

State Water Project Incidental Take Permit Risk Assessment for Delta Smelt and Longfin Smelt

Section 1: Overview

Date: 11/16/2021

Life Stages Present:

Delta Smelt (DS): Sub-Adult

Longfin Smelt (LFS): Adults are not likely to be present within the Delta. Juveniles are present in Suisun Marsh, San Pablo and Central Bays. Adults are present in the Suisun Marsh stratum.

Advice to Water Operations Management Team (WOMT):

No Advice.

Risk Assessment:

Delta Smelt: Based on distribution patterns over the past decade and rare detections, DS are unlikely to be prevalent in the South Delta. Limited detection data support DS being present in the Sacramento Deep Water Ship Channel (SDWSC) and life history information support their presence downstream of the confluence of the Sacramento and San Joaquin Rivers. The last DS observed was in the SDWSC on 8/20/2021. The likelihood of DS subadult entrainment is low due to seasonal timing and spatial distribution. First flush conditions are not anticipated to occur within the next seven days. The regulations for Integrated Early Winter Pulse Protection does not go into effect until 12/1/2021.

Longfin Smelt: No adult LFS have been detected in Chipps Island Trawl or Enhanced Delta Smelt Monitoring (EDSM) in the Delta in recent sampling. Adult LFS have been detected in Suisun Marsh and Suisun Bay. LFS adults are expected to move into the Delta beginning in December. Based on distribution data and life history, they are not expected to be present in the Delta and therefore are not at risk of entrainment.

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):
 - DS: Low
 - LFS: Low
- Routing Risk (Behavior and life history):
 - DS: Low
 - LFS: Low
- Overall Entrainment Risk
 - DS: Low
 - LFS: Low

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*):
 - DS: Low
 - LFS: Low
- Change in exposure from previous week: (*Note: The change in risk compared to previous weeks is not required by the Incidental Take Permit [ITP]*).
 - DS: No change
 - LFS: No change
- Reporting Old and Middle River Index (OMRI) (*Number and range of OMRI bins will vary based on anticipated hydrology and operations*)
 - Relevant Conditions of Approval (COAs) are not active.

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.

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 OMR management go into effect December 1st. The Smelt Monitoring Team (SMT) conducted a Risk Assessment based on COA 8.1.5.2 and noted that there is no regulatory mechanism in place to provide advice until December 1st.

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.)*
 - DCC gates closed Saturday 11/13/2021, due to Knights Landing Fish Index. Earliest they may open is 11/18/2021.
 - OMR management has not been initiated.
 - Grantline barrier has been breached. This changes the OMRI index calculation.
- Controlling Factors: Delta Outflow
- Water Temperature:
 - Clifton Court Forebay (CCF) Daily Average Water Temperature = NA
 - 3 Station Average = 14.81°C
- Tidal Cycle: Spring tide is approaching
- Turbidity:
 - 8.3.1 Freeport 3-day average = 12.23 formazin nephelometric units (FNU)
 - 8.5.1 Old River at Bacon Island (OBI) Turbidity = NA
- Salinity: X2 = >82 km, estimated at 88.1 km for Sacramento River and 90.7 km for San Joaquin River.
- Hydrologic Footprint: No Particle Tracking Models were requested.

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

- Outages
 - State Water Project (SWP): None
 - Central Valley Project (CVP): None. Operations variable due to presence of debris.
- Exports:
 - CCF: 1,000 to 300 cfs
 - Jones: 4,200 to 2,700 cfs
- Meteorological Forecast: Light precipitation possible Thursday, drying throughout the week.
- Storm Event Projection: NA

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

- DCC Gates position: Closed.
- Sacramento River flow at Freeport: Peaked on 11/12/2021 and has decreased to 8,800 cfs as of 11/15/2021. Likely to continue to decrease.
- San Joaquin River flow at Vernalis: 600 cfs Expected to stay remain stable
- Qwest: -3,000 cfs
- OBI Turbidity: NA
- Expected changes in South Delta Exports: CVP currently at max, will decrease as inflows wane. SWP currently at 3,000 cfs, will decrease as inflows wane.
- NDOI: 2,000 cfs and is expected to increase with runoff from recent storm.
- Upstream releases:
 - Keswick = 3,250 cfs
 - Nimbus = 550 cfs
 - Goodwin = 200 cfs
 - Oroville = 950 cfs

Table 1: Comparison of OMR and OMR Index (5-day and 14-day averages for OMR Index and USGS gauge were reported on [SacPAS website](#), accessed 16 November 2021.

Date	Averaging Period	USGS gauges (cfs)	Index (cfs)
NA	Daily	Not Reported	Not Reported
11/12/21	5-day	-7,150	-7,070
11/12/21	14-day	-5,720	-7,030

Section 4: Distribution and Biology.

