BUREAU OF RECLAMATION

Weekly Assessment of CVP and SWP Delta Operations on ESA-listed Species

December 10, 2024

Executive Summary

Operational Conditions

See Weekly Fish and Water Operation Outlook document for December 10 - December 16

Winter-run Chinook Salmon

Loss of natural winter-run Chinook Salmon (by length at date, LAD) has occurred in the past week at Federal fish salvage facility. No loss of natural winter-run LAD Chinook Salmon has occurred in the past week at the State fish salvage facility. Loss of natural winter-run Chinook Salmon at the Central Valley Project (CVP) and State Water Project (SWP) fish collection facilities is possible to occur over the next week. 20-25% of juvenile natural winter-run Chinook Salmon from brood year (BY) 2024 are estimated to be present in the Delta.

Spring-run Chinook salmon

No loss of natural spring-run Chinook Salmon (by length at date, LAD) has occurred in the past week at the State or Federal fish salvage facilities. 1-5% of juvenile natural spring-run Chinook Salmon was estimated in the Delta. It is likely that juvenile natural yearling spring-run Chinook Salmon are present near the Central Valley Project and State Water Project collection facilities due to loss of hatchery spring-run surrogates; CV spring-run Chinook Salmon adults have completed spawning and eggs are in gravel.

Central Valley Steelhead

No loss of natural California CV (CCV) steelhead has occurred in the past week at the State and Federal fish salvage facilities. Loss of Central Valley steelhead at the Central Valley Project (CVP) and State Water Project (SWP) fish collection facilities is unlikely to occur over the next week. 0% of CCV steelhead were estimated in the Delta.

Green Sturgeon

Loss of green sturgeon has not occurred in the past week at the State and Federal fish salvage facilities. Loss of green sturgeon is unlikely to occur over the next week due to their rare presence in the South Delta.

Delta Cross Channel Gates

The DCC gates were closed on for the season 11/18/2024 consistent with D-1641

Delta Smelt

Limited detection data from the past month supports Delta Smelt presence in Suisun Marsh, the Sacramento Deepwater Ship Channel, Cache Slough/Liberty Island, and the Lower Sacramento River. The last Delta Smelt observation was of a marked adult detected on 12/04/24 in the Lower Sacramento River. A total of 14,880 cultured Delta Smelt were released at Lookout Slough on 12/9/24. Since DSM likely began their spawning migration around 11/25/24, turbidity in the San Joaquin River near the OMR corridor remains near 12 FNU (despite decreased turbidity elsewhere), a precipitation event is likely this week, and OMRI values are highly negative (–5,000 cfs to –10,300 cfs), there is moderate risk of entrainment for Delta smelt.

Monitoring Teams summary

There were no non-consensus issues to report from the Salmon Monitoring Team.

There were no non-consensus issues to report from the Smelt Monitoring Team.

Operational and Regulatory Conditions

See current Weekly Fish and Water Operation Outlook document.

Biology, Distribution, and Evaluation Winter-run Chinook salmon, Spring-run Chinook salmon, Central Valley Steelhead

Population Status

Winter-run Chinook Salmon

- Delta Life Stages:
    - Juveniles, Adults
- Brood Year 2024 Productivity:
    - Catch of juvenile winter run Chinook Salmon at Red Bluff Diversion Dam continues and juveniles are migrating towards the middle reaches of the Sacramento River. Tisdale, lower Sacramento, and Knights Landing rotary screw traps as well as the, EDSM Trawls, Sacramento Trawls, and Sacramento Seines have observed winter-run Chinook Salmon which further confirms that winter-run Chinook salmon are migrating downstream.
    - Mean cumulative weekly passage of winter-run Chinook Salmon through December 09 at Red Bluff Diversion Dam (RBDD) for the last 20 years of passage data is 93.9% (one SD of 6.4%). The biweekly estimate (90% CI) as of December

01, 2024, was 408,412 (305,359-511,464) compared to an estimate of 769,439 on a comparable date in BY 2023.

- Hatchery winter-run Chinook salmon: No hatchery winter-run Chinook salmon have been released in WY 2025.

