

# Weekly Fish and Water Operations Outlook 2/1/2022 – 2/7/2022

Dry and mild weather continues this week. North to east winds return on Tuesday and Wednesday. Lighter winds and above average temperatures for the remainder of week.

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 Chinook Salmon fry are rearing in Clear Creek.</li> <li>• Fall-run Chinook salmon approaching peak emergence and fry are rearing in Clear Creek.</li> <li>• O. mykiss/steelhead adults are present, and their migrations upstream will continue through the next few months. Their spawning has commenced and will continue through March.</li> <li>• Late-fall run Chinook Salmon are at spawning and it will continue through February.</li> </ul> <p><i>(updated 1/31/22)</i></p>

Tributary/ Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions*
Sacramento River	<ul style="list-style-type: none"> <li>• Shasta Storage: 1.619 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>• 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 imminent, awaiting favorable (storm) flow conditions. These fish will be released 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 some eggs and alevin remain in gravel, fry emergence and passage at RBDD is ongoing daily.</li> <li>• Late fall-run Chinook Salmon spawning occurring, eggs and alevins in the gravel.</li> <li>• Green Sturgeon adults and juveniles present in lower river with Delta entry likely.</li> <li>• Adult steelhead present; juveniles absent from upper river catch. Hatchery steelhead released into Battle Creek 12/12/2021 and are present in the river.</li> </ul> <p><i>(updated 1/31/22)</i></p>
Feather River	<ul style="list-style-type: none"> <li>• Oroville Storage: 1.640 MAF</li> <li>• Current Release: 3,000 cfs</li> <li>• Anticipated Weekly Range of Releases: 3,000 to 4,000 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> </ul> <p><i>(updated 2/1/22)</i></p>

Tributary/ Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions*
American River	<ul style="list-style-type: none"> <li>• Folsom Storage: 533 TAF</li> <li>• Current Release: 2,000 cfs</li> <li>• Anticipated Weekly Range of Releases: 1,500 to 2,500 cfs</li> </ul>	<ul style="list-style-type: none"> <li>• Fall-run Chinook Salmon have finished spawning. Eggs are in gravel. Fry are emerging and present in RST samples.</li> <li>• Juvenile and adult O. mykiss are present and holding. Spawning has begun, and eggs are in gravel.</li> </ul> <p><i>(updated 1/24/22)</i></p>
Stanislaus River	<ul style="list-style-type: none"> <li>• New Melones Storage: 991 TAF</li> <li>• Current Release: 1,500 cfs</li> <li>• Anticipated Range of Weekly Releases: 1,300 - 1,500 cfs for D-1641 Vernalis flow requirement</li> </ul>	<ul style="list-style-type: none"> <li>• Juvenile and adult O. mykiss are present. O. mykiss are spawning.</li> <li>• Fall-run Chinook Salmon eggs are in gravel and fry are emerging.</li> </ul> <p><i>(updated 1/31/22)</i></p>

Tributary/ Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions*
Delta	<ul style="list-style-type: none"> <li>• Freeport: 10,000 to 12,500 cfs</li> <li>• Vernalis: 800 to 2,300 cfs</li> <li>• Delta Outflow index: 10,000 to 12,500 cfs</li> <li>• Combined Exports: 800 to 2,600 cfs</li> <li>• JPP: 800 cfs to 1,800 cfs</li> <li>• CCF: 0 cfs to 800 cfs</li> <li>• Expected OMR Index Values: -500 to -1,500 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 10-25% yet to enter Delta, 74-85% in Delta, 1-5% exited Delta past Chipps Island</li> <li>• YOY spring-run Chinook Salmon: 28-43% yet to enter Delta, 57-72% in Delta, 0% exited past Chipps Island</li> <li>• Juvenile Steelhead: 60-70% yet to enter Delta, 27-39% in Delta, 1-3% 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 expected to be present in the Sacramento Deep Water Ship Channel (DWSC), lower Sacramento River, Suisun Bay, 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 &gt;60mm have been detected at Chipps, lower Sacramento River, Suisun Bay/Marsh, San Pablo, and Central Bay. Longfin Smelt larvae have been detected in the confluence, lower Sacramento River, station 716, the central and south delta, and lower San Joaquin River.</li> </ul> <p><i>(updated 2/1/22)</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	1/30/2022
Natural winter-run Chinook Salmon	WY 2022 loss = 731.47 (50% of 1.17% of JPE)	WY 2022 loss = 19.99 (2.73%)	Possible additional salvage	1/30/2022
Natural Steelhead *	Dec 1 – Mar 31 = 707 (50% of 1,414) Apr 1 – June 15 = 776 (50% of 1,552)	Dec 1 – Mar 31 = 54.36 (7.7%) Apr 1 – June 15 = 0 (0%)	Possible additional salvage	1/30/2022
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	1/31/2022
Delta Smelt	Daily avg. Turbidity at OBI=>12 FNU	OBI daily Avg Turbidity = 4.77	Increasing (due to winds)	2/1/2022

\* 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 = 224.88 (2.57%)	1/30/2022
Hatchery winter-run Chinook salmon	Loss = 5,356	Cumulative loss = 0 (0%)	1/30/2022

Species/run	Threshold	Current Status	Updated
Natural steelhead	Loss = 6,038 (Dec 1 – Mar 31) Loss = 5,826 (Apr 1 – June 15)	Cumulative loss = 497.6 (8.24%, Dec 1 – Mar 31) 374.8 (6.4%, Apr 1 – June 15)	1/30/2022

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 $\geq$ 5% of spring-run or winter-run in Delta)	In effect	- 5% of the Winter-run or Spring-run population in Delta	Winter-run = 69-80% estimated in the Delta; Spring-run = 50-65% estimated in the Delta	Potential increase in presence of winter and spring-run	1/31/22	Based on 1/25/22 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) = 19.99;  Current yearly WR loss (hatchery) = 0	Possible additional salvage of natural Winter-run	1/31/22	Based on salvage data from 1/30/22

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	Feb 1-Feb 28 (0.0000991% of JPE) = 12.39	max single daily loss of Winter-run from previous week = 2.88 fish (observed at CVP on 1/28/22)	N/A	1/31/22	Based on salvage data from 1/30/22
Spring-run surrogate protection (8.6.4)	Feb. 1 - Jun. 30	Not in effect:	TBD (based on the number of fish released)	N/A	N/A	11/1/21	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 4.90 FNU	No change expected (high winds anticipated, but OMR Index already $> -2000$ )	1/31/22	Data from 1/30/22
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	1/31/22	Based on salvage data from 1/30/22



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 2 detected larvae at 4 stations in the south and central delta	Hatching started and will increase	1/31/22	SLS 2 sampled week of 1/24/22
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 = 8,000 to 10,000 cfs  SJ = 800 to 2,300 cfs	N/A	1/31/22	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 Mosssdale 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	<b>10/4/21</b>	N/A

Table 4. Fish monitoring gear efficiency and disruptions.

Monitoring Survey	Notes (as of 2/1/2022)	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: sampling San Joaquin Seines (only two sites)	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 2/1/2022)	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)