Weekly Fish and Water Operations Outlook 3/29/2022 – 4/4/2022

Showers with cooler weather to start this week. Mild temperatures for rest of week, but with dry conditions.

Tributary/ Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions*
Clear Creek	• Current Release: 200 cfs • Anticipated Weekly Range of Releases: 200 cfs	• Spring-run and fall-run Chinook Salmon juveniles are rearing in Clear Creek. • Adult spring-run Chinook salmon are beginning to enter Clear Creek. • O. mykiss/steelhead spawning will continue through March. Fry are starting to emerge. • Late-fall run Chinook Salmon eggs are incubating. *(updated 3/28/22)*

Tributary/ Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions*
Sacramento River	• Shasta Storage: 1.728 MAF • Current Release: 3,250 cfs • Anticipated Weekly Range of Releases: 3,250 cfs	• Natural origin winter-run Chinook Salmon juveniles present in very low numbers above RBDD and distributed throughout the Sacramento River and to the Delta. • Hatchery releases of juvenile winter-run Chinook salmon from Livingston Stone Hatchery are complete: fish were released on 2/9/2022 and 3/2/2022 at boat ramp in Redding area. Hatchery releases of winter-run Chinook salmon from Coleman NFH are complete: fish were released in Battle Creek on 3/16/2022 and 3/17/2022. • Winter-run Chinook salmon adults present in increasing numbers and are holding from RBDD to Keswick Dam. • Spring-run Chinook Salmon fry present and migrating downstream. Spring-run juvenile passage has slowed, and fall-run Chinook salmon are the dominant run passing at RBDD currently. • Fall-run Chinook Salmon have all emerged from gravel, outmigration passage at RBDD is ongoing daily (catch composed of primarily fall run, mostly hatchery origin). Hatchery origin fall-run juveniles were released into Battle Creek from Coleman National Fish Hatchery. • Late fall-run Chinook Salmon spawning occurring, eggs and alevins in the gravel and fry are emerging. • Green Sturgeon adults and juveniles present in lower river with Delta entry likely. • Adult steelhead present; juveniles beginning to emerge and present in low numbers from upper river catch. (*updated 3/28/22*)
Feather River	• Oroville Storage: 1.66 MAF • Current Release: 3,500 cfs • Anticipated Weekly Range of Releases: 2,500 to 4,000 cfs • Daily temperature targets: 55°F at Fish Hatchery	• Fall-run Chinook Salmon fry are emerging and emigrating • Adult steelhead are present, and their spawning has commenced and will continue into April. • Spring-run Chinook Salmon fry are present and emigrating • Adult green sturgeon present. (*updated 2/22/22)*

Tributary/ Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions*
American River	• Folsom Storage: 568 TAF • Current Release: 1,200 cfs • Anticipated Weekly Range of Releases: 900 to 1,450 cfs	• Fall-run Chinook Salmon juveniles are present. • Juvenile and adult O. mykiss are present. Spawning is ongoing and eggs are in gravel. *(updated 3/21/22)*
Stanislaus River	• New Melones Storage: 941 TAF • Current Release: 300 cfs • Anticipated Range of Weekly Releases: 200 to 500 cfs	• Juvenile and adult O. mykiss are present. Spawning is ongoing and eggs are in gravel. • Fall-run Chinook Salmon juveniles are present. (*updated 3/21/22)*
Delta	• Freeport: 8,000 to 9,500 cfs • Vernalis: 700 to 1,000 cfs • Delta Outflow index: 6,500 to 10,000 cfs • Combined Exports: 800 to 5,200 cfs • JPP: 800 cfs to 2,700 cfs • CCF: 0 cfs to 2,500 cfs • Expected OMR Index Values: -500 to -5,000 cfs • DCC Gates: Closed as of 11/30/2021	• Juvenile winter-run Chinook Salmon 1-5% yet to enter Delta, 75-84% in Delta, 15-20% exited Delta past Chipps Island • YOY spring-run Chinook Salmon: 10-25% yet to enter Delta, 75-90% in Delta, 0% exited past Chipps Island • Juvenile Steelhead: 30-50% yet to enter Delta, 35-50% in Delta, 15-20% exited Delta past Chipps Island • Adult fall-run Chinook Salmon entering Delta and migrating upstream towards spawning grounds • Adult steelhead present • Adult and juvenile Green Sturgeon present • Adult Delta Smelt are present in the Sacramento Deep Water Ship Channel (DWSC), lower Sacramento River, Suisun Marsh, South Delta, and lower San Joaquin River. Delta Smelt with a migratory life history are expected to have moved upstream and water temperatures are within the range for spawning. • Larval Delta Smelt have been detected in the Lower San Joaquin River. • Longfin Smelt sub-adults and adults are present at Chipps and Suisun Bay/Marsh. Longfin Smelt larvae are present in the central and south Delta, lower Sacramento River, confluence and downstream. (*updated 3/29/22*)