- Supporting Information regarding DCC Management Effects

Spring-run Chinook Salmon

- Delta Life Stages:
    - Young-of-year (YOY) and Yearlings
- Brood Year 2024 Productivity:
- Hatchery spring-run Chinook Salmon: 698,892 general production late-fall yearling sized fish from Coleman Fish Hatchery were released on November 20-21 and an additional 67,422 were released on November 25. The first release that occurred on 11/20/24 will count towards COA 8.4.5 for yearling SR surrogate releases and tracking of these fish in the SWP and CVP facilities is being closely monitored. Fish from the spring-run surrogate release have been observed in salvage over the past week.
    - See additional supporting information in winter-run Chinook Salmon section.
- Supporting Information regarding DCC Management Effects

Central Valley Steelhead

- Delta Life Stages:
    - Spawning Adults, Kelts, Juveniles
- Brood Year 2024 Productivity:
    - See additional supporting information in winter-run Chinook Salmon section.
- Supporting Information regarding DCC Management Effects

Table 1. Summary of capture data of rotary screw traps and delta monitoring sites. WR, SR, FR, LF, and UK refer to winter-, spring-, fall-, late-fall-, and unknown Chinook Salmon runs respectively. SH and GS refer to Central Valley steelhead and Green Sturgeon respectively.

Clipped	Sample	Dates	WR	SR	FR	LF	UK	SH	GS
N	Butte	10/02 - 12/01	0	0	0	0	0	1	0
N	Tisdale RST	12/02 - 12/09	2	0	0	0	0	0	0
N	Knights Landing RST	11/24 - 12/11	6	2	0	1	0	0	0
N	Lower Sacramento RST	10/10 - 11/19	4	0	0	0	0	0	0
N	Feather River (Eye Side)	11/05 - 12/02	0	0	0	39	0	0	0
0	Yuba	10/16 - 12/02	0	0	0	25	0	1	0
N	Beach Seines	12/02 - 12/06	2	3	0	0	0	0	0
N	Chipps Island Trawls	11/25 - 11/27	0	11	0	0	0	0	0

Clipped	Sample	Dates	WR	SR	FR	LF	UK	SH	GS
Y	Tisdale RST	12/02 - 12/09	0	0	0	0	0	0	0
Y	Knights Landing RST	11/24 - 12/11	0	0	0	0	0	0	0
Y	Lower Sacramento RST	10/10 - 11/19	0	0	0	0	0	0	0
Y	Feather River (Eye Side)	11/05 - 12/02	0	0	0	0	0	0	0
Y	Yuba	10/16 - 12/02	0	0	0	0	0	0	0
Y	Sacramento Trawls	12/02 - 12/06	0	0	0	0	4	0	0
Y	Chipps Island Trawls	11/25 - 11/27	0	0	67	0	0	0	0

Table 2. Salmonid distribution estimates

Location	Yet to Enter Delta (%)	In the Delta (%)	Exited Delta past Chipps Island (%)
Young-of-year (YOY) winter-run Chinook salmon	Current: 75-80 % Last Week: 80-85%	Current: 20-25% Last Week: 15-20%	Current: 0% Last Week: 0%
YOY spring-run Chinook salmon	Current: 95-99 % Last Week: 95-99%	Current: 1-5% Last Week: 1-5%	Current: 0% Last Week: 0%
YOY hatchery winter-run Chinook salmon	Current: NA Last Week: NA	Current: NA Last Week: NA	Current: NA Last Week: NA
Natural origin steelhead	Current: 100% Last Week: 100%	Current: 0% Last Week: 0%	Current: 0% Last Week: 0%

Table 3. Historic migration and salvage patterns. Last updated 12/09/2024

Species	Red Bluff Diversion Dam	Tisdale Rst	Knights Landing Rst	SacTrawl Sherwood Catch Index	Chipps Island Trawl Catch Index	Salvage
Chinook, Winter-run, Unclipped	92.4%(88.5%, 96.4%) BY: 2014 - 2023	38.2%(15.6%, 60.8%) BY: 2014 - 2023	40.2%(14.2%, 66.2%) BY: 2014 - 2023	17.1%(-6.1%, 40.3%) BY: 2014 - 2023	1.0%(-1.3%, 3.3%) BY: 2014 - 2023	0.0%(0.0%,0.0%) WY: 2015 - 2024
Chinook, Spring-run, Unclipped	7.8%(2.2%,13.4%) BY: 2014 - 2023	1.9%(-0.4%,4.1%) BY: 2014 - 2023	3.7%(-2.2%,9.7%) BY: 2014 - 2023	1.0%(-1.1%,3.0%) BY: 2014 - 2023	0.0%(0.0%,0.0%) BY: 2014 - 2023	0.0%(0.0%,0.0%) WY: 2015 - 2024
Steelhead, Unclipped (January-December)	N/A	N/A	N/A	N/A	N/A	N/A