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

Section 4-A: Delta Smelt population status 8.1.5.2.B. i

- EDSM: No Delta Smelt have been collected during recent sampling
- Fall Mid-water Trawl (FMWT) Index for Delta Smelt: September Index = 0.
- Delta Smelt life cycle model (LCM) discussion: NA
- Biological Conditions: NA
- % of population in Delta zones: NA
- Smelt Larva Survey (SLS) or 20mm Survey: SLS sampling will begin 12/13/2021.
- Salvage: No DS have been salvaged at either facility.

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

- FMWT Index: September Index = 1
- Other Surveys:
 - EDSM: 6 LFS (FL = 65-103 mm) were collected in Suisun Marsh stratum on 11/8/2021.
 - Chipps Island Trawl: 2 LFS (FL = 66-70 mm) were collected on 11/10/2021.
- Salvage: No LFS have been salvaged at either facility.

Section 4-C: Additional data sources to assess sensitivity to entrainment Delta.8.1.5.2.C & D. i

Notes:

November 23rd SMT meeting will include briefing on plans for experimental release of DS.

Attachments: EDSM Catch Table

Table 1. Delta Smelt (DSM) and Longfin Smelt (LFS) catch per station for EDSM 2021 Phase 3 Kodiak trawls, from 11/8/2021 – 11/10/2021. These data are preliminary and subject to change.

Year	Phase	Station Code	Date	# Tows	Species	Fork Length	Total Catch	Stratum
2021	3	22-15-CF01	11/10/2021	4	NA	NA	NA	Suisun Bay
2021	3	22-15-CF02	11/10/2021	4	NA	NA	NA	Suisun Bay
2021	3	22-15-SBM01	11/10/2021	4	NA	NA	NA	Suisun Bay
2021	3	22-15-GB01	11/8/2021	4	LFS	65	1	Suisun Marsh

Year	Phase	Station Code	Date	# Tows	Species	Fork Length	Total Catch	Stratum
2021	3	22-15-GB01	11/8/2021	4	LFS	66	1	Suisun Marsh
2021	3	22-15-GB01	11/8/2021	4	LFS	68	1	Suisun Marsh
2021	3	22-15-GB01	11/8/2021	4	LFS	70	1	Suisun Marsh
2021	3	22-15-GB01	11/8/2021	4	LFS	94	1	Suisun Marsh
2021	3	22-15-GB01	11/8/2021	4	LFS	103	1	Suisun Marsh
2021	3	22-15-SM01	11/8/2021	4	NA	NA	NA	Suisun Marsh
2021	3	22-15-SM02	11/8/2021	4	NA	NA	NA	Suisun Marsh
2021	3	22-15-SM03	11/9/2021	4	NA	NA	NA	Suisun Marsh
2021	3	22-15-SM05	11/9/2021	4	NA	NA	NA	Suisun Marsh
2021	3	22-15-SM06	11/9/2021	4	NA	NA	NA	Suisun Marsh
2021	3	22-15-LSR01	11/8/2021	4	NA	NA	NA	Lower Sac River
2021	3	22-15-RV04	11/8/2021	4	NA	NA	NA	Lower Sac River
2021	3	22-15-RV05	11/8/2021	4	NA	NA	NA	Lower Sac River
2021	3	22-15-LSJ01	11/10/2021	4	NA	NA	NA	Lower San Joaquin River
2021	3	22-15-PP01	11/10/2021	4	NA	NA	NA	Lower San Joaquin River
2021	3	22-15-SJT01	11/10/2021	4	NA	NA	NA	Lower San Joaquin River
2021	3	22-15-CS01	11/8/2021	3	NA	NA	NA	Cache Slough
2021	3	22-15-CS02	11/8/2021	3	NA	NA	NA	Cache Slough

Year	Phase	Station Code	Date	# Tows	Species	Fork Length	Total Catch	Stratum
2021	3	22-15-CS04	11/8/2021	4	NA	NA	NA	Cache Slough
2021	3	22-15-CS05	11/9/2021	4	NA	NA	NA	Cache Slough
2021	3	22-15-CS06	11/9/2021	4	NA	NA	NA	Cache Slough
2021	3	22-15-CS08	11/9/2021	5	NA	NA	NA	Cache Slough
2021	3	22-15-LSSC01	11/10/2021	4	NA	NA	NA	Sac Deep Water Ship Channel
2021	3	22-15-LSSC02	11/10/2021	4	NA	NA	NA	Sac Deep Water Ship Channel
2021	3	22-15-LSSC03	11/10/2021	4	NA	NA	NA	Sac Deep Water Ship Channel

DSM collected during Phase 3 are transferred alive to FCCL to contribute to DSM brood stock if tow temperatures are below 17°C. If tow temperatures are above 17°C, DSM are flash frozen in liquid nitrogen and transferred to UC Davis. Processing is complete through 11/12/2021.