

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

## Section 1: Overview

**Date: 22 June 2021**

### **Life Stages Present:**

Delta Smelt: Juvenile

Longfin Smelt: Juvenile

### **Advice to Water Operations Management Team (WOMT):**

OMR Management for Delta Smelt (DS) and Longfin Smelt has ended for Water Year 2021. Daily mean water temperature at Clifton Court Forebay has exceeded 25°C for three consecutive days (6/19/2021 through 6/21/2021).

### **Risk Assessment:**

*Delta Smelt:* The off-ramp criterion was met on 6/21/2021 and the SMT concluded meeting on 6/22/2021. Based on distribution patterns over the past decade and rare detections in this water year, DS are unlikely to be prevalent in the South Delta. Limited detection data supports DS being present in the lower Sacramento River and in the Sacramento Deep Water Ship Channel (SDWSC). The likelihood of DS adult entrainment is low due to seasonal timing. The likelihood of larval entrainment is decreasing compared to the previous seven days due to warming water temperature and seasonal timing. The most recent detection of a Delta Smelt was on 5/6/2021. The less negative OMR Index (OMRI) values decrease the potential for entrainment of Delta Smelt into the South Delta.

Condition of Approval 8.12 is not controlling BSPP operations. No DS have been detected at station 716 in 20 mm Survey 6, which was in the field 6/1 – 6/4. The period in which DS protection could control BSPP operations extends through June 30<sup>th</sup>. Risk is considered low for the remainder of this period. CDFW and DWR will continue to monitor survey data and may meet again if detections indicate an increase in risk for DS prior to the June 30<sup>th</sup> off ramp. The period in which LFS detections could control BSPP operations ended on 3/31/2021.

*Longfin Smelt:* The Conditions of Approval relevant to LFS have ended for Water Year 2021.

## Section 2: 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 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.*

### **8.8 End of OMR Management.**

Permittee shall operate the Project to meet the requirements included in Conditions of Approval 8.3.1, 8.3.3, 8.4.1, 8.4.2, 8.5.1, 8.5.2, 8.6.1, 8.6.2, 8.6.3, and 8.6.4 to ensure that entrainment and take of Covered Species is minimized during the OMR Management season through June 30, or until the following species-specific off-ramps occur:

- LFS and DS: Daily mean water temperature at CCF is greater than 25°C (77° F) for three consecutive days.
- CHNWR and CHNSR:
  - More than 95% of CHNWR and CHNSR have migrated past Chipps Island as determined by the Salmon Monitoring Team, AND
  - Daily average water temperature at Mossdale exceeds 22.2°C (72° F) for 7 non-consecutive days in June, AND
  - Daily average water temperature at Prisoner's Point exceeds 22.2°C (72° F) for 7 non-consecutive days in June.

### **8.12 Barker Slough Pumping Plant Longfin and Delta Smelt Protection.**

Permittee shall operate the BSPP to protect larval LFS from January 15 through March 31 of dry and critical water years. Permittee shall operate to protect larval DS from March 1 through June 30 of dry and critical years. If the water year type changes after January 1 to below normal, above normal or wet, this action will be suspended. If the water year type changes after January to dry or critical, Permittee shall operate according to this Condition of Approval.

From January 15 through March 31 of dry and critical water years, Permittee shall reduce the maximum seven-day average diversion rate at BSPP to less than 60 cfs when larval LFS are detected at station 716. In addition, in its weekly meetings from January 15 through March 31, the Smelt Monitoring Team shall review LFS abundance and distribution survey data and other pertinent abiotic and biotic factors that influence the entrainment risk of larval LFS at the BSPP. When recommended by the SMT, and as approved through the decision-making processes described in Conditions of Approval 8.1.3 and 8.1.4, Permittee shall reduce the maximum seven-day average diversion rate at BSPP according to the advice provided by the SMT.

From March 1 through June 30 of dry and critical water years, Permittee shall reduce the maximum seven-day average diversion rate at BSPP to less than 60 cfs when larval DS are detected at station 716. In addition, in its weekly meetings from March 1 through June 30, the SMT shall review DS abundance and distribution survey data and other pertinent abiotic and

biotic factors that influence the entrainment risk of larval DS at the BSPP (including temperature and turbidity). When recommended by the SMT, and as approved through the decision-making processes described in Conditions of Approval 8.1.3 and 8.1.4, Permittee shall reduce the maximum seven-day average diversion rate at BSPP to less than 60 cfs. The DS requirements described in this condition may be adjusted to align with USFWS requirements to minimize take of DS through an amendment to this ITP.

### **8.13 Water Year Type Definition.**

All references to water year type in this ITP shall be defined based on the Sacramento Valley Index unless otherwise noted.