Species	Red Bluff Diversion Dam	Tisdale Rst	Knights Landing Rst	SacTrawl Sherwood Catch Index	Chipps Island Trawl Catch Index	Salvage
Steelhead, Unclipped (December-March)	N/A	N/A	N/A	N/A	N/A	0.1%(-0.2%, 0.4%) WY: 2015 - 2024
Steelhead, Unclipped (April-June)	N/A	N/A	N/A	N/A	N/A	N/A

Table 4. Knight's Landing (KLCI) and Sacramento Seine and Trawl (SCI). No catch indices for juvenile salmonid migration were triggered during the past week.

Date	Knights Landing RST: Winter Chinook: Catch Index	Knights Landing RST: Older Chinook: Catch Index	Sacramento Trawls: Older Chinook: Catch Index	Sacramento Beach Seines: Older Chinook: Catch Index	Alert: Catch Index > 5	Alert: Catch Index 3 < X ≤ 5
2024-12-09	N/A	N/A	0	0.0	N/A	N/A
2024-12-08	0.5	0.5	N/A	N/A	N/A	N/A
2024-12-07	0.0	0.0	N/A	N/A	N/A	N/A
2024-12-06	0.7	1.4	0	1.6	N/A	N/A
2024-12-05	1.2	1.2	N/A	N/A	N/A	N/A
2024-12-04	1.3	1.3	0	0.0	N/A	N/A
2024-12-03	0.0	0.0	N/A	N/A	N/A	N/A
2024-12-02	N/A	N/A	0	2.0	N/A	N/A
2024-12-01	N/A	N/A	N/A	N/A	N/A	N/A

Table 5. Mean daily flow and percent change (Wilkins Slough, Deer Creek, Mill Creek; cfs from CDEC) and temperature and percent change (Knights Landing; °F from RST).

Date	Mill Creek (MLM): mean daily flow (cfs)	Mill Creek (MLM): flow percent change	Mill Creek (MLM): Alert	Deer Creek (DCV): mean daily flow (cfs)	Deer Creek (DCV): flow percent change	Deer Creek (DCV): Alert	Wilkins Slough (WLK): mean daily flow (cfs)	Knights Landing RST: water temper-ature (f)	Alert Triggered
12/9/2024	208.5	-5.8%	Flow>95cfs	129.4	-4.1%	Flow>95cfs	7,122.9	N/A	N/A
12/8/2024	221.4	-6.9%	Flow>95cfs	135.0	-2.2%	Flow>95cfs	7,373.7	42.6	N/A
12/7/2024	237.7	-3.8%	Flow>95cfs	138.0	-3.5%	Flow>95cfs	7,705.2	42.3	WLK>7500cfs and KNL<56.3F
12/6/2024	247.0	0.9%	Flow>95cfs	143.0	-2.8%	Flow>95cfs	8,030.6	42.3	WLK>7500cfs and KNL<56.3F
12/5/2024	244.8	2.8%	Flow>95cfs	147.1	-4.6%	Flow>95cfs	8,407.4	42.0	WLK>7500cfs and KNL<56.3F
12/4/2024	238.2	-5.4%	Flow>95cfs	154.2	-5.6%	Flow>95cfs	8,988.9	41.6	WLK>7500cfs and KNL<56.3F
12/3/2024	251.8	-7.2%	Flow>95cfs	163.4	-5.1%	Flow>95cfs	9,738.4	41.3	WLK>7500cfs and KNL<56.3F

Table 6. STARS model simulations for route-specific entrainment, travel times, and survival. Travel time is calculated in days

Stock	Date	Route	Median Travel Time	Survival	Routing Probability
Winter Chinook	2024-12-08	Overall	6.49	0.34	N/A
Winter Chinook	2024-12-08	Sacramento River	6.00	0.37	0.59
Winter Chinook	2024-12-08	Yolo Bypass	10.16	0.56	0.00
Winter Chinook	2024-12-08	Sutter Slough	6.10	0.35	0.14
Winter Chinook	2024-12-08	Steamboat Slough	5.93	0.43	0.14
Winter Chinook	2024-12-08	Interior Delta	9.66	0.10	0.13
Late-fall Chinook	2024-12-08	Overall	11.80	0.30	N/A
Late-fall Chinook	2024-12-08	Delta Cross Channel	19.49	0.12	0.18
Late-fall Chinook	2024-12-08	Georgiana Slough	17.66	0.17	0.18
Late-fall Chinook	2024-12-08	Sacramento River	8.68	0.40	0.36
Late-fall Chinook	2024-12-08	Sutter and Steamboat Slough	8.86	0.37	0.27

Evaluation

1. How much salmonid loss has occurred in the past week?

a. Loss of juvenile winter-run Chinook Salmon and hatchery surrogate yearling spring-run Chinook Salmon has occurred in the past week. No loss of Steelhead has occurred in the past week at the CVP and SWP fish salvage facilities. (See Table 2a and Table 3a in the Weekly Operations Outlook).

