

Weekly Fish and Water Operations Outlook 1/4/2022 – 1/10/2022

Valley rain and mountain snow Monday night through Tuesday. Clearing mid-week. Another chance of wet weather possible late this 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 fry are rearing in Clear Creek. • Fall-run Chinook salmon eggs are incubating in the gravel, some eggs hatching, and fry are rearing in Clear Creek. • 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. • Late-fall run Chinook Salmon are spawning. Their peak spawning will occur December through February. <p><i>(updated 1/3/2021)</i></p>
Sacramento River	<ul style="list-style-type: none"> • Shasta Storage: 1.340 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 low numbers above RBDD and distributed throughout the Sacramento River and to the Delta. • Spring-run Chinook Salmon, few remaining alevins in gravel, many fry present and migrating downstream. • Fall-run Chinook Salmon adults are done spawning, eggs and alevin in gravel, fry emergence and passage at RBDD is increasing daily. • Late fall-run Chinook Salmon spawning occurring, eggs in the gravel. • Green Sturgeon adults and juvenile present in lower river with Delta entry likely. • Adult steelhead present; juveniles absent from upper river catch. Hatchery steelhead released into Battle Creek 12/12/2021 and are present in the river. <p><i>(updated 1/3/21)</i></p>

Tributary/ Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions*
Feather River	<ul style="list-style-type: none"> • Oroville Storage: 1.376 MAF • Current Release: 950 cfs • Anticipated Weekly Range of Releases: 950 cfs • Daily temperature targets: 55°F at Fish Hatchery 	<ul style="list-style-type: none"> • Fall-run Chinook Salmon spawning is complete. Eggs and alevin in gravel and some fry are present and emerging. • Juvenile and Adult steelhead present • Spring-run Chinook Salmon eggs and alevins in gravel; fry are present and emerging <p><i>(updated 12/28/21)</i></p>
American River	<ul style="list-style-type: none"> • Folsom Storage: 583 TAF • Current Release: 5,000 cfs • Anticipated Weekly Range of Releases: 3,000 cfs to 8,000 cfs, releases are for relief of flood space encroachment. 	<ul style="list-style-type: none"> • Fall-run Chinook Salmon are spawning. Eggs are in gravel. • Juvenile and adult O. mykiss are present and holding. Spawning has not yet been observed but historical data suggests it should begin in early January. <p><i>(updated 12/16/21)</i></p>
Stanislaus River	<ul style="list-style-type: none"> • New Melones Storage: 946 TAF • Current Release: 200 cfs • Anticipated Range of Weekly Releases: 200 cfs, with possible increases to manage side flows into Tulloch forebay 	<ul style="list-style-type: none"> • Juvenile and adult O. mykiss are present. O. mykiss spawning season begins in December. • Adult fall-run Chinook Salmon present. Spawning observed. <p><i>(updated 12/15/21)</i></p>

Tributary/ Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions*
Delta	<ul style="list-style-type: none"> • Freeport: 17,000 to 25,000 cfs • Vernalis: 700 to 1,500 cfs • Delta Outflow index: 12,000 to 20,000 cfs • Combined Exports: 5,000 to 6,000 cfs • JPP: 3,500 cfs to 4,200 cfs • CCF: 1,300 cfs to 2,500 cfs • Expected OMR Index Values: -4,500 to -5,000 cfs • DCC Gates: Closed as of 11/30/2021. 	<ul style="list-style-type: none"> • Juvenile winter-run Chinook Salmon 40-50% yet to enter Delta, 55-59% in Delta, 1-5% exited Delta past Chipps Island • YOY spring-run Chinook Salmon: 65-75% yet to enter Delta, 25-35% in Delta, 0% exited past Chipps Island • Juvenile Steelhead: 80-85% yet to enter Delta, 15-19% in Delta, 0-1% 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 expected to be present in the Sacramento Deep Water Ship Channel (DWSC), lower Sacramento River, Suisun Bay, and lower San Joaquin River. Delta Smelt with a migratory life history are expected to be moving upstream in response to first flush conditions. • Longfin Smelt >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, and lower San Joaquin River. <p><i>(updated 1/4/2021)</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	1/2/2022
Natural winter-run Chinook Salmon	WY 2022 loss = 729.8 (50% of 1.17% of JPE)*	WY 2022 loss = 9.31 (1.28%)	Possible additional salvage	1/2/2022
Natural Steelhead **	Dec 1 – Mar 31 = 707 (50% of 1,414) Apr 1 – June 15 = 776 (50% of 1,552)	Dec 1 – Mar 31 = 8.84 (1.25%) Apr 1 – June 15 = 0 (0%)	Possible	1/2/2022
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) NA	1) 0 (0%) 2) 0 (0%) 3) NA	Possible	1/2/2022
Delta Smelt	Daily avg. Turbidity at OBI=>12 FNU	OBI daily Avg Turbidity = 4.59	Increasing	1/4/2022

