

State Water Project Incidental Take Permit Risk Assessment for Delta Smelt and Longfin Smelt. Off-cycle meeting for Condition of Approval (COA) 8.4.2 Larval and Juvenile Longfin Smelt Protection.

Section 1: Overview

Date: 01/21/2022

Life Stages Present:

Longfin Smelt (LFS): Adults, sub-adults, and larvae

Advice to Water Operations Management Team (WOMT):

No Advice.

Risk Assessment:

Longfin Smelt: Old and Middle River Index (OMRI) is projected to be no more negative than -5,000 cfs due to initiation of OMR management. X2 is currently downstream of the confluence at 74 km. The Smelt Monitoring Team (SMT) determined that there is no change in risk for this week. Smelt Larval Survey (SLS) 1 triggered COA 8.4.2 which required the SMT to meet and conduct a Risk Assessment (COA 8.1.5.2). SLS 1 detected an increase in larval LFS density in the lower San Joaquin River. There is more widespread distribution in the south and central Delta which is expected due to increased emergence of larval LFS, however, this represents a seasonal norm and is consistent with the dryer hydrology observed this season. This does not represent an increase in overall risk. Qwest has gradually turned negative and may reach -2,500 cfs. The SMT will assess how negative Qwest affects risk based on pending Particle Tracking Model (PTM) results. See Hydrologic Footprint in section 3-A below for PTM run request details.

Section 1-A: Sacramento River and Confluence

Risk of entrainment into the central Delta and export facilities for DS and LFS in Sacramento River (8.1.5.2 C ii, iii, iv)

- Exposure Risk (Hydrology):
 - LFS: Risk for larvae is low due to OMR management being initiated. See 'Routing Risk' for more information on adults and sub-adults.
- Routing Risk (Behavior and life history):
 - LFS: Low risk of entrainment. Larvae do not exhibit swimming behaviors that would result in volitional movement into areas with a higher risk of entrainment. Spawning migration is underway. There is potential for adult and sub-adult movement into the central Delta. However, recent wet conditions, as indexed by X2, reduce the likelihood of adults and sub-adults moving into the south and central Delta. Increase in X2 of approximately 10 km over the last week was

insufficient to increase the likelihood of adult and sub-adult movement into the south and central Delta. X2 remains downstream of the confluence.

- Overall Entrainment Risk:
 - LFS: Low for adults, sub-adults and larvae, due to:
 - Exports targeting OMRI no more negative than -5,000 cfs reduces risk of entrainment for larvae.
 - Lack of detections of adults and sub-adults in the Lower San Joaquin/South Delta.
 - Adult salvage has been rare following the Pelagic Organism Decline.

Section 1-B: Central Delta

Risk of entrainment into the export facilities for DS and LFS in the central Delta (8.1.5.2 D iii, iv, v)

- Exposure Risk (Low, Medium, High):
 - LFS: Low risk for adult and sub-adult LFS entrainment if they are present in the Lower San Joaquin River and south Delta. No LFS have been detected by EDSM in the southern Delta and Lower San Joaquin strata.
 - Low risk for larvae observed in the lower San Joaquin River by SLS 1 due to favorable hydrology in recent weeks. SMT will assess change in risk as Qwest becomes more negative based on pending PTM runs.
 - SLS 1 triggered COA 8.4.2 (See Discussion of Conditions of Approval) likely due to continued emergence in the south and central Delta.
- Change in exposure from previous week: (Note: The change in risk compared to previous weeks is not required by the Incidental Take Permit [ITP]).
 - LFS: Hydrodynamically, Qwest becoming more negative represents an increase in risk of entrainment for larvae, however, this risk may have been offset by favorable hydrology over previous weeks. No change in risk from last week for LFS larvae outside of the zone of influence of the export facilities. However, the presence of LFS larvae in south and central Delta has been confirmed by recent sampling. The SMT will reassess risk for these larvae based on the pending PTM run.
- Reporting Old and Middle River Index (OMRI) (Number and range of OMRI bins will vary based on anticipated hydrology and operations)
 - The SMT determined that risk of entrainment is low across the range of expected OMRI values for fish outside of the Old and Middle River corridor.