2. Were salmonids observed near the DCC gate in the last seven days?

    a. Juvenile salmonids have been observed this year at delta monitoring locations and may be present near the DCC gates.

3. Given forecasted conditions and observations of salmonids, what are the effects of DCC gate operations on salmonids in the next seven days?

    a. It is possible juvenile winter-run Chinook Salmon are present near the DCC gates. Closure of the gates will positively impact any present juvenile salmonids by preventing entrainment into the interior Delta through the DCC gates. Closure of the DCC gates also reduces straying of Mokelumne River adult fall-run Chinook salmon during the fall attraction flow releases.

Biology Distribution and Evaluation of Green Sturgeon

Population Status

- Delta Life Stages:
    - Adults and Juveniles

Distribution

Current Distribution

- Adults: Most abundant during spring spawning migration period of March through May, and post spawning out-migration periods May through June; October through January depending on first winter storm event resulting in significant Sacramento River flow increases. Adult presence year-round to a lesser extent mainly in San Pablo Bay.
- Juveniles: Age-1 through Age-3 juveniles present year-round and widely distributed. Juveniles tagged with acoustic tags in the main channel Sacramento River near Sherman Island detected in the Sacramento River as far upstream as the Cache Slough complex, in the San Joaquin River at the Antioch Bridge, in Threemile, Horseshoe Bend, and Montezuma Sloughs. Seasonal abundance at the primary sampling site (near Sherman Island) appears to be highest during summer in based on capture and telemetry data. Residence time at the primary sampling site for individual fish ranges from one day to over one year but telemetry data show outmigration from the primary sampling site to the Pacific Ocean ranges from 27 to 552 days. Recent capture data shows diurnal depth preference in the main channel of the Sacramento River. No recent documentation of shallow water habitat presence or foraging.

Historical Trends

- Juvenile and adult green sturgeon are historically present in the San Joaquin and Sacramento rivers and the Delta.

Forecasted Distribution within Central Valley and Delta regions

- Juvenile and adult green sturgeon are present in the San Joaquin and Sacramento rivers and Delta during the next week.

Evaluation

1. Is there likely to be salvage that may exceed the annual loss limit?
    a. Green sturgeon salvage is 0 fish (as of 12/9/2024). The agencies in the SaMT assessed the likelihood of salvage occurring in the next week is unlikely to occur.

Biology, Distribution, and Evaluation of Delta Smelt

Population Status (Brood Year 2024)

- Delta Smelt Life Stages: Juveniles, Subadults and Adults
- The abundance estimate as of the week of 12/02/24 was 1,084 (95% CI: 109 to 4,420).
- Adult, subadult and juvenile Delta Smelt are expected to be present in the Sacramento Deepwater Shipping Channel, Cache Slough/Liberty Island and the Lower Sacramento River.

Distribution

Current Distribution

- Real time detection data is currently limited to Enhanced Delta Smelt Monitoring (EDSM), Chipps Island Trawl (Chipps), and Smelt Larval Survey (SLS). Bay Study and Fall Midwater Trawl Survey provide data as available.
- Since there are few recent detections of Delta Smelt, the Smelt Monitoring Team's capacity to estimate where they are within the Delta is limited.
- The most recent Delta Smelt detections were a juvenile on 11/13/24 in Suisun Marsh and three marked adults on 11/25/24 in the Sacramento Deep Water Ship Channel, 11/27/24 in Cache Slough/Liberty Island, and 12/04/24 in the Lower Sacramento. Four Delta Smelt (3 marked, 1 unmarked) have been detected this water year.
- Larval sampling at the Skinner Fish Facility (SFF) and the Tracy Fish Collection Facility (TFCF) has not yet been initiated this year.

