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

Section 1: Overview

Date: 11/2/2021

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 Bay.

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). 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 First Flush do not go into effect until 12/1/2021.

Longfin Smelt: No adult LFS have been detected in the Chipps Island Trawl this water year. Recent detections in Bay Study and the Enhanced Delta Smelt Monitoring (EDSM) program are all downstream of the confluence. 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 are therefore 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: Low
    - LFS: Low
- 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 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 is closed
    - OMR management has not been initiated
- Controlling Factors: Water Quality
- Water Temperature:
    - Clifton Court Forebay (CCF) Daily Average Water Temperature = NA
    - 3 Station Average = 16.23°C
- Tidal Cycle: Currently in a spring tidal cycle with the new moon on 11/4. Anticipating the neap tide to occur on 11/12.
- Turbidity:
    - 8.3.1 Freeport 3-day average = 16.2 formazin nephelometric units (FNU)
    - 8.5.1 Old River at Bacon Island (OBI) Turbidity = NA
- Salinity: X2 = 80 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): No exports or salvage during planned maintenance and herbicide application beginning Thursday 11/4.

    - Central Valley Project (CVP): None
- Exports:
    - CCF: 6,800 to 0 cfs
    - Jones: 4,200 to 2,700 cfs
- Meteorological Forecast: Light precipitation expected on the valley floor later in the week. Potential for heavier rain farther north.
- Storm Event Projection: NA

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

- DCC Gates position: Closed since 10/25
- Sacramento River flow at Freeport: Peaked at 38,000 cfs. Decreased to 13,500 11/1 and is expected to stabilize around 11,000 cfs
- San Joaquin River flow at Vernalis: 1,500 cfs on 11/1. Expected to decrease.
- Qwest: Peaked at +30,000 cfs last week, currently -6,000 to -7,000 cfs. Will become less negative during maintenance and herbicide application at CCF.
- OBI Turbidity: NA
- Expected changes in South Delta Exports: SWP will cease exports and salvage operations while conducting facility maintenance and an herbicide application to CCF beginning Thursday.
- NDOI: 3,000 cfs and is expected to increase during scheduled maintenance at CCF
- Upstream releases:
    - Keswick = 4,600 cfs decreasing to 3,250 cfs
    - Nimbus = 550 cfs
    - Goodwin = 200 cfs
    - Oroville = 1,250 cfs decreasing to 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 2 November 2021.

Date	Averaging Period	USGS gauges (cfs)	Index (cfs)
NA	Daily	Not Reported	Not Reported
10/30/2021	5-day	-4,550	-7,990
10/30/2021	14-day	-2,600	-3,800

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 Delta Smelt have been salvaged at either facility this water year

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

- FMWT Index: September Index = 1
- Other Surveys:
  - EDSM: 5 juvenile LFS (FL = 60 – 71 mm) were collected in Suisun Marsh on 11/1/2021.
  - Chipps Island Trawl: No LFS were reported in recent sampling
- 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:

CDFW shared clarified implementation of COAs 8.3.3 and 8.4.2

COA 8.3.3 includes a trigger based on the most recent FMWT index divided by 10. The annual FMWT index is the sum of four monthly FMWT indices, September through December and is typically released in January. COA 8.3.3 goes into effect December 1st, therefore, in practice the threshold is based on the sum of monthly indices available on December 1st divided by ten. However, there is the possibility that the sum of monthly FMWT indices available December 1st or the annual FMWT index may be zero or will round to zero when divided by 10. The annual and monthly FMWT indices reached historic lows following the previous drought and the sum of monthly indices available December 1st, 2015, was zero. Current drought conditions may result in monthly FMWT indices similar to or lower than those calculated during the previous drought. In the event of a FMWT index less than 5, the take threshold shall be 1. This would initiate OMR management if any adult Longfin Smelt were collected from December 1st through February 28th.

COA 8.4.2 covers larval and juvenile Longfin Smelt (LFS) entrainment protection. One of the criteria is “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 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)." Occasionally adverse conditions, such as excessive submerged aquatic vegetation, require survey crews to reduce the tow duration to effectively sample a station. If tow duration is reduced at a station, the catch during that shorter tow shall be expanded to be representative of a standard 10-minute tow to determine if the threshold is exceeded. For example, if three LFS larvae are caught during a five-minute tow the catch will be expanded to six LFS larvae and therefore the threshold will be considered exceeded and the COA triggered. In the case of the 20-mm Survey, which conducts multiple tows at a station, the threshold is considered exceeded if the average of all tows conducted at station, during a single survey, exceeds five LFS larvae.

USFWS will share statistical analysis that examines catch probability as a function of tow volume.

The SMT reviewed the roster for WY 2022 and was asked to confirm that all members that participate in the DMW received an invite.

EDSM will retain Delta Smelt for brood stock collection.

DWR shared a link to the turbidity mapping application on Bay Delta Live

Hatchery supplementation of Delta Smelt may begin as early as 12/1/2021 and is expected to release up to 40,000 fish through February. All fish will be marked either with an adipose fin clip or visual elastomer tag. Salvage personnel and others requested that they be notified when releases occur.

Larval entrainment monitoring will begin sampling when SLS begins detecting larval LFS in the south Delta or 1/15 and will end sampling no later than 3/25. The pilot study will initially collect 15 samples/day five days a week. Data will be reported as available.

SLS will sample the full suite of stations in December. This is an expansion of the December SLS survey conducted last year which was limited to south and central Delta stations.

Attachments: None