Section 2: Basis for Advice

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

List relevant Condition of Approval number and title based on species/life stage, time of year, etc.

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 stations 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 -5,000 cfs. Permittee shall also immediately convene the Smelt Monitoring Team to conduct a risk assessment (see Condition of Approval 8.5.1.2) to assess the risk of larval and juvenile LFS entrainment into the South Delta Export Facilities, determine if an OMR flow restriction is warranted, and recommend an OMR flow limit between -1,250 and -5,000 cfs. The Smelt Monitoring Team risk assessment and operational advice shall be reviewed by the 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 Smelt Monitoring Team shall convene to conduct a new risk assessment and determine whether to maintain, or off ramp 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 Smelt Monitoring Team 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 a part of the risk assessment the Smelt Monitoring Team shall provide advice on the appropriate OMR flow targets to minimize LFS entrainment or entrainment risk, or both. The Smelt Monitoring Team 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 an OMR flow restriction is warranted and determine OMR flow limit between -1,250 and -5,000 cfs. The OMR flow limit shall be in place until the next risk assessment conducted by the Smelt Monitoring Team 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 Condition of Approval 8.8 (End of OMR Management).

Discussion of Conditions of Approval

Provide discussion addressing criteria for each Condition of Approval listed in “Basis for Advice” section. Refer to data below where appropriate.

COAs relevant to initiating OMR management went into effect December 1st. The Smelt Monitoring Team conducted a Risk Assessment based on COA 8.1.5.2.

8.4.2: This COA went into effect on 01/03/2022 following the 14-day Integrated Early Winter Pulse Protection (COA 8.3.1). SLS 1 was previously canceled due to COVID mitigation, however, the 12 south and central Delta stations listed in this COA were sampled on 1/18/2022. The resulting data triggered this COA by detection of larval LFS at more than four stations (809, 812, 815, 901, 906, and 910) and larval catch exceeded 5 fish per tow at two stations (809 and 812). See table 1 below for details

Section 3: Hydrology and Operations Assessment of hydrologic, operational, and meteorological information. 8.1.5.2 A.

Section 3-A: Water operations conditions. 8.1.5.2.A. i

- Antecedent Actions: *(e.g. Delta Cross Channel [DCC] gate closure and actions such as integrated early winter pulse protection, etc.)*
 - COA 8.4.2 was triggered by data reported to the SMT on 1/20/2022.
 - OMR Management was initiated on 01/03/2021 following the 14-day Integrated Early Warning Pulse Protection action (COA 8.3.1).
 - COA 8.3.1 was triggered by conditions measured on 12/17/2021. Exports were reduced to comply with this COA on 12/20/2021 through 01/02/2021.
 - DCC gates closed on 11/30/2021.
 - The Drought barrier at False River has been notched. The notch is quite large, such that hydrodynamically no barrier is present.
- Controlling Factors: OMRI 7-day average no more negative than -5,000 cfs for 7 consecutive days due to triggering of COA 8.4.2.
- Water Temperature:
 - Clifton Court Forebay (CCF) Daily Average Water Temperature = NA
 - 3 Station Average = NA
- Tidal Cycle: Not discussed
- Turbidity:
 - Freeport 3-day average = NA
 - Old River at Bacon Island (OBI) Turbidity = NA
- Salinity: X2 = 74 km
- Hydrologic Footprint: The SMT requested a PTM run with insertion points at stations 812, 901 and 902. These stations were selected based on larval presence (812) and to

inform selection of standard insertion points to be used in future runs (901 and 902). The PTM run assumes that if a recommendation is made changes in exports will go into effect the Friday following the simulated recommendations to account for the 3-day compliance period. The PTM will consist of three scenarios

- A baseline scenario in which exports are maximized within the limits of current controlling factors (-5000 cfs)
- OMR = -4,000 cfs
- OMR = -2,500 cfs

Results are expected to be available prior to the next SMT meeting scheduled for 01/25/2022.

