

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

Section 1: Overview

Date: 11/14/2023

Life Stages Present:

Delta Smelt (DS): Sub-Adults and Adults

Longfin Smelt (LFS): Sub-Adults and Adults

Advice to Water Operations Management Team (WOMT):

No Advice.

Risk Assessment:

Delta Smelt: Based on distribution patterns over the past decade and low detections in this water year, Delta Smelt are unlikely to be prevalent in the Central and South Delta. Limited detection data from the past month supports Delta Smelt presence in the lower Sacramento River. The last Delta Smelt observations were on 10/05/23 and 10/24/23 in the lower Sacramento River. The likelihood of Delta Smelt entrainment is low due to seasonal timing. The regulations for Integrated Early Winter Pulse Protection do not go into effect until 12/01/23.

Longfin Smelt: Adult and sub-adult LFS have been detected by Enhanced Delta Smelt Monitoring Program (EDSM) in Suisun Marsh and Suisun Bay. One adult and one sub-adult LFS have been detected by Chipps Island Trawl on 10/20/23 and 10/02/23 respectively. Fall Midwater Trawl (FMWT) detected adult LFS in Suisun Bay and sub-adult LFS in the Confluence, Suisun Bay, and San Pablo Bay in the last two months. Based on distribution data and life history, adults and sub-adults are not expected to be present in the Central or South Delta and therefore are not expected to be at risk of entrainment.

Section 1-A: Sacramento River and Confluence

Risk of entrainment into the Central Delta and export facilities for Delta Smelt in the Sacramento River and Confluence:

Species and life stage	Risk type	Risk level	Rationale (turbidity, exports, OMR level, X2, Q west, temperature, distribution etc.)
DS subadults and adults	Exposure Risk (Hydrology)	Low	NA
DS subadults and adults	Routing Risk (Behavior and life history)	Low	NA
DS	Overall Entrainment Risk	Low	NA

Risk of entrainment into the Central Delta and export facilities for Longfin Smelt in the Sacramento River and Confluence:

Species and life stage	Risk type	Risk level	Rationale (turbidity, exports, OMR level, X2, Q west, temperature, distribution etc.)
LFS sub-adults and adults	Routing Risk (Behavior and life history)	Low	It is early in the season, and there have been few detections in the area. Water temperature is still high.
LFS	Overall Entrainment Risk	Low	NA

Section 1-B: Central Delta

Risk of entrainment into the export facilities for Delta Smelt in the Central Delta:

Species and life stage	Risk type	Risk level	Rationale (turbidity, exports, OMR level, X2, Q west, temperature, distribution etc.)
DS subadults and adults	Exposure Risk (Hydrology)	Low	NA

Risk of entrainment into the export facilities for Longfin Smelt in the Central Delta:

Species and life stage	Risk type	Risk level	Rationale (turbidity, exports, OMR level, X2, Q west, temperature, distribution etc.)
LFS sub-adults and adults	Exposure Risk (Hydrology)	Low	NA

- 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 changes

- LFS: No changes
- 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.
 - Expected daily OMRI range this week: -1,000 to -6,000 cfs

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 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: Closing on 11/13/23 and opening on 11/17/23.
 - OMR management has not been initiated.
- Controlling Factors: Delta outflow
- Water Temperature:
 - Clifton Court Forebay (CCF) Daily Average Water Temperature = NA
 - 3 Station Average = 14.87°C
- Tidal Cycle: Transitioning from Spring to Neap: First Half Moon on 11/20/23.
- Turbidity:
 - 8.3.1 Freeport 3-day average = 2.96 formazin nephelometric units (FNU)
 - 8.5.1 Old River at Bacon Island (OBI) Turbidity = 2.65 FNU
- Salinity: X2 = 89.9 km
- 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
- Exports:
 - CCF: 1,600 cfs. Anticipated range: 800 to 4,000 cfs
 - Jones: 2,400 cfs. Anticipated range: 900 to 2,700 cfs
- Meteorological Forecast: Quiet weather on Monday before unsettled pattern with showers and mountain snow sets up for the majority of the week; projected rainfall totals for the week have diminished with latest model runs; expect ¼ to ½ inches in Valley and ½ to 1 inch in mountains; drier pattern sets up on Sunday into Monday.
- Six-day Storm Event Projection: NA

