



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

October 25, 2022

## Executive Summary

### Operational Conditions

See Weekly Fish and Water Operation Outlook document for October 25 – October 31.

### Winter-run Chinook Salmon

No loss of natural winter-run Chinook Salmon (by length at date, LAD) has occurred in the past week at the State or Federal fish salvage facilities. Loss of natural winter-run Chinook Salmon at the Central Valley Project (CVP) and State Water Project (SWP) fish collection facilities is unlikely to occur over the next week. 0% of juvenile natural winter-run Chinook Salmon from brood year (BY) 22 are estimated to be present in the Delta. The Delta Cross Channel (DCC) gates closure reduces far-field effects on winter-run Chinook Salmon juveniles that are potentially present in the Sacramento River near the DCC gates into the interior 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. No estimation of juvenile natural spring-run Chinook Salmon was discussed this week. There are no juvenile natural spring-run Chinook Salmon from BY 22 near the DCC gates; CV spring-run Chinook Salmon adults have completed spawning and eggs are in gravel. The DCC closure is unlikely to affect natural spring-run Chinook Salmon in the next seven days.

### 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. No estimation of juvenile CCV Steelhead was discussed this week. DCC closure reduces exposure to Central Valley steelhead juveniles that are potentially present in the Sacramento River near the DCC gates.

### DCC gates recommendation

The DCC gates were closed on 10/24/2022 to meet Rio Vista flows criteria. Closing the DCC gate may also reduce straying of Mokelumne River fall-run Chinook Salmon attracted by Mokelumne flows. The DCC gate is currently scheduled to re-open on 10/28/2022 for

salinity/seasonal weekend operation, and to allow boaters passage to the interior Delta. The gates will then be closed again on 10/31/2022.

### Monitoring Teams summary

There were no non-consensus issues to report from the Salmon 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
- Supporting Information regarding Exposure
  - Catch at Red Bluff Diversion Dam was beginning to increase in late September, which suggests that juvenile winter-run Chinook Salmon have started their migration towards the middle reaches of the Sacramento River. Tisdale and GCID rotary screw traps have observed some winter-run Chinook Salmon.
- Supporting Information regarding DCC Management Effects
  - DCC gate operations will continue with a weekday closed/weekend open pattern. There are no modeling alternatives for water quality due to the Rio Vista flow requirement and a case where the DCC gates left open would likely cause a violation to D-1641.

See Attachment A – Mokelumne River pulse flow plan plot and data.

#### Spring-run Chinook Salmon

- Delta Life Stages:
  - Young-of-year (YOY) and Yearlings
- Supporting Information regarding Exposure
  - See additional supporting information found in winter-run Chinook Salmon section.

Mill Creek and Deer Creek daily flows were recorded less than 95 cfs over the past week.

- Supporting Information regarding DCC Management Effects
  - See additional supporting information in winter-run Chinook Salmon section.

### Central Valley Steelhead

- Delta Life Stages:
  - Spawning Adults, Kelts, Juveniles
- Supporting Information regarding Exposure of CCV Steelhead
  - See Additional supporting information found in winter-run Chinook Salmon.
- Supporting Information regarding DCC Management Effects on Central Valley steelhead
  - See additional supporting information found in winter-run Chinook Salmon.

### Distribution

Table 1. 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: 100 % Last Week: 100 %	Current: 0% Last Week: 0 %	Current: 0% Last Week: 0 %
YOY spring-run Chinook salmon	Current: NA Last Week: NA	Current: NA Last Week: NA	Current: NA Last Week: NA
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: NA Last Week: NA	Current: NA Last Week: NA	Current: NA Last Week: NA

Table 2. Historic migration and salvage patterns. Last updated 10/24/2022.

Date (10/03)	Red Bluff Diversion Dam	Tisdale RST	Knights Landing RST	Sac Trawl (Sherwood) Catch Index	Chipps Island Trawl Catch Index	Salvage
Chinook, Winter-run, Unclipped	66.1% (57.4%,74.8%) BY: 2012 - 2021	8.0% (1.9%,14.1%) BY: 2012 - 2021	7.0% (2.2%,11.8%) BY: 2013 - 2021	0.0% (0.0%,0.0%) BY: 2012 - 2021	0.0% (0.0%,0.0%) BY: 2012 - 2021	0.0% (0.0%,0.0%) WY: 2013 - 2022
Chinook, Spring-run, Unclipped	1.5% (-1.0%,4.0%) BY: 2012 - 2021	0.0% (0.0%,0.0%)	0.0% (0.0%,0.0%) BY: 2013 - 2021	0.0% (0.0%,0.0%)	0.0% (0.0%,0.0%)	0.0% (0.0%,0.0%) WY: 2013 - 2022

