

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

## Section 1: Overview

**Date: 16 March 2021**

### **Life Stages Present:**

Delta Smelt: Adult, Juvenile [Enhanced Delta Smelt Monitoring (EDSM) has collected two Delta Smelt in the juvenile size bin]

Longfin Smelt: Adult, Juvenile, Larvae

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

The Smelt Monitoring Team (SMT) recommends that the advice provided under Conditions of Approval 8.4.2, Larval and Juvenile Longfin Smelt Entrainment Protection, and 8.12, Barker Slough Pumping Plant Longfin and Delta Smelt Protection continue. Smelt Larva Survey 6 (SLS 6) reported that larval Longfin Smelt (LFS) were detected at four of the stations listed in Condition of Approval 8.4.2. Data was available for six of the 12 relevant stations at the time of the SMT meeting. The SMT determined that the prior advice should continue and that operations should target a daily OMR Index (OMRI) no more negative than -2,500 cfs for the protection of juvenile and larval Longfin Smelt under Condition of Approval 8.4.2. The Barker Slough Pumping Plant (BSPP) maximum diversion limit associated with Condition of Approval 8.12 remains in effect and limits BSPP maximum diversion rate to be less than 60 cfs on a seven-day running average. SLS 5 detected a larval LFS at station 716, which informs Barker Slough operations. Barker Slough Pumping Plant has ceased diversions until March 26 to perform annual maintenance. No advice was provided for the protection of Delta Smelt (DS).

### **Risk Assessment:**

Risk of entrainment into the central and south Delta or into the export facilities in the south Delta is low for Delta Smelt (DS) across the range of expected OMRI levels and high for Longfin Smelt (LFS) at OMRI levels more negative than -2,500 cfs.

*Delta Smelt:* 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 Suisun Marsh, west of the Sacramento-San Joaquin confluence, and within the Sacramento Deep Water Ship Channel. The distribution of DS is expected to extend upstream of the confluence which is supported by historical Spring Kodiak Trawl (SKT) data analysis. The volume of predicted precipitation and wind velocity this week may influence turbidity at Old River at Bacon Island (OBI), and it is possible to reach 12 Formazin Nephelometric Units (FNU) in the next 7 days. The likelihood of DS adult entrainment is slightly elevated relative to the previous seven days due to seasonal timing. The less negative levels of

OMRI decrease the potential for entrainment of DS in the central Delta, which includes fish in the lower San Joaquin River, into the south Delta.

*Longfin Smelt*: SLS 6 sampled the 12 south and central Delta stations listed in Condition of Approval (COA) 8.4.2 on 3/15/2021. Data for six of those stations was available at the time of the SMT meeting. Larvae were reported at four SLS stations (809, 812, 901, and 902), which meets the criteria to trigger Condition of Approval 8.4.2 for the fourth time this season. No larvae were reported at stations 815 and 915. The first juvenile LFS (FL = 20 mm) was detected in salvage on 3/3/2021 at the Tracy Fish Collection Facility. This fish was collected during a standard 30-minute sample and represents an expanded count of 4. Another juvenile LFS was salvaged at the State Water Project (SWP) Skinner Fish Facility on 3/15/2021 and represents an expanded count of 2. Larval LFS (FL < 20 mm) have been detected during qualitative larval sampling at the Tracy Fish Facility on 2/28/2021, 3/3/2021 and 3/6/2021, as well as at the Skinner Fish Facility on 3/1/2021. Adult LFS have been detected by the Chippis Island Survey during sampling conducted from 3/9/2021 through 3/15/2021. The distribution of larval and juvenile LFS and the ongoing presence of adult LFS in the system indicate that a more positive OMRI may continue to limit entrainment risk of individuals in the central Delta to the salvage facilities. The SMT determined that risk has not changed since the prior assessment and that the advice should remain in place.