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

- DCC Gates position: Closing on 11/13/23 and opening on 11/17/23.
- Sacramento River flow at Freeport: 7,840 cfs as of 11/13/23.
 - Anticipated range: 7,500 to 8,500 cfs
- San Joaquin River flow at Vernalis: 1,520 cfs as of 11/13/23.
 - Anticipated range: 1,250 to 1,750 cfs
- Qwest: 1,090 cfs as of 11/12/23. Anticipated to become negative when DCC gates are closed, and positive when the gates are open.
- OBI Turbidity: No anticipated changes.
- NDOI: 4,200 cfs as of 11/12/23. Anticipated range: 4,000 to 5,000 cfs.
- Upstream releases:
 - Keswick = 5,000 cfs. No anticipated changes.
 - Nimbus = 2,000 cfs. No anticipated changes.
 - Goodwin = 200 cfs. No anticipated changes.
 - Oroville = 1,750 cfs. No anticipated changes.

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 14 November 2023.

Date	Averaging Period	USGS gauges (cfs)	Index (cfs)
11/10/23	Daily	-4,820	-3,790
11/10/23	5-day	-4,760	-4,180
11/10/23	14-day	-4,060	-3,530

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: One adult (Fork-length (FL): 60mm) and one sub-adult (FL: 53mm) DS were detected in Lower Sacramento River in October.
- FMWT September to October Index for Delta Smelt: 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 12/11/23.
- Salvage: No DS have been salvaged at either facility this water year.

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

- FMWT September to October Index: 84.5 (preliminary)
- Other Surveys:
 - EDSM: Two adult (FL: 95-102mm) and 15 sub-adult (FL: 54-75mm) LFS were detected in Suisun Bay and Suisun Marsh in the week of 11/06/23 (Table 1).
 - Chipps Island Trawl: The last detection was one adult (FL: 95mm) LFS on 10/20/23.
 - Bay Study: NA
 - SLS: Sampling will begin 12/11/23.
- Salvage: No LFS have been salvaged at either facility this water year.

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

Notes

- Weather forecast from last week expected a larger rain event this week, but newer forecast predicts a much smaller amount of precipitation this week.
- X2 is relatively high due to low outflow, which is something to keep an eye out for especially with adult and sub-adult LFS being in the Delta early this season.

Attachments: Table 1: EDSM Catch Table

Table 1. Delta Smelt (DSM) and Longfin Smelt (LFS) catch for EDSM 2023 Phase 3 Kodiak trawls on the week of 11/06/23. Only stations with DSM or LFS catch are reported here. These data are preliminary and subject to change.

Date	Stratum	Subregion	Station Code	Species	Mark Type	Fork Length (mm)	Total Catch	Disposition
11/6/2023	Suisun Bay	Honker Bay	24-15-SB01	LFS	None	54	1	DOP

Date	Stratum	Subregion	Station Code	Species	Mark Type	Fork Length (mm)	Total Catch	Disposition
11/6/2023	Suisun Bay	Honker Bay	24-15-SB01	LFS	None	55	1	DOP
11/6/2023	Suisun Bay	Honker Bay	24-15-SB01	LFS	None	62	1	DOP
11/6/2023	Suisun Bay	Honker Bay	24-15-SB01	LFS	None	68	1	DOP
11/6/2023	Suisun Bay	Honker Bay	24-15-SB01	LFS	None	58	1	Released
11/6/2023	Suisun Bay	Honker Bay	24-15-SB01	LFS	None	60	1	Released
11/6/2023	Suisun Bay	Honker Bay	24-15-SB01	LFS	None	102	1	Released
11/7/2023	Suisun Marsh	Grizzly Bay	24-15-SM03	LFS	None	68	1	DOP
11/7/2023	Suisun Marsh	Grizzly Bay	24-15-SM03	LFS	None	69	1	DOP
11/7/2023	Suisun Marsh	Grizzly Bay	24-15-SM03	LFS	None	70	2	DOP
11/7/2023	Suisun Marsh	Grizzly Bay	24-15-SM03	LFS	None	59	1	Released
11/7/2023	Suisun Marsh	Grizzly Bay	24-15-SM03	LFS	None	65	1	Released
11/7/2023	Suisun Marsh	Grizzly Bay	24-15-SM03	LFS	None	69	1	Released
11/7/2023	Suisun Marsh	Suisun Marsh	24-15-SM05	LFS	None	57	1	DOP
11/7/2023	Suisun Marsh	Suisun Marsh	24-15-SM05	LFS	None	95	1	DOP
11/8/2023	Suisun Marsh	Suisun Marsh	24-15-SM01	LFS	None	75	1	DOP