

Weekly Fish and Water Operations Outlook 3/8/2022 – 3/14/2022

Breezy on Monday. Dry and mild temperatures Monday and Tuesday. A minor “brush-by” weather system could bring some showers to the northern Sierras on Wednesday. Dry and mild temperatures return for remainder of the week.

Tributary/Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions*
Clear Creek	<ul style="list-style-type: none"> • Current Release: 200 cfs • Anticipated Weekly Range of Releases: 200 cfs 	<ul style="list-style-type: none"> • Spring-run Chinook Salmon juveniles are rearing in Clear Creek. • Fall-run Chinook salmon continue their emergence and many fry are rearing in Clear Creek. • O. mykiss/steelhead adults are present, migrating, and spawning. Their spawning will continue through March. A few fry are starting to emerge. • Late-fall run Chinook Salmon are spawning and it will continue through February. <p><i>(updated 2/28/22)</i></p>

Tributary/Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions*
Sacramento River	<ul style="list-style-type: none"> • Shasta Storage: 1.699 MAF • Current Release: 3,250 cfs • Anticipated Weekly Range of Releases: 3,250 cfs 	<ul style="list-style-type: none"> • 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. • 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. • Some fall-run Chinook Salmon alevin remain in gravel, fry emergence and passage at RBDD is ongoing daily. • Late fall-run Chinook Salmon spawning occurring, eggs and alevins in the gravel. • Green Sturgeon adults and juveniles present in lower river with Delta entry likely. • Adult steelhead present; juveniles absent from upper river catch. <p><i>(updated 3/7/22)</i></p>
Feather River	<ul style="list-style-type: none"> • Oroville Storage: 1.640 MAF • Current Release: 5,250 cfs • Anticipated Weekly Range of Releases: 2,000 to 5,500 cfs • Daily temperature targets: 55°F at Fish Hatchery 	<ul style="list-style-type: none"> • 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. <p><i>(updated 2/22/22)</i></p>
American River	<ul style="list-style-type: none"> • Folsom Storage: 523 TAF • Current Release: 2,000 cfs • Anticipated Weekly Range of Releases: 1,500 to 2,000 cfs 	<ul style="list-style-type: none"> • Fall-run Chinook Salmon have finished spawning. Eggs are in gravel and fry are emerging. • Juvenile and adult O. mykiss are present. Spawning is ongoing and eggs are in gravel. <p><i>(updated 2/28/22)</i></p>

Tributary/Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions*
Stanislaus River	<ul style="list-style-type: none"> • New Melones Storage: 974 TAF • Current Release: 700 cfs • Anticipated Range of Weekly Releases: 500 to 700 cfs 	<ul style="list-style-type: none"> • Juvenile and adult <i>O. mykiss</i> are present. Spawning is ongoing and eggs are in gravel. • Fall-run Chinook Salmon have finished spawning. Eggs are in gravel and fry are emerging. <p><i>(updated 2/28/22)</i></p>
Delta	<ul style="list-style-type: none"> • Freeport: 8,500 to 13,000 cfs • Vernalis: 900 to 1,200 cfs • Delta Outflow index: 6,500 to 12,000 cfs • Combined Exports: 800 to 3,300 cfs • JPP: 800 cfs to 1,800 cfs • CCF: 0 cfs to 1,500 cfs • Expected OMR Index Values: -500 to -3,000 cfs • DCC Gates: Closed as of 11/30/2021 	<ul style="list-style-type: none"> • Juvenile winter-run Chinook Salmon 0-15% yet to enter Delta, 80-90% in Delta, 5-10% exited Delta past Chipps Island • YOY spring-run Chinook Salmon: 20-35% yet to enter Delta, 65-80% in Delta, 0% exited past Chipps Island • Juvenile Steelhead: 36-56% yet to enter Delta, 29-44% 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. • 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. <p><i>(updated 3/8/22)</i></p>

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

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	3/6/2022
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	3/6/2022
Natural Steelhead *	Dec 1 – Mar 31 = 707 (50% of 1,414) Apr 1 – June 15 = 776 (50% of 1,552)	Dec 1 – Mar 31 = 62.52 (8.8%) Apr 1 – June 15 = 0 (0%)	Possible additional salvage	3/6/2022
Sacramento River Hatchery winter-run Chinook salmon	WY 2022 loss = 90.93 (50% of 0.12% of JPE)	WY 2022 loss = 0 (0%)	Possible salvage	3/6/2022
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) 16.16 (4.2%)	Likely additional salvage	3/6/2022
Delta Smelt	Daily avg. Turbidity at OBI=>12 FNU	OBI daily Avg Turbidity = 3.24	No Change Expected	3/8/2022

* 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%)	3/6/2022
Hatchery winter-run Chinook salmon	Loss = 5,356	Cumulative loss = 0 (0%)	3/6/2022
Natural steelhead	Loss = 6,038 (Dec 1 – Mar 31) Loss = 5,826 (Apr 1 – June 15)	Cumulative loss = 505.72 (8.4%, Dec 1 – Mar 31) 374.8 (6.4%, Apr 1 – June 15)	3/6/2022

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 <i>(when ≥ 5% of spring-run or winter-run in Delta)</i>	In effect	- 5% of the Winter-run or Spring-run population in Delta	Winter-run = 80-90% estimated in the Delta; Spring-run = 65-78% estimated in the Delta	Potential increase in presence of winter and spring-run	3/7/22	Based on 3/1/22 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) = 0	Possible additional salvage of natural Winter-run	3/7/22	Based on salvage data from 3/6/22

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	max single daily loss of Winter-run from previous week = 0 fish	N/A	3/7/22	Based on salvage data from 3/6/22
Spring-run surrogate protection (8.6.4)	Feb. 1 - Jun. 30	Not in effect (Fish has not been released)	TBD (based on the number of fish released)	NA	N/A	2/7/22	N/A

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 $\geq 25,000$ <u>AND</u> [three-day Freeport turbidity running avg ≥ 50 NTU <u>OR</u> 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 3.40 FNU	No change expected	3/7/22	Data from 3/6/22
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] <u>OR</u> , 3-day cum. salvage of juv. DS > 11	current 5-day salvage = 0	no change expected	3/7/22	Based on salvage data from 3/6/22

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) <u>OR</u> - 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 4 detected larvae at 5 stations in the south and central delta, triggering both the density and distribution triggers	Hatching underway	3/7/22	SLS 4 sampled week of 2/22/22
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, <u>OR</u> SJR at Vernalis >8,000	Rio Vista = 6,000 to 10,000 cfs SJ = 900 to 1,200 cfs	N/A	3/7/22	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	<ul style="list-style-type: none"> - >95% of the Winter-run and Spring run populations have migrated past Chipps Island <u>AND</u> - Current daily average water temperature at Mossdale exceeds 22.2°C for 7 nonconsecutive days in June <u>AND</u> - 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 3/8/2022)	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	1
LEPS	Active	1
20mm Survey	Not Active	4
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 East Bay and 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

Monitoring Survey	Notes (as of 3/8/2022)	Status *
Red Bluff Diversion Dam screw trap	Active	1
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)