* Environmental and fish conditions updated by respective watershed groups at varying intervals that may not coincide with the weekly range of Water Operations

There is an Interim Operations Plan (IOP) currently in effect resulting from a court order on 3/11/2022.

Table 2a-b: WY 2022 relevant Fish and Environmental Criteria and Status in 2019 Reclamation LTO Action Cumulative loss for the duration of 2019 Biological Opinion began upon signature of ROD, 2/19/2020.

Table 2a: WY 2022 Salmonid Current Loss and Delta Smelt Abiotic Conditions. Additional Real-Time OMR Restrictions and Performance Objectives (4.10.5.10.2) and Onset of OMR Management (4.10.5.10.1).

Species/run	Threshold	Current Status	Weekly Trend	Updated
Green sturgeon	WY 2022 salvage = 74	WY 2022 salvage = 0 (0%)	No change expected	3/27/2022
Natural winter-run Chinook Salmon	WY 2022 loss = 731.47 (50% of 1.17% of JPE)	WY 2022 loss = 20.56 (2.81%)	Possible additional salvage	3/27/2022
Natural Steelhead *	Dec 1 – Mar 31 = 707 (50% of 1,414) Apr 1 – June 15 = 776 (50% of 1,552)	Dec 1 – Mar 31 = 73.4 (10.4%) Apr 1 – June 15 = 0 (0%)	Possible additional salvage	3/27/2022
Sacramento River Hatchery winter-run Chinook salmon	WY 2022 loss = 90.93 (50% of 0.12% of JPE)	WY 2022 loss = 3.52 (3.9%)	Possible salvage	3/27/2022
Battle Creek Hatchery winter-run Chinook salmon	WY 2022 loss = 4.39 (50% of 0.12% of JPE)	WY 2022 loss = 0 (0%)	Unlikely salvage	3/27/2022
Proposed Action Hatchery yearling spring-run Chinook salmon surrogates	> 0.5% of each release group: 1) 12/15/2021: 84,343 = 421.7 2) 12/22/2021: 82,626 = 413.1 3) 1/6/2022: 77,325 = 386.6	1) 48.18 (11.4%) 2) 17.61 (4.3%) 3) 20.04 (5.2%)	Possible additional salvage	3/27/2022
Delta Smelt	Daily avg. Turbidity at OBI=>12 FNU	OBI daily Avg Turbidity = 5.44	No Change Expected	3/29/2022

* Steelhead observed on 10/30/2021 and 11/19/2021 are included in the December 1 through March 31 period

Table 2b. 10-Year Salmonid Cumulative Loss

Species/run	Threshold	Current Status	Updated
Natural winter-run Chinook salmon	Loss = 8,738	Cumulative loss = 225.45 (2.58%)	3/27/2022
Hatchery winter-run Chinook salmon	Loss = 5,356	Cumulative loss = 3.52 (0.07%)	3/27/2022
Natural steelhead	Loss = 6,038 (Dec 1 – Mar 31) Loss = 5,826 (Apr 1 – June 15)	Cumulative loss = 516.6 (8.6%, Dec 1 – Mar 31) 374.8 (6.4%, Apr 1 – June 15)	3/27/2022

Table 3a-d: Relevant Water Year 2022 Fish Criteria and Status for Listed Fish under the SWP Long-Term Incidental Take Permit.