* Draft WR JPE for BY 2021 is 124,760 fish. Anticipate issuing a Final JPE recommendation by January 14, 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 = 214.2 (2.45%)	1/2/2022
Hatchery winter-run Chinook salmon	Loss = 5,356	Cumulative loss = 0 (0%)	1/2/2022

Species/run	Threshold	Current Status	Updated
Natural steelhead	Loss = 6,038 (Dec 1 – Mar 31) Loss = 5,826 (Apr 1 – June 15)	Cumulative loss = 452.03 (7.49%, Dec 1 – Mar 31) 374.8 (6.4%, Apr 1 – June 15)	1/2/2022

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 = 55-59% estimated in the Delta; Spring-run = 25-35% estimated in the Delta	Potential increase in presence of winter and spring-run	1/4/22	Based on 1/4/22 SaMT discussion
Winter-run yearly loss (8.6.1)	Nov. 1 - Jun. 30	In effect WY 2022 loss = 1459.6*	729.8 (50% of 1.17% of JPE)*	Current yearly WR loss (natural) = 9.31*; Current yearly WR loss (hatchery) = 0	Possible additional salvage of natural Winter-run	1/3/22	Based on salvage data from 1/2/22
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

Action	Timeframe	Current Action Status	Threshold(s)	Current Relevant Data	Weekly Trend	Last Updated	Comments
Mid and late season Winter-run daily loss threshold (8.6.3)	Jan 1 – May 30	In effect (Jan 1-Jan 31 = 7.92) *	N/A	N/A	N/A	1/4/22	N/A
Spring-run surrogate protection (8.6.4)	Feb. 1 - Jun. 30	Not in effect:	TBD (based on the number of fish released)	NA	N/A	11/1/21	N/A

*Draft WR JPE for BY 2021 is 124,760 fish. Anticipate issuing a Final JPE recommendation by January 14, 2022

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 4.06 FNU	No change expected	1/3/22	Data from 1/2/22
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	1/3/22	Based on salvage data from 1/2/22

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, not 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 12 detected larvae at 809 and 812	Hatching started and will increase	1/3/22	SLS 12 sampled week of 12/13, SLS 13 sampled week of 12/27
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 = 13,000 to 20,000 cfs SJ = 700 to 1,500 cfs	N/A	1/3/22	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 Springrun populations have migrated past Chipps Island <u>AND</u> - Current daily average water temperature at Mosssdale 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 1/4/2022)	Status *
Delta	N/A	N/A
SWP regular counts, CWT reading, and larval sampling	Active (No disruptions)	1
CVP regular counts, CWT reading, and larval sampling	Active (No disruptions)	1
Smelt Larval Survey	Active	1
20mm Survey	Not Active	4
Spring Kodiak Trawl	Not Active	4
Fall Mid-water Trawl	Not Active	4
Summer Townet Survey	Not Active	4
Bay Study	Active (No disruptions)	1
DJFMP- Chipps and Sacramento Trawls	Active (No trawls on 12/30 due to Covid)	2
DJFMP- Seines	Active: sampling San Joaquin Seines (Only two sites)	2
EDSM	Active (No sampling on 12/29 due to high winds, 12/30 due to Covid)	2
EMP	Active (No disruptions)	1
Mossdale	Active	1
USGS Flow monitoring	Active (No disruptions)	1
Sacramento River	N/A	N/A
Red Bluff Diversion Dam screw trap	Active (No disruptions)	1

Monitoring Survey	Notes (as of 1/4/2022)	Status *
Knights Landing screw trap	Active (Pulled cones on 12/24, didn't sample on 12/25 or 12/26)	1
Tisdale screw trap	Active (Pulled cones on 12/24, didn't sample on 12/25 or 12/26)	1
GCID screw trap	Active (partial disruptions – cone was removed 12/23 due to high water flows)	2
Redd dewatering and stranding surveys	Not Active	4
Sacramento Carcass and Redd Surveys	Active (No disruptions)	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 (No disruptions)	1
SJRRP USFWS and USBR Field Monitoring	Active (No disruptions)	1
Stanislaus Fish Weir	Active (No disruptions)	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)