

# Weekly Fish and Water Operations Outlook 3/15/2022 – 3/21/2022

Valley rain and mountain snow Monday night through Tuesday, then mild and dry Wednesday through Friday. Rain and snow chances return Saturday with a much cooler system.

Tributary/ Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions*
Clear Creek	<ul style="list-style-type: none"> <li>• Current Release: 200 cfs</li> <li>• Anticipated Weekly Range of Releases: 200 cfs</li> </ul>	<ul style="list-style-type: none"> <li>• Spring-run and fall-run Chinook Salmon juveniles are rearing in Clear Creek.</li> <li>• O. mykiss/steelhead spawning will continue through March. Fry are starting to emerge.</li> <li>• Late fall run Chinook Salmon eggs are incubating.</li> </ul> <p><i>(updated 3/14/22)</i></p>
Sacramento River	<ul style="list-style-type: none"> <li>• Shasta Storage: 1.708 MAF</li> <li>• Current Release: 3,250 cfs</li> <li>• Anticipated Weekly Range of Releases: 3,250 cfs</li> </ul>	<ul style="list-style-type: none"> <li>• Natural origin winter-run Chinook Salmon juveniles present in very low numbers above RBDD and distributed throughout the Sacramento River and to the Delta.</li> <li>• 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.</li> <li>• Winter-run Chinook salmon adults present in increasing numbers and are holding from RBDD to Keswick Dam.</li> <li>• 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.</li> <li>• Fall-run Chinook Salmon have all emerged from gravel, outmigration passage at RBDD is ongoing daily. Hatchery origin fall-run juveniles are being released into Battle Creek from Coleman National Fish Hatchery.</li> <li>• Late fall-run Chinook Salmon spawning occurring, eggs and alevins in the gravel and fry are emerging.</li> <li>• Green Sturgeon adults and juveniles present in lower river with Delta entry likely.</li> <li>• Adult steelhead present; juveniles beginning to emerge and present in low numbers from upper river catch.</li> </ul> <p><i>(updated 3/14/22)</i></p>

Tributary/ Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions*
Feather River	<ul style="list-style-type: none"> <li>• Oroville Storage: 1.614 MAF</li> <li>• Current Release: 2,500 cfs</li> <li>• Anticipated Weekly Range of Releases: 2,000 to 3,000 cfs</li> <li>• Daily temperature targets: 55°F at Fish Hatchery</li> </ul>	<ul style="list-style-type: none"> <li>• Fall-run Chinook Salmon fry are emerging and emigrating</li> <li>• Adult steelhead are present, and their spawning has commenced and will continue into April.</li> <li>• Spring-run Chinook Salmon fry are present and emigrating</li> <li>• Adult green sturgeon present.</li> </ul> <p><i>(updated 2/22/22)</i></p>
American River	<ul style="list-style-type: none"> <li>• Folsom Storage: 521 TAF</li> <li>• Current Release: 1,500 cfs</li> <li>• Anticipated Weekly Range of Releases: 1,250 to 1,500 cfs</li> </ul>	<ul style="list-style-type: none"> <li>• Fall-run Chinook Salmon juveniles are present.</li> <li>• Juvenile and adult O. mykiss are present. Spawning is ongoing and eggs are in gravel.</li> </ul> <p><i>(updated 3/14/22)</i></p>
Stanislaus River	<ul style="list-style-type: none"> <li>• New Melones Storage: 959 TAF</li> <li>• Current Release: 400 cfs</li> <li>• Anticipated Range of Weekly Releases: 200 to 500 cfs</li> </ul>	<ul style="list-style-type: none"> <li>• Juvenile and adult O. mykiss are present. Spawning is ongoing and eggs are in gravel.</li> <li>• Fall-run Chinook Salmon juveniles are present.</li> </ul> <p><i>(updated 3/14/22)</i></p>