### **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):
  - Delta Smelt: Low
  - Longfin Smelt: Low
- Routing Risk (Behavior and life history):
  - Delta Smelt: Low
  - Longfin Smelt: Moderate risk of LFS adults moving from the confluence into the Central Delta of their own volition. EDSM detected a ripe female LFS in Montezuma Slough on 3/2/2021.
- Overall Entrainment Risk
  - Delta Smelt: Low
  - Longfin Smelt: Low

### **Section 1-B: Central Delta**

Risk of entrainment into the export facilities for DS and LFS in the central Delta

- Exposure Risk:
  - Delta Smelt: Low
  - Longfin Smelt: High for larvae in the northern OMR corridor
- Change in exposure from previous week:

- Delta Smelt: Slightly elevated due to seasonal timing and previously elevated turbidity in the central Delta.
- Longfin Smelt: Exposure to risk of entrainment remains high for larvae in the norther OMR corridor.
- Reporting OMRI (*Number and range of OMRI bins will vary based on anticipated hydrology and operations*)
  - OMRI is projected to range from -800 cfs to -3,500 cfs
  - Scenario OMRI > -2,500 cfs
    - Moderate risk of entrainment for OMRI less negative than -2,500 cfs. A more negative OMRI creates a high risk of entrainment into the facilities for LFS larvae in the northern OMR corridor.
      - SLS 6 results met one of the criteria to trigger Condition of Approval 8.4.2. LFS were detected at 4 of the relevant stations. Data for six of the 12 stations was available at the time of the call.
      - A juvenile LFS was salvaged at the Skinner Fish Facility on 3/15/2021.
      - Larval LFS catch in Franks Tract (Station 901) during SLS 6 has increased compared to SLS 5.
      - New PTM results indicated reduced entrainment to the facilities of particles inserted at station 901 under a -2,500 OMR compared to the base case with no OMR restrictions. Entrainment of particles from stations 809 and 812 remained unchanged and very low under both scenarios.

## 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.*

### **8.1.5.2 Smelt Monitoring Team Risk Assessment**

#### **8.4.2 Larval and Juvenile Longfin Smelt Entrainment Protection.**

From January 1 through June 30, when a single 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 OMRI no more negative than -5,000 cfs. Permittee shall also immediately convene the SMT 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 OMRI flow restriction is warranted, and recommend an OMRI flow limit between -1,250 cfs and -5,000 cfs. The SMT 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 OMRI flow target approved through Conditions of Approval 8.1.3 and 8.1.4. Each week the SMT 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 SMT 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 SMT shall provide advice on the appropriate OMRI flow targets to minimize LFS entrainment or entrainment risk, or both. The SMT 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 OMRI flow restriction is warranted and determine an OMRI flow limit between -1,250 cfs and -5,000 cfs. The OMRI flow limit shall be in place until the next risk assessment conducted by the SMT 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).

#### **8.5.1 Turbidity Bridge Avoidance.**

The purpose of this Condition is to minimize the risk of entrainment of adult DS in the corridors of the Old and Middle rivers into the south Delta export facilities. This Condition is intended to avoid the formation of a turbidity bridge from the San Joaquin River shipping channel to the south Delta export facilities, which historically has been associated with elevated salvage of pre-spawning adult DS.

After the Integrated Early Winter Pulse Protection (Condition of Approval 8.1.3) or February 1 (whichever comes first), until April 1, Permittee shall manage exports to maintain daily average turbidity at OBI to a level less than 12 NTU<sup>1</sup>. If the daily average turbidity at OBI is greater than 12 NTU, Permittee shall restrict south Delta exports to achieve an OMRI flow that is no more negative than -2,000 cfs until the daily average turbidity at OBI is less than 12 NTU.

---

<sup>1</sup> Current instrumentation uses Formazin Nephelometric Units (FNU).

If, after five consecutive days of OMRI flow that is less negative than -2,000 cfs, the daily average turbidity at OBI is not less than 12 NTU the SMT may convene to assess the risk of entrainment of DS (Condition of Approval 8.1.5.2). The SMT may provide advice to WOMT regarding changes in operations that could be conducted to minimize the risk of entrainment of DS (Condition of Approval 8.1.3). The SMT may also determine that OMRI restrictions to manage turbidity are infeasible and may instead provide advice for a different OMRI flow target that is between -2,000 cfs and -5,000 cfs and is protective based on turbidity and adult DS distribution and salvage to the WOMT for consideration (Condition of Approval 8.1.3). Operational decisions shall be made following the process described in Condition of Approval 8.1.4 (Collaborative Real Time Risk Assessment).