Table 3a: Chinook Salmon

Action	Timeframe	Current Action Status	Threshold(s)	Current Relevant Data	Weekly Trend	Last Updated	Comments
OMR Mgmt. triggered (8.3.2)	Jan. 1 - Jun. 30 *(when ≥ 5% of spring-run or winter- run in Delta)*	In effect	- 5% of the Winter-run or Spring-run population in Delta	Winter-run = 75-84% estimated in the Delta; Spring-run = 75-90% estimated in the Delta	Potential increase in presence of winter and spring-run	3/29/22	Based on 3/29/22 SaMT discussion
Winter-run yearly loss (8.6.1)	Nov. 1 - Jun. 30	In effect WY 2022 loss = 1462.94	731.47 (50% of 1.17% of JPE)	Current yearly WR loss (natural) = 20.56; Current yearly WR loss (hatchery) = 3.52	Possible additional salvage of natural Winter-run	3/28/22	Based on salvage data from 3/27/22

Action	Timeframe	Current Action Status	Threshold(s)	Current Relevant Data	Weekly Trend	Last Updated	Comments
Winter-run discrete daily loss (8.6.2)	Nov. 1 - Dec. 31	Not in effect	12/1-12/31: loss 26/day unclipped older juv. Winter-run	max single daily loss from previous week = 3.52 fish	N/A	1/3/22	N/A
Mid and late season Winter-run daily loss threshold (8.6.3)	Jan 1 – May 30	In effect	Mar 1-Mar 31 (0.000146 % of JPE) = 18.26 Apr 1-Apr 30 (0.0000507% of JPE) = 6.34	max single daily loss of Winter-run from previous week = 0 fish	N/A	3/28/22	Based on salvage data from 3/27/22
Spring-run surrogate protection (8.6.4)	Feb. 1 - Jun. 30	In effect	-Coleman Group 1 of 719,838 ad-clip x 0.25% = 1799.59 fish - Coleman Group 2 of 749,368 ad-clip x 0.25% = 1873.42 fish -Feather Group 1 of 729,379 ad-clip x 0.25% = 1,823.45 fish	Cumulative loss Coleman fall-run = 0.00 fish Cumulative loss Feather spring-run = 0.00 fish	There is potential for the first Coleman fall-run surrogate salvage to be observed this week	3/28/22	Based on salvage data from 3/27/22

Table 3b: Delta Smelt

Action	Timeframe	Current Action Status	Threshold(s)	Current Relevant Data	Weekly Trend	Last Updated	Comments
Integrated Early Winter Pulse Protection ('First Flush') (8.3.1)	Dec. 1 - Jan. 31	Not in effect, triggered on Dec 17, last day of action was 1/2/22	- three-day Freeport daily flow running avg >= 25,000 AND [three-day Freeport turbidity running avg >=50 NTU OR Smelt Monitoring Team recommendation]	N/A	N/A	N/A	N/A
Turbidity Bridge Avoidance (8.5.1)	Dec. 15 - Apr. 1	In effect, not triggered	Occurs after the Integrated Early Winter Pulse protection or February 1 (whichever until April 1) comes first - avg. OBI turbidity > 12 NTU	OBI 8.41 FNU	No change expected	3/28/22	Data from 3/27/22
Larval and/Juvenile Delta smelt Protection (8.5.2)	ongoing	In effect, not triggered	- 5-day cum. salvage of juv. DS >= 1 [average 3-yr FMWT index + 1] OR, 3-day cum. salvage of juv. DS >11	current 5-day salvage = 0	no change expected	3/28/22	Based on salvage data from 3/27/22