Table 7. Summary of newly reported detections of Delta Smelt since the last assessment. Identifications are considered tentative and additional genetic testing will confirm the identity of individuals. Individuals with no tags are provided alive to the FCCL as potential additions to the FCCL Broodstock. Delta Smelt >58mm FL are considered adults. Subadult fish are considered by the SMT to be fish from the previous year's cohort based on size and timing of collection. Young of year are considered juveniles and larvae. Regions are those defined by EDSM sampling. Salvage values reflect pre-expansion salvage.

Date	Survey	Life Stage	Catch	Tag Type	Stratum/Station	Region
12/04/2024	EDSM	Adult	1	VIE-LBA	Lower Sacramento	West

Table 8. Summary of recent Delta Smelt detections reported since last assessment and the total detections for the current water year. Notes reflect latest information on reported detections or completion of survey for the water year and include both larval and adult detections. Total Fish counts do not distinguish between hatchery origin and wild Delta Smelt. Table indicates detections that have undergone preliminary ID, QA/QC, and genetic confirmation. Numbers are updated as QA/QC and genetic confirmation become available.

Sampling Method	Frequency	New Detections	Preliminary Detections	QA/QC Detections	Genetically Confirmed Detections	Total WY 2025	Notes
EDSM	Weekly	1	N/A	3	N/A	4	Phase 1 began 12/2/2024
SLS	Biweekly	0	N/A	N/A	N/A	0	Began 12/2/24
20-mm	Biweekly	0	N/A	N/A	N/A	0	Begins: 3/10/25
Summer Townet	Biweekly	0	N/A	N/A	N/A	0	Begins: 6/9/25
Bay Study	Monthly	0	N/A	N/A	N/A	0	Ongoing
FMWT	Monthly	0	N/A	N/A	N/A	0	Ongoing
Chipps	Weekly	0	N/A	N/A	N/A	0	Ongoing
FCCL Brood Stock Collections	Weekly	0	N/A	N/A	N/A	0	Began 11/19/2024
LEPS	As available	0	N/A	N/A	N/A	0	Begins: 1/6/25
TFCF	Daily	0	N/A	N/A	N/A	0	Ongoing
Skinner Fish Facility	Daily	0	N/A	N/A	N/A	0	Ongoing

Sampling Method	Frequency	New Detections	Preliminary Detections	QA/QC Detections	Genetically Confirmed Detections	Total WY 2025	Notes
Total	N/A	N/A	N/A	N/A	N/A	4	Sum of all Delta Smelt observed during the OMR Management Season

Cultured Delta Smelt Experimental Releases

- Approximately 100,000 fish are expected to be released for Water Year 2025:
    - 13,573 released on November 18, 2024 at Lookout Slough (truck hard release)
    - 14,880 released on December 9, 2024 at Lookout Slough (truck hard release)
    - 20,000 planned on December 18, 2024 at Lookout Slough
    - 10,000 planned on January 8, 2025 at Sandy Beach in Rio Vista
    - 25,000 planned on January 22, 2025 at Sandy Beach in Rio Vista
    - 15,000 planned on January 27, 2025 at Lookout Slough
- See Current Conditions for the Smelt Monitoring Team (SMT) for details about releases.

Historical Trends

- Upstream migration for Delta Smelt occurs between September and December and in response to "first flush" conditions (Sommer et al. 2011, Grimaldo et al. 2009). Migration typically ranges one to four weeks after flow and turbidity increases, based on salvage data (Sommer et al. 2011).
- Historically, detections of ripe Delta Smelt began in January and peaked in February and March and the majority of Delta Smelt spawning occurs within a temperature range of 9-18˚C (Damon et al. 2016).
- Based on historical monitoring data from the past few years (https://github.com/Delta-Stewardship-Council/deltafish), first detection of larvae in the Central and South Delta has typically occurred by mid to late March.
- Salvage data as presented on SacPas indicates that adult Delta Smelt salvage in recent years has reached the 50th percentile between February and the beginning of March see Delta Smelt Adult query.
- Historically, the highest peak in salvage was in May and the second highest was in June (Grimaldo et al 2009; figure 5).

Forecasted Distribution within Central Valley and Delta regions

- Predicting the distribution of Delta Smelt is currently difficult because detection data is limited to a few wild individuals and historic patterns may not be representative of the low population levels.
- The SMT uses turbidity as a surrogate for Delta Smelt presence and in making assessments of the likelihood of entrainment for larval Delta Smelt after spawning begins.
- The potential of experimentally released Delta Smelt to distribute from their release site is unknown at this time and SMT cannot predict their distribution beyond the original release site and subsequent recaptures. There is a high degree of uncertainty regarding the response of cultured fish to environmental cues typically applied to wild Delta Smelt.