Turbidity readings at individual sensors can generate spurious results in real time. Spurious results could be incorrectly interpreted as a turbidity bridge, when in fact the cause is a result of local conditions or sensor error. To assess whether turbidity readings at OBI are attributable to a sensor error or a localized turbidity spike, Permittee, in coordination with Reclamation, may consider and review data from other nearby locations and sources. Additional information that will be reviewed include regional visualizations of turbidity, alternative sensors, and boat-based turbidity mapping, particularly if there was evidence of a local sensor error. Permittee may bring data from these additional sources to the SMT for consideration during the development of a risk assessment to be provided to the WOMT for evaluation (Condition of Approval 8.1.3).

Permittee shall use the decision-making process described Condition of Approval 8.1.4 (Collaborative Real-time Risk Assessment) to determine if south Delta exports may increase after five-days of OMRI no more negative than -2,000 cfs, or to determine that this action is not warranted due to a sensor error or localized turbidity event. Permittee shall implement this action until CDFW is in agreement that the action may be ended or modified.

### **8.5.2 Larval and Juvenile Delta Smelt Protection.**

If the five-day cumulative salvage of juvenile DS at the CVP and SWP facilities is greater than or equal to one plus the average prior three years' FMWT index (rounded down), Permittee shall restrict south Delta exports for seven consecutive days to maintain a seven-day average OMRI no more negative than -5,000 cfs. Additionally, if the five-day cumulative salvage threshold is met or exceeded, Permittee shall immediately convene the SMT to conduct a risk assessment (Condition of Approval 8.1.5.2) and determine the future risk of entrainment and take of larval and juvenile DS. The SMT may provide advice to further restrict south Delta exports to maintain a more positive OMRI than -5,000 cfs. The SMT may provide advice for further restrictions within three risk categories:

- Low risk: Limit OMRI between -4,000 cfs to -5,000 cfs
- Medium risk: Limit OMRI between -2,500 cfs to -4,000 cfs
- High risk: Limit OMRI between -1,250 cfs to -2,500 cfs

The duration and magnitude of operational advice shall be provided to the WOMT (Condition of Approval 8.1.3) and decisions shall be made following the process described in Condition of Approval 8.1.4 (Collaborative Real Time Risk Assessment). When conducting risk assessments to evaluate the risk of entrainment and take of juvenile DS, the SMT shall evaluate the following information sources, in addition to any other models or surveys they deem appropriate and those listed in Condition of Approval 8.1.5.2:

- Results from a CDFW approved DS life cycle model.
- DS recruitment levels identified by the SMT using the CDFW- approved life cycle model that links environmental conditions to recruitment, including factors related to loss as a result of entrainment such as OMRI flows. In this context, recruitment is defined as the estimated number of post-larval DS in June per number of spawning adults in the prior February-March period.
- Hydrodynamic models and forecasts of entrainment informed by the EDSM or other relevant survey data to estimate the percentage of larval and juvenile DS that could be entrained.

If expanded salvage at the CVP and SWP facilities of juvenile DS exceeds 11 within a three-day period under this condition, Permittee shall restrict south Delta exports for seven consecutive days to maintain a seven-day average OMRI no more negative than -3,500 cfs. If juvenile DS continue to be salvaged at the CVP and SWP facilities during the seven days of OMRI restrictions, then Permittee shall continue restrictions and request a risk assessment by the SMT to determine if additional advice and subsequent restrictions are warranted and provide advice to WOMT (see Condition of Approval 8.1.3) and follow the decision-making process described in Condition of Approval 8.1.4.

#### **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**

*Provide sentence or two addressing criteria for each Condition of Approval listed in "Basis for Advice" section. Refer to data below where appropriate.*

SMT will conduct weekly risk assessments as described in Condition of Approval 8.1.5.2.

