801	10-Jun-20	3	No Longfin Smelt Catch	0			
2020	7	804	08-Jun-20	3	No Longfin Smelt Catch	0			
2020	7	703		0	Not Yet Processed	0			
2020	7	704		0	Not Yet Processed	0			
2020	7	705		0	Not Yet Processed	0			
2020	7	706		0	Not Yet Processed	0			
2020	7	707		0	Not Yet Processed	0			
2020	7	711		0	Not Yet Processed	0			
2020	7	716		0	Not Yet Processed	0			
2020	7	718		0	Not Yet Processed	0			
2020	7	719		0	Not Yet Processed	0			
2020	7	720		0	Not Sampled	0			
2020	7	723		0	Not Yet Processed	0			
2020	7	724		0	Not Sampled	0			
2020	7	726		0	Not Sampled	0			
2020	7	809	08-Jun-20	3	No Longfin Smelt Catch	0			
2020	7	812	10-Jun-20	3	No Longfin Smelt Catch	0			
2020	7	815	10-Jun-20	3	No Longfin Smelt Catch	0			
2020	7	901		0	Not Sampled	0			
2020	7	902	09-Jun-20	3	No Longfin Smelt Catch	0			
2020	7	906	10-Jun-20	3	No Longfin Smelt Catch	0			
2020	7	910	09-Jun-20	3	No Longfin Smelt Catch	0			
2020	7	912	09-Jun-20	3	No Longfin Smelt Catch	0			
2020	7	914	09-Jun-20	3	No Longfin Smelt Catch	0			
2020	7	915	09-Jun-20	3	No Longfin Smelt Catch	0			
2020	7	918	09-Jun-20	3	No Longfin Smelt Catch	0			
2020	7	919	10-Jun-20	3	No Longfin Smelt Catch	0			

Processing is complete through 06/14/2020