Section 3-B: Water operations outlook. 8.1.5.2.A. ii

- Outages:
 - State Water Project (SWP): None
 - Central Valley Project (CVP): None
- Exports: Combined exports are targeting an OMRI no more negative than -5,000 cfs.
 - CCF: 1,500 cfs to 1,700 cfs the rest of the week.
 - Jones: 4,100 cfs
- Meteorological Forecast: No significant precipitation is in the forecast.

Section 3-C: Projected conditions. 8.1.5.2.A. iii

- DCC Gates position: Closed 11/30/2021.
- Qwest: -2,100 cfs. May become as negative as -2,500 cfs as Sacramento River flows decrease.
- OBI Turbidity: 5.17 FNU
- Expected changes in South Delta Exports: Exports are not expected to change substantially in the next 7 days.
- Upstream releases: (Note: upstream releases may increase due to flood management)
 - Keswick = 3,250 cfs
 - Nimbus = Releases are decreasing and are expected to reach 2,500 cfs on 1/25/2022
 - Goodwin = 200 cfs
 - Oroville = 950 cfs

Section 4: Distribution and Biology.

8.1.5.2.B. Assessment of biological information for Delta Smelt and Longfin Smelt

Section 4-B: Longfin Smelt population status 8.1.5.2.B. ii.

- FMWT Index for LFS = 323
- Other Surveys:

- SLS 1 was previously canceled due to COVID mitigation, however, the 12 south and central Delta stations listed in this COA were sampled on 1/18/2022. The resulting data triggered this COA by detection of larval LFS at more than four stations (809, 812, 815, 901, 906, and 910) and larval catch exceeded 5 fish per tow at two stations (809 and 812). See table 1 below for details
- EDSM: No new data was reported
- Chipps Island Trawl: No new data was reported
- Salvage: No LFS have been salvaged at either facility.

Notes: This meeting focused on larval LFS risk of entrainment to satisfy the meeting requirement in COA 8.4.2. Discussion focused on larval LFS and a PTM run request. A NMFS representative was not present at this meeting.

Attachments: Table 1: SLS 1 Make up day catch table.

Table 1. Longfin Smelt catch per station from 2022 Smelt Larva Survey, Survey 1. Only the 12 central and south Delta stations were sampled.

Year	Survey #	SLS Station	Turbidity (NTU)	Sample Status	Species	Smelt Catch	Min Length	Max Length	Mean Length
2022	1	340	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	342	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	343	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	344	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	345	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	346	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	347	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	348	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	349	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	405	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	411	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	418	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	501	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	504	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	508	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	513	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	519	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	520	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	602	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	606	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	609	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	610	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	703	NA	Not Sampled	NA	NA	NA	NA	NA

Year	Survey #	SLS Station	Turbidity (NTU)	Sample Status	Species	Smelt Catch	Min Length	Max Length	Mean Length
2022	1	704	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	705	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	706	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	707	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	711	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	716	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	723	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	801	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	804	NA	Not Sampled	NA	NA	NA	NA	NA
2022	1	809	n/a	Processed	Longfin Smelt	22	6	8	6.6
2022	1	812	13.1	Processed	Longfin Smelt	24	5	8	6.5
2022	1	815	9.2	Processed	Longfin Smelt	2	7	8	7.5
2022	1	901	n/a	Processed	Longfin Smelt	1	4	4	4.0
2022	1	902	6.8	Processed	NA	No Smelt Catch	NA	NA	NA
2022	1	906	6.2	Processed	Longfin Smelt	2	7	7	7.0
2022	1	910	9.1	Processed	Longfin Smelt	1	8	8	8.0
2022	1	912	7.7	Processed	NA	No Smelt Catch	NA	NA	NA
2022	1	914	6.8	Processed	NA	No Smelt Catch	NA	NA	NA
2022	1	915	6.4	Processed	NA	No Smelt Catch	NA	NA	NA
2022	1	918	5.9	Processed	NA	No Smelt Catch	NA	NA	NA
2022	1	919	6.1	Processed	NA	No Smelt Catch	NA	NA	NA

Processing is complete through 1/20/2022