### **Discussion of Conditions of Approval**

8.8 Water Temperature at Clifton Court Forebay has exceeded

8.12 This Condition of Approval has not been triggered. No DS were detected at station 716 during 20mm Survey 6. Risk of entrainment into Barker Slough Pumping Plant remains low for Delta Smelt. CDFW and DWR will continue to monitor distribution data and will notify the SMT if risk increases based on DS detections.

## **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. DCC gate closure and actions such as integrated early winter pulse protection, etc.)*
  - OMR Management for salmonids ended on 6/8/2021
  - OMR Management for smelt ended on 6/21/2021
  - DCC gates opened on 6/16/2021 and may close in response to changes in water quality.
  - Construction of the South Delta agricultural barriers is complete as of May 27<sup>th</sup>. Barrier culverts will be tidally operated as of June 1<sup>st</sup>. The OMRI equation was adjusted accordingly.
  - A TUCP was submitted to the Water Board requesting that the NDOI outflow requirement be changed from 4,000 cfs to 3,000 cfs for June and July, and that the compliance point location for western Delta agricultural salinity be changed from Emmaton to Three Mile Slough from June 1<sup>st</sup> through August 15<sup>th</sup>. The TUCP was conditionally approved subject to conditions.
  - Construction of the Drought Barrier at False River is ahead of schedule. Hydraulic closure was achieved on 6/18/2021.
- Controlling Factors: Delta Outflow and X2 location.
- Water Temperature:

- CCF Daily Average Water Temperature = 26.02°C
  - 3 Station Average = 22.44°C
- Tidal Cycle: Not discussed
- Turbidity:
  - 8.3.1 Freeport 3-day average = Not reported. 8.3.1 terminated without being triggered.
  - 8.5.1 OBI Turbidity = 2.83 FNU
- Salinity: X2 > 81 km. Average of estimates for Sacramento and San Joaquin Rivers is 97.3 km.
- Hydrologic Footprint: The SMT did not request any new PTM runs.

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

- Outages
  - SWP: None Reported
  - CVP: None reported
- Exports:
  - CCF: 100 cfs. Will drop to 0 cfs from 6/28 to 6/29 for herbicide application.
  - Jones: 800 cfs.
- Meteorological Forecast: No precipitation is in the forecast for the floor of the Central Valley.
- Storm Event Projection: No major storm events are expected.

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

- DCC Gates position: Open
- Sacramento River flow at Freeport: 5,500 to 7,000 cfs
- San Joaquin River flow at Vernalis: 1,200 to 1,500 cfs
- Qwest: +1,800 to 2,000 cfs
- Old River at Bacon Island Turbidity: 2.83 FNU.
- Expected changes in South Delta Exports: SWP exports will decrease to 0 cfs from 6/28 through 6/29.
- NDOI: 3,000 to 4,000 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 6/22/2021.

Date	Averaging Period	USGS gauges (cfs)	Index (cfs)
6/22/2021	Daily	Not Reported	Not Reported
6/15/2021	5-day	-1,240 cfs	-1,240 cfs

6/15/2021	14-day	-1,740 cfs	-1,480 cfs
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#### **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 did not collect any Delta Smelt in the last seven days.
- The 2020 Annual FMWT Index for DS is zero for the third consecutive year.
- Delta Smelt LCM discussion. Not Discussed.
- Biological Conditions: Not Discussed.
- % of population in Delta zones: SMT did not discuss distribution in terms of percentage in Delta zones.
- 20 mm Survey 7 sample processing is ongoing. No DS have been detected at the six stations processed to date. [See the 20-mm Survey webpage](#) for updated catch data.
- Salvage: No DS have been detected at either salvage facility this season.

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

- FMWT Index: The FMWT Annual Index for LFS is 28. Monthly indices for September and October are zero, the index for November is 22 and index for December is 6.
- 20 mm Survey 6 sampled from 6/1/2021 through 6/4/2021. Sample processing is 55% complete. Eight LFS were collected downstream of the confluence of the Sacramento and San Joaquin Rivers. None were collected at the 12 stations listed in Condition of Approval 8.4.2. See attached catch table for more details.
- Other Surveys:
  - Chipps Island Trawl did not collect any LFS over the last seven days.
  - EDSM did not collect any LFS over the last seven days.
  - Salvage: No LFS were salvaged at either facility over the last seven days. The last LFS detection in salvage occurred on 5/31/2021. To date, 677 juvenile LFS have been salvaged at the state facility and 188 juvenile LFS have been salvaged at the federal facility. Salvage estimates are expanded based on sampling effort.

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

- SMT estimated X2 using a tool developed by DWR staff that applies the same methodology used to calculate X2 reported on CDEC.

#### **Notes:**

The SMT continued discussion of the purpose and possible topics for post-season workshop(s), this discussion will be ongoing. A framework for the discussion has been circulated to SMT

members who are requested to make red-line edits or additions to items listed under weeks one and two.