8.3.1 Environmental conditions did not exceed the thresholds identified in this condition during Water Year 2021. This Condition of Approval ended on 1/31/2021.

8.3.3 This Condition of Approval ended on 2/28/2021.

8.4.1 This Condition of Approval ended on 12/28/2021 when SLS detected a larval LFS in the lower San Joaquin River.

8.4.2 SLS 6 reported that larvae were detected at four of the stations listed in this Condition of Approval. Data was available for six of the 12 stations at the time of the SMT meeting. The SMT recommended that advice provided at the previous meeting remain in effect and that operations target an OMRI no more negative than -2,500 cfs to continue to be protective of larval LFS in the northern OMR corridor.

8.5.1 This Condition of Approval has not been triggered. Turbidity at OBI has been below 12 FNU since 2/1/2021. Turbidity exceeded 14 FNU on 1/27/2021 before decreasing below the threshold on 1/29/2021.

8.5.2 The three-year average FMWT Index for DS is zero, resulting in a salvage threshold of one for juvenile DS. Young of year DS are not expected to be present at this time of year.

8.12 SLS 5 collected one larval LFS at station 716. This meets the criterion to trigger this Condition of Approval and requires Barker Slough Pumping Plant Operations to maintain a diversion rate less than 60 cfs on a seven-day average. Notification of this trigger was transmitted to DWR via email on 2/26/2021. SLS 6 is scheduled to sample this station this week.

## 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.*)
  - ITP Conditions of Approval 8.3.2 Salmonid Presence limits exports to maintain a 14-day running OMRI average no more negative than -5,000 cfs. as of 1/1/2021.
  - DCC gates will remain closed for the remainder of the season (through May 20, 2021 per the PA description for DCC gate operations).
  - Grantline Canal agricultural barrier was breached on 11/11/2020. The OMRI equation was adjusted accordingly to accommodate the change in barrier status.
  - Barker Slough Pumping Plant has ceased diversions until 3/26 to conduct annual maintenance.
- Controlling Factors: Delta Outflow X2
- Water Temperature:
  - CCF = Not discussed (*Condition of Approval 8.8: Daily average temperature at CCF exceeds 25°C for 3 consecutive days*)
  - 3 Station Average = 12.83°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 = 3.64 FNU
    - Reached a peak of 14.19 FNU on 1/27/2021 before decreasing below the 12 FNU threshold before 2/1/2021
- Salinity: X2 > 81 km, upstream of Collinsville and was estimated to be at 83.9 km on the Sacramento River and 83.6 km in the San Joaquin River.
- Hydrologic Footprint: The SMT reviewed a PTM run with injection locations at stations 809, 812 and 901 with OMRI scenarios based on forecasted hydrology and a scenario in which OMRI was controlled at -2,500 cfs.

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

- Outages
  - SWP: No exports from noon on 3/11/2021 through 3/14/2021.
  - CVP: No exports on 3/13/2021
- Exports
  - CCF: 2100 cfs
  - Jones: 800 cfs



- Meteorological Forecast: Rain expected Wednesday through Friday with 0.41 inches forecasted for Stockton.
- Storm Event Projection: Unsettled weather system is moving through the region later this week.

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

- DCC Gates position: Closed for season (through May 20, 2021)
- Sacramento River flow at Freeport: 10,000 cfs
- San Joaquin River flow at Vernalis: 1,100 cfs. Expected to decrease to 800 cfs this week.
- Qwest: Was in the + 1,500 cfs range last week. Currently -100 cfs. May turn positive following forecasted storm.
- Old River at Bacon Island Turbidity: 3.64 FNU.
- Expected changes in South Delta Exports: Exports may vary depending on precipitation measured at the Stockton Fire Station which influences the calculation of the Net Delta Outflow Index (NDOI).
- NDOI: Reached 11,000 cfs. Expected to decrease to 7,100 depending on Delta inflow.

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 3/16/2021.)