Abiotic Conditions

Turbidity

- In Stockton, calm winds are predicted for this week, and rain predicted between Wednesday night through early next week (Monday). In Antioch, mostly clear conditions are predicted Monday through Wednesday and rain likely between Wednesday evening and Sunday.
- Turbidity is below 12 FNU at Old River at Franks Tract (OSJ), Old River at Bacon Island (OBI), and at other stations in the South Delta.

Table 9. Relevant Environmental Factors to the current management actions for Delta Smelt

Date Reported	FPT 3-day Running Average Flow (cfs)	FPT 3-day Running Average Turbidity (FNU)
12/9/2024	16,874.67	12.3

X2 Conditions

- As of 12/10/2024, X2 was estimated at 76 km.

Other Environmental Conditions

- The Fish and Water Operation Outlook OMR Index values are expected to range between -5,000 to -10,300 cfs this week.
- QWEST was -7,516 cfs as of 12/10/2024 and is expected to range between -2,000 and -9,000 cfs this week.
- Real time tracking of environmental conditions, relevant thresholds and Delta Smelt catch data are updated daily at: Current Conditions for the Smelt Monitoring Teams (SMT).

Evaluation

USBR and DWR Proposed Operations

- Both (CVP and SWP) water projects are operating to the following D-1641 standards: 1) monthly average Delta Outflow (and Rio Vista flow) not less than 4,500 cfs in November, 2) E/I ratio no greater than 0.65, and 3) daily Chlorides at Contra Costa Intake (at Rock Slough) no greater than 250 mg/l.

Questions and Discussions

1. Between December 1 and January 31, has any first flush condition been exceeded?
    a. First flush conditions have not been exceeded since December 1.
2. Do DSM have a high risk of migration and dispersal into areas at high risk of future entrainment? (December 1- January 31)
    a. First flush conditions (3-day average FPT flow >= 25,000 cfs and 3-day average turbidity >= 50 FNU) became conducive to initiating the spawning migration of Delta Smelt on 11/25/24. However, flow and turbidity at FPT peaked on 11/28/24 and decreased below first flush triggers by 12/1/24, thus IEWPP was not enacted. Turbidity remains slightly elevated in the Central Delta as of 12/8/24 (OSJ), but is clear in most of the OMR corridor (<12 FNU). Cultured fish (14,880 individuals) were released at Lookout Slough on 12/09/24. Exports are elevated this week, resulting in OMRI of -5,000 to -10,300 cfs.
    b. Since DSM likely began their spawning migration around 11/25/24, turbidity in the San Joaquin River near the OMR corridor remains near 12 FNU (despite decreased turbidity elsewhere), a precipitation event is likely this week, and OMRI values are highly negative (–5,000 cfs to –10,300 cfs), there is moderate risk of entrainment for Delta smelt.
3. Has a spent female been collected?
    a. The question is not applicable under IOP 2024.
4. If OMR of -2000 cfs does not reduce OBI turbidity below 12NTU/FNU, what OMR target is deemed protective between -2000 and -5000 cfs?
    a. The question is not applicable until Turbidity Bridge Avoidance begins.
5. If OBI is 12 NTU/FNU, what do other station locations show?
    a. The question is not applicable until Turbidity Bridge Avoidance begins.
6. If OBI is 12 NTU/FNU, is a turbidity bridge avoidance action not warranted? What is the supporting information?
    a. The question is not applicable until Turbidity Bridge Avoidance begins.

7. After March 15 and if QWEST is negative, are larval or juvenile DSM within the entrainment zone of the CVP and SWP pumps based on surveys?
    a. This question is not applicable until March 15th.
8. Based on real-time spatial distribution of Delta Smelt and currently available turbidity information, should OMR be managed to no more negative than -3,500?
    a. This question is not applicable until March 15th.
9. What do hydrodynamic models, informed by EDSM or other relevant data, suggest the estimated percentage of larval and juvenile DSM that could be entrained may be?
    a. This question is not applicable until March 15th.

Delta Smelt References

Damon, L. J., S. B. Slater, R. D. Baxter, and R. W. Fujimura. 2016. Fecundity and reproductive potential of wild female Delta smelt in the upper San Francisco Estuary, California. California Fish and Game 102(4):188–210.

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Attachments

- N/A