A brief update was provided on a potential TUCP for fall.

#### Attachments:

Table 1. Delta Smelt and Longfin Smelt catch per station from 2021 20-mm Survey 6, which was in the field 6/1/2021 – 6/4/2021. These data are preliminary and subject to change.

Year	Survey	Station	Date	# Tows Processed	Species	Total Catch	Min Length	Max Length	Avg Length
2021	6	323	NA	0	Not Yet Processed	0	NA	NA	NA
2021	6	340	NA	0	Not Yet Processed	0	NA	NA	NA
2021	6	342	NA	0	Not Yet Processed	0	NA	NA	NA
2021	6	343	NA	0	Not Yet Processed	0	NA	NA	NA
2021	6	344	NA	0	Not Yet Processed	0	NA	NA	NA
2021	6	345	NA	0	Not Yet Processed	0	NA	NA	NA
2021	6	346	NA	0	Not Yet Processed	0	NA	NA	NA
2021	6	405	2-Jun-21	3	No Smelt Catch	0	NA	NA	NA
2021	6	411	2-Jun-21	3	No Smelt Catch	0	NA	NA	NA
2021	6	418	NA	0	Not Yet Processed	0	NA	NA	NA
2021	6	501	4-Jun-21	3	Longfin Smelt	2	30	36	33
2021	6	504	NA	0	Not Yet Processed	0	NA	NA	NA
2021	6	519**	4-Jun-21	1	No Smelt Catch	0	NA	NA	NA
2021	6	602	4-Jun-21	3	No Smelt Catch	0	NA	NA	NA
2021	6	606	NA	0	Not Yet Processed	0	NA	NA	NA
2021	6	609	NA	0	Not Yet Processed	0	NA	NA	NA
2021	6	610	NA	0	Not Yet Processed	0	NA	NA	NA
2021	6	508	2-Jun-21	3	Longfin Smelt	6	26	34	29.17
2021	6	513	NA	0	Not Yet Processed	0	NA	NA	NA
2021	6	520	NA	0	Not Yet Processed	0	NA	NA	NA
2021	6	801	NA	0	Not Yet Processed	0	NA	NA	NA
2021	6	804	2-Jun-21	3	No Smelt Catch	0	NA	NA	NA
2021	6	703	3-Jun-21	3	No Smelt Catch	0	NA	NA	NA
2021	6	704	NA	0	Not Yet Processed	0	NA	NA	NA

Year	Survey	Station	Date	# Tows Processed	Species	Total Catch	Min Length	Max Length	Avg Length
2021	6	705	3-Jun-21	3	No Smelt Catch	0	NA	NA	NA
2021	6	706	NA	0	Not Yet Processed	0	NA	NA	NA
2021	6	707	NA	0	Not Yet Processed	0	NA	NA	NA
2021	6	711	3-Jun-21	3	No Smelt Catch	0	NA	NA	NA
2021	6	716*	4-Jun-21	3	No Smelt Catch	0	NA	NA	NA
2021	6	718	NA	0	Not Yet Processed	0	NA	NA	NA
2021	6	719	NA	0	Not Yet Processed	0	NA	NA	NA
2021	6	720	NA	NA	Not Sampled	NA	NA	NA	NA
2021	6	723	4-Jun-21	3	No Smelt Catch	0	NA	NA	NA
2021	6	724	4-Jun-21	3	No Smelt Catch	0	NA	NA	NA
2021	6	726	4-Jun-21	3	No Smelt Catch	0	NA	NA	NA
2021	6	809	2-Jun-21	3	No Smelt Catch	0	NA	NA	NA
2021	6	812	2-Jun-21	3	No Smelt Catch	0	NA	NA	NA
2021	6	815	2-Jun-21	3	No Smelt Catch	0	NA	NA	NA
2021	6	901*	1-Jun-21	3	No Smelt Catch	0	NA	NA	NA
2021	6	902*	1-Jun-21	3	No Smelt Catch	0	NA	NA	NA
2021	6	906	2-Jun-21	3	No Smelt Catch	0	NA	NA	NA
2021	6	910	2-Jun-21	3	No Smelt Catch	0	NA	NA	NA
2021	6	912	1-Jun-21	3	No Smelt Catch	0	NA	NA	NA
2021	6	914	1-Jun-21	3	No Smelt Catch	0	NA	NA	NA
2021	6	915	1-Jun-21	3	No Smelt Catch	0	NA	NA	NA
2021	6	918	1-Jun-21	3	No Smelt Catch	0	NA	NA	NA
2021	6	919	2-Jun-21	3	No Smelt Catch	0	NA	NA	NA

\*Reduced tow time

\*\*Only 1 tow conducted

Processing is complete through 6/14/2021