Date (10/03)	Red Bluff Diversion Dam	Tisdale RST	Knights Landing RST	Sac Trawl (Sherwood) Catch Index	Chippis Island Trawl Catch Index	Salvage
Steelhead, Unclipped (-December-March)	N/A	N/A	N/A	N/A	N/A	0.0% (0.0%,0.0%) WY: 2013 - 2022

Table 3. Knight’s Landing (KLCI) and Sacramento Seine and Trawl (SCI). No catch indices for juvenile salmonid migration were triggered during the past week.

Date	KLCI	SCI Trawl	SCI Seine	Trigger Exceeded
10/16/22	0	N/A	N/A	No
10/17/22	0	0	0	No
10/18/22	0	N/A	N/A	No
10/19/22	0	0	0	No
10/20/22	0	N/A	N/A	No
10/21/22	0	0	0	No
10/22/22	0	N/A	N/A	No
10/23/22	0	N/A	N/A	No

Table 4. 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 flow (MLM)	MLM Change	MLM Alert	Deer Creek flow (DCV)	DCV Change	DCV Alert	Wilkins Slough flow (WLK)	Knights Landing temperature (°F)	Alert Triggered
10/23/2022	84.0	0.8%	N/A	70.2	0.7%	N/A	3211.2	N/A	N/A
10/22/2022	83.3	0.8%	N/A	69.8	1.6%	N/A	3222.7	N/A	N/A
10/21/2022	82.6	0.1%	N/A	68.7	1.0%	N/A	3222.9	50.5	N/A
10/20/2022	82.5	0.1%	N/A	68.0	-2.0%	N/A	3223.6	50.8	N/A
10/19/2022	82.5	-0.2%	N/A	69.4	-0.8%	N/A	3214.2	50.8	N/A
10/18/2022	82.6	0.0%	N/A	70.0	0.6%	N/A	3211.8	50.9	N/A
10/17/2022	82.6	0.7%	N/A	69.6	1.6%	N/A	3208.8	51	N/A

Table 5. STARS model simulations for route-specific entrainment, travel times, and survival.

Date (10/24/2022)	DCC	Georgiana Slough	Sacramento River	Sutter and Steamboat	Interior Delta
Stock: Late Fall Run	N/A	N/A	N/A	N/A	N/A

Date (10/24/2022)	DCC	Georgiana Slough	Sacramento River	Sutter and Steamboat	Interior Delta
Proportion of Entrainment	0	0.32	0.44	0.24	N/A
Survival	N/A	0.15	0.47	0.34	N/A
Travel Time	N/A	19.9d	12.0d	12.4d	N/A
Stock: Winter Run	N/A	N/A	N/A	N/A	N/A
Proportion of Entrainment	N/A	N/A	0.57	0.14, 0.15	0.14
Survival	N/A	N/A	0.01	0.02, 0.01	0
Travel Time	N/A	N/A	6.9d	6.9d, 6.6d	10.4d

## Evaluation

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

No loss of juvenile winter-run Chinook Salmon, spring-run Chinook Salmon, or Steelhead has occurred in the past week at the CVP and SWP fish salvage facilities.

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

Juvenile salmonids have not been observed this year near the DCC gates and historical monitoring data indicates that they are not present in the Delta in significant numbers at this time. Closure of the DCC gates would reduce likelihood of entraining juvenile salmonids into the Interior Delta.