Date	Averaging Period	USGS gauges (cfs)	Index (cfs)
3/15/2021	Daily	Not Reported	-1,400 cfs
3/13/2021	5-day	-270 cfs	-600 cfs
3/13/2021	14-day	-760 cfs	-760 cfs

**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 DS during sampling conducted from 3/8/2021 through 3/12/2021. No abundance estimate was calculated.
- 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.
- Other Surveys: The last DS detection was on 1/26/2021 by EDSM. Note: There was an error in previous assessments which reported the last DS detection occurring on 1/21/2021.
- Salvage: No DS have been detected at either salvage facility this season. No DS have been detected in larval sampling at the Tracy Fish Collection Facility (CVP) or Skinner Fish Facility (SWP). Larval sampling began at the Tracy Fish Collection Facility on 2/15/2021 and at the Skinner Fish Facility on 2/22/2021.

**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.
- Bay Study: In February, Bay Study collected 5 adult LFS [ Fork Length (FL) = 85-90 mm]; two in the lower Sacramento River, two in Suisun Bay, and one in South Bay. They also collected 19 juveniles (FL = 60-82 mm): seven in Suisun Bay, seven in Central Bay, and five in South Bay.
- Other Surveys:
  - Chippis Island Trawl collected three LFS during sampling conducted from 3/9/2021 through 3/15/2021. One LFS (FL = 70 mm) was collected on 3/9/2021, one (FL = 81 mm) was collected on 3/14/2021 and one (FL = 70 mm) was collected on 3/14/2021

- EDSM did not collect any LFS during sampling conducted from 3/8/2021 through 3/12/2021
- SLS 6 began on 3/15/2021 and sampled all 12 south and central Delta stations listed in Condition of Approval 8.4.2. Data for six of these stations was available at the time of the call. Larval LFS were detected at 4 stations; nine at 809 (6-11 mm, 2 with yolk sacs), two at 812, five at 901 (6-9 mm), 815 no LFS, and one at 902 (8 mm). No LFS larvae were detected at 815 and 915. SLS 6 is scheduled to complete sampling on 3/17/2021 and is the last SLS survey for Water Year 2021.
- SLS 5 completed sampling. Sample processing is 50% complete. See attached catch table for details.
- SKT 3 completed sampling at all stations from 3/1/2021 through 3/4/2021. One LFS (FL = 85 mm) was collected in the lower Sacramento River, 4 LFS (FL = 60 – 80 mm) were collected in Suisun Bay, and one LFS (FL = 80 mm) was collected in Carquinez Strait.
- **Salvage:** One juvenile LFS (FL = 20 mm) was detected in Salvage on 3/3/2021 at the Tracy Fish Collection Facility. This fish was collected during a standard 30-minute sample and represents an expanded count of 4. One juvenile LFS (FL = 22 mm) was detected in Salvage on 3/15/2021 at the state Skinner Fish Facility and represents an expanded count of 2. Larval LFS (FL < 20 mm) have been detected during qualitative larval sampling at the Tracy Fish Facility on 2/28/2021, 3/3/2021 and 3/6/2021, as well as at the Skinner Fish Facility on 3/1/2021.

**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 ITP Risk Assessments can be accessed on the CDFW [Water Branch website](#).

CDFW followed up on discussion of turbidity reporting at OBI and noted that the 15-minute data is less susceptible to outliers. The SMT will continue to consider the daily average turbidity data reported on CDEC and will rely on DWR to identify instances in which the daily average data may be inaccurate.

SLS 6 is scheduled to complete sampling on 3/17/2021.

20-mm Survey is scheduled to begin 3/22/2021. Sample processing may not be as fast as SLS data due to logistical differences between the surveys. However, CDFW field staff will endeavor to report relevant data in a timely manner.

EDSM will transition to Phase 2 on 3/29/2021. Phase 1 consists of a Kodiak trawl targeting adult Delta Smelt. Phase 2 uses an ichthyoplankton net, similar to the CDFW 20-mm survey that is

towed near the surface targeting young of year DS. The spatial coverage of Phase 2 will not include the south Delta and far west Delta strata.

Chippis Island Trawl will continue to schedule sampling for 5 days per week through mid-May, however, COVID mitigation may interfere (days lost due to crew vaccinations).