Tributary/ Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions*
Delta	<ul style="list-style-type: none"> <li>• Freeport: 8,000 to 10,000 cfs</li> <li>• Vernalis: 700 to 1,000 cfs</li> <li>• Delta Outflow index: 6,500 to 8,000 cfs</li> <li>• Combined Exports: 800 to 4,800 cfs</li> <li>• JPP: 800 cfs to 2,700 cfs</li> <li>• CCF: 0 cfs to 2,000 cfs</li> <li>• Expected OMR Index Values: -500 to -4,000 cfs</li> <li>• DCC Gates: Closed as of 11/30/2021</li> </ul>	<ul style="list-style-type: none"> <li>• Juvenile winter-run Chinook Salmon 1-15% yet to enter Delta, 80-90% in Delta, 5-10% exited Delta past Chipps Island</li> <li>• YOY spring-run Chinook Salmon: 20-35% yet to enter Delta, 65-80% in Delta, 0% exited past Chipps Island</li> <li>• Juvenile Steelhead: 36-56% yet to enter Delta, 29-44% in Delta, 15-20% exited Delta past Chipps Island</li> <li>• Adult fall-run Chinook Salmon entering Delta and migrating upstream towards spawning grounds</li> <li>• Adult steelhead present</li> <li>• Adult and juvenile Green Sturgeon present</li> <li>• 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.</li> <li>• 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.</li> </ul> <p><i>(updated 3/15/22)</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	3/13/2022
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	3/13/2022
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	3/13/2022
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	3/13/2022
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	3/13/2022
Delta Smelt	Daily avg. Turbidity at OBI=>12 FNU	OBI daily Avg Turbidity = 3.49	No Change Expected	3/15/2022

\* 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%)	3/13/2022

Species/run	Threshold	Current Status	Updated
Hatchery winter-run Chinook salmon	Loss = 5,356	Cumulative loss = 0 (0%)	3/13/2022
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)	3/13/2022

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 = 65-80% estimated in the Delta	Potential increase in presence of winter and spring-run	3/14/22	Based on 3/8/22 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	3/14/22	Based on salvage data from 3/13/22

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	3/14/22	Based on salvage data from 3/13/22
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)	N/A	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 $\geq 50$ 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 2.76 FNU	No change expected	3/14/22	Data from 3/13/22
Larval and/Juvenile Delta smelt Protection (8.5.2)	ongoing	In effect, not triggered	- 5-day cum. salvage of juv. DS $\geq 1$ [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	3/14/22	Based on salvage data from 3/13/22

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	<ul style="list-style-type: none"> <li>- Cum. salvage &gt; [most recent FMWT/10] = 1 fish (Sept.-Oct. Index) <u>OR</u></li> <li>- Smelt Monitoring Team determines high likelihood of LFS movement into high-risk areas</li> </ul>	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	<ul style="list-style-type: none"> <li>- LFS larvae or juveniles in &gt;=4 SLS or 20 mm stations in central and south Delta, OR</li> <li>- LFS catch/tow &gt;5 larvae or juveniles in &gt;=2 stations</li> </ul>	SLS 5 detected larvae at 4 stations in the south and central delta	Hatching underway	3/14/22	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	<ul style="list-style-type: none"> <li>- Sac. R. at Rio Vista &gt;55,000, <u>OR</u></li> <li>SJR at Vernalis &gt;8,000</li> </ul>	Rio Vista = 6,000 to 9,000 cfs  SJ = 700 to 1,000 cfs	N/A	3/14/22	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"> <li>- &gt;95% of the Winter-run and Spring run populations have migrated past Chipps Island <u>AND</u></li> <li>- Current daily average water temperature at Mossdale exceeds 22.2°C for 7 nonconsecutive days in June <u>AND</u></li> <li>- Current daily average water temperature at Prisoners Point exceeds 22.2°C for 7 non-consecutive days in June.</li> <li>- Current daily mean water temperature at CCF is greater than 25°C for three consecutive days</li> </ul>	N/A	N/A	10/4/21	N/A

Table 4. Fish monitoring gear efficiency and disruptions.

Monitoring Survey	Notes (as of 3/15/2022)	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	2
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

Monitoring Survey	Notes (as of 3/15/2022)	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)