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

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

# Attachment A. - Mokelumne River Pulse Flow Plan

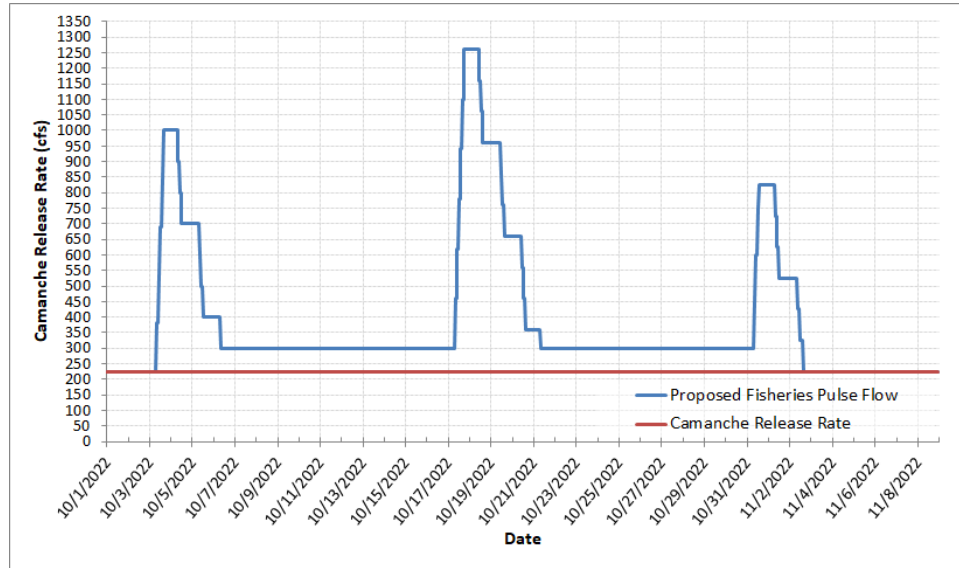


Figure A1. October 2022 Mokelumne River Pulse Flow plan (source: 2022 Camanche Pulse Flow Plan\_Schedule; tab: Pulse Flow – Hourly INPUT)

Table A1. October 2022 Mokelumne River Pulse Flows Accounting (source: 2021 Camanche Pulse Flow Plan\_Schedule; tab: Pulse Flow Accounting)

Date	JSA Minimum Release (cfs)	INPUT - Base Flow - JSA Min + Buffer (cfs)	Add. Pulse Flow (cfs)	Total Release (cfs)	Daily Release Volume (AF)	Cumulative Release Volume (AF)	Add. Pulse Flow (AF)
10/1/22	220	225	0	225	446	446	N/A
10/2/22	220	225	0	225	446	893	N/A
10/3/22	220	225	388	613	1,215	2,107	769
10/4/22	220	225	600	825	1,636	3,744	1190
10/5/22	220	225	300	525	1,041	4,785	595
10/6/22	220	225	108	333	661	5,446	215
10/7/22	220	225	75	300	595	6,041	149
10/8/22	220	225	75	300	595	6,636	149
10/9/22	220	225	75	300	595	7,231	149
10/10/22	220	225	75	300	595	7,826	149

Date	JSA Minimum Release (cfs)	INPUT - Base Flow - JSA Min + Buffer (cfs)	Add. Pulse Flow (cfs)	Total Release (cfs)	Daily Release Volume (AF)	Cumulative Release Volume (AF)	Add. Pulse Flow (AF)
10/11/22	220	225	75	300	595	8,421	149
10/12/22	220	225	75	300	595	9,017	149
10/13/22	220	225	75	300	595	9,612	149
10/14/22	220	225	75	300	595	10,207	149
10/15/22	220	225	75	300	595	10,802	149
10/16/22	220	225	75	300	595	11,397	149
10/17/22	220	225	515	740	1,468	12,864	1021
10/18/22	220	225	898	1,123	2,226	15,091	1780
10/19/22	220	225	598	823	1,631	16,722	1185
10/20/22	220	225	298	523	1,036	17,759	590
10/21/22	220	225	95	320	635	18,393	188
10/22/22	220	225	75	300	595	18,988	149
10/23/22	220	225	75	300	595	19,583	149
10/24/22	220	225	75	300	595	20,179	149
10/25/22	220	225	75	300	595	20,774	149
10/26/22	220	225	75	300	595	21,369	149
10/27/22	220	225	75	300	595	21,964	149
10/28/22	220	225	75	300	595	22,559	149
10/29/22	220	225	75	300	595	23,154	149
10/30/22	220	225	75	300	595	23,749	149
10/31/22	220	225	369	594	1,178	24,926	731
11/1/22	220	225	425	650	1,289	26,216	843
11/2/22	220	225	146	371	736	26,951	289
11/3/22	220	225	0	225	446	27,398	N/A
11/4/22	220	225	0	225	446	27,844	N/A
11/5/22	220	225	0	225	446	28,290	N/A
11/6/22	220	225	0	225	446	28,736	N/A
11/7/22	220	225	0	225	446	29,183	N/A
11/8/22	220	225	0	225	446	29,629	N/A