Table 3c: Longfin Smelt

Action	Timeframe	Current Action Status	Threshold(s)	Current Relevant Data	Weekly Trend	Last Updated	Comments
Early Adult Protection (8.3.3)	Dec. 1 - Feb. 28	Offramped	- Cum. salvage > [most recent FMWT/10] = 1 fish (Sept.-Oct. Index) OR - Smelt Monitoring Team determines high likelihood of LFS movement into high-risk areas	N/A	N/A	N/A	N/A
OMR Mgt. for Adults (8.4.1)	Dec. 1 -Feb. 28	Offramped	- Smelt Monitoring Team recommendation	N/A	N/A	N/A	N/A
Larval and Juvenile Longfin Smelt Entrainment Protection (8.4.2)	Jan 1 – Jun 30	In effect, Triggered	- LFS larvae or juveniles in >=4 SLS or 20 mm stations in central and south Delta, OR - LFS catch/tow >5 larvae or juveniles in >=2 stations	SLS 5 detected larvae at 4 stations in the south and central delta	Hatching underway	3/28/22	SLS 5 sampled week of 3/7/22
High Flow OMR Off-Ramp for Longfin Smelt (8.4.3)	Based on the status of 8.3.3, 8.4.1, & 8.4.2	In effect, not triggered	- Sac. R. at Rio Vista >55,000, OR SJR at Vernalis >8,000	Rio Vista = 5,000 to 8,000 cfs SJ = 700 to 1,000 cfs	N/A	3/29/22	N/A

Table 3d: OMR

Action	Timeframe	Current Action Status	Threshold(s)	Current Relevant Data	Weekly Trend	Last Updated	Comments
OMR Mgmt. Offramp (8.3.2)	Jun. 1 – Jun. 30	Not in effect	- >95% of the Winter-run and Spring run populations have migrated past Chipps Island AND - Current daily average water temperature at Mossdale exceeds22.2°C for 7 nonconsecutive days in June AND - Current daily average water temperature at Prisoners Point exceeds 22.2°C for 7 non-consecutive days in June. - Current daily mean water temperature at CCF is greater than 25°C for three consecutive days	N/A	N/A	10/4/21	N/A

Table 4. Fish monitoring gear efficiency and disruptions.

Monitoring Survey	**Notes (as of 3/29/2022)**	**Status ***
Delta	N/A	N/A
SWP regular counts, CWT reading, and larval sampling	Active	1
CVP regular counts, CWT reading, and larval sampling	Active	1
Smelt Larval Survey	Active	4
LEPS	Active	4
20mm Survey	Active	1
Spring Kodiak Trawl	Active	1
Fall Mid-water Trawl	Not Active	4
Summer Townet Survey	Not Active	4
Bay Study	Active	1
DJFMP- Chipps and Sacramento Trawls	Active	1
DJFMP- Seines	Active (no South Delta seine runs)	2
EDSM	Active	1
EMP	Active	1
Mossdale	Active	1
USGS Flow monitoring	Active	1
Sacramento River	N/A	N/A
Red Bluff Diversion Dam screw trap	Active	1

Monitoring Survey	Notes (as of 3/29/2022)	Status *
Knights Landing screw trap	Active	1
Tisdale screw trap	Active	1
GCID screw trap	Active	1
Redd dewatering and stranding surveys	Not Active	4
Sacramento Carcass and Redd Surveys	Active	1
Lower Sacramento Rotary Screw Trap	Active	1
Feather River	N/A	N/A
Feather River screw trap	Active (weekdays only)	1
San Joaquin River	N/A	N/A
SJRRP CDFW Field Monitoring	Active	1
SJRRP USFWS and USBR Field Monitoring	Active	1
Stanislaus Fish Weir	Active	1

* Status: Weekly categories include:
[1] Active (ongoing sampling)
[2] Partial Interruption (some sampling interruptions)
[3] Interrupted (sampling fully suspended)
[4] Not Active (sampling not scheduled)