Jones Pumping Plant cycled their pumps on and off last week to meet a D-1641 water quality requirement for March (additional 2 days to meet the March requirement for “Chippis Days”). The effort was successful; however, this practice increases the strain on the export infrastructure.

The SMT took a new approach to PTM runs. DWR created a base case scenario based on the upper range of possible OMR levels reported in the Outlook document. The second scenario was based on SMT advice for the protection of LFS. This allowed DWR to use the most up to date hydrology when running the model. This approach allows the SMT to compare an “advice” and “no advice” scenario. DWR is continuing the effort to automate the process.

## Attachments

Table 1 Longfin Smelt catch per station from 2021 Smelt Larva Survey, Survey 5, which sampled 3/8/2021 – 3/10/2021.

Year	Survey	Station	Turbidity	Sample Status	Species	Smelt Catch	Min Length	Max Length	Avg Length
2021	5	405	NA	Not yet processed	NA	NA	NA	NA	NA
2021	5	411	NA	Not yet processed	NA	NA	NA	NA	NA
2021	5	418	NA	Not yet processed	NA	NA	NA	NA	NA
2021	5	501	NA	Not yet processed	NA	NA	NA	NA	NA
2021	5	504	NA	Not yet processed	NA	NA	NA	NA	NA
2021	5	508	NA	Not yet processed	NA	NA	NA	NA	NA
2021	5	513	NA	Not yet processed	NA	NA	NA	NA	NA
2021	5	519	NA	Not yet processed	NA	NA	NA	NA	NA
2021	5	520	NA	Not yet processed	NA	NA	NA	NA	NA
2021	5	602	NA	Not yet processed	NA	NA	NA	NA	NA
2021	5	606	NA	Not yet processed	NA	NA	NA	NA	NA

Year	Survey	Station	Turbidity	Sample Status	Species	Smelt Catch	Min Length	Max Length	Avg Length
2021	5	609	NA	Not yet processed	NA	NA	NA	NA	NA
2021	5	610	NA	Not yet processed	NA	NA	NA	NA	NA
2021	5	703	NA	Not yet processed	NA	NA	NA	NA	NA
2021	5	704	NA	Not yet processed	NA	NA	NA	NA	NA
2021	5	705	6.5	Processed	Longfin Smelt	6	8	8	8
2021	5	706	8.4	Processed	Longfin Smelt	13	6	10	8.1
2021	5	707	6	Processed	Longfin Smelt	13	6	11	6.8
2021	5	711	3.5	Processed	NA	No Smelt Catch	NA	NA	NA
2021	5	716	5.2	Processed	Longfin Smelt	1	7	7	7
2021	5	723	6.2	Processed	Longfin Smelt	2	6	7	6.5
2021	5	801	NA	Not yet processed	NA	NA	NA	NA	NA
2021	5	804	NA	Not yet processed	NA	NA	NA	NA	NA
2021	5	809	6.9	Processed	Longfin Smelt	12	7	11	8.5
2021	5	812	5.8	Processed	Longfin Smelt	2	8	9	8.5
2021	5	815	4.9	Processed	Longfin Smelt	1	9	9	9
2021	5	901	4.8	Processed	Longfin Smelt	1	7	7	7
2021	5	902	4.6	Processed	NA	No Smelt Catch	NA	NA	NA
2021	5	906	3.6	Processed	NA	No Smelt Catch	NA	NA	NA
2021	5	910	3.1	Processed	NA	No Smelt Catch	NA	NA	NA
2021	5	912	4.4	Processed	NA	No Smelt Catch	NA	NA	NA

Year	Survey	Station	Turbidity	Sample Status	Species	Smelt Catch	Min Length	Max Length	Avg Length
2021	5	914	2.6	Processed	NA	No Smelt Catch	NA	NA	NA
2021	5	915	3.1	Processed	Longfin Smelt	2	7	8	7.5
2021	5	918	2.5	Processed	NA	No Smelt Catch	NA	NA	NA
2021	5	919	2.4	Processed	NA	No Smelt Catch	NA	NA	NA