



— BUREAU OF —
RECLAMATION

Weekly Fish and Water Operations Outlook 4/26/2022 – 5/2/2022

Quiet and dry weather with milder temperatures for most of the week. Significant uncertainty beginning Sunday regarding possible shower chances and gradual cooling for early next 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"> • Juvenile spring-run, fall-run, and late fall-run Chinook Salmon and <i>O. mykiss</i>/steelhead are rearing in Clear Creek. • Adult spring-run Chinook salmon are migrating into Clear Creek. • Adult spring-run Chinook have been delivered (trucked from Keswick fish trap) to the upper-most reach and the fish are now holding in Clear Creek. • Late-fall run Chinook Salmon and <i>O. mykiss</i>/steelhead eggs are incubating and hatching. <p><i>(updated 4/25/22)</i></p>
Sacramento River	<ul style="list-style-type: none"> • Shasta Storage: 1.790 MAF • Current Release: 3,250 cfs • Anticipated Weekly Range of Releases: 3,250 cfs 	<ul style="list-style-type: none"> • Winter-run Chinook salmon adults present in increasing numbers and are holding from RBDD to Keswick Dam. Spawning surveys begin next week for adult winter-run Chinook salmon. • Spring-run Chinook salmon 2022 adult present in upper river migrating into upper headwaters as flows allow, and are being observed at Keswick fish trap along with winter-run Chinook salmon. • Spring-run Chinook Salmon fry (from 2021) present and migrating downstream. Spring-run juvenile passage has slowed, 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 completed, eggs and alevins in the gravel and fry are emerging. Juveniles beginning to emerge and caught in low numbers at RBDD. • Green Sturgeon adults and juveniles present in lower river with Delta entry likely. Green Sturgeon larvae expected to begin passing RBDD soon. • Adult steelhead present; juveniles beginning to emerge and present in low numbers from upper river catch caught in low numbers at RBDD.

Tributary/Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions*
		<i>(updated 4/26/22)</i>
Feather River	<ul style="list-style-type: none"> • Oroville Storage: 1.865 MAF • Current Release: 800 cfs • Anticipated Weekly Range of Releases: 800 to 1,500 cfs • Daily temperature maximum: 55F at Fish Hatchery 	<ul style="list-style-type: none"> • Fall-run Chinook Salmon fry have emerged and are emigrating • Adult steelhead are present and spawning. Fry are emerging and emigrating. • Spring-run Chinook Salmon fry are present and emigrating. Adult spring-run are present and migrating up. • Adult green sturgeon present. <i>(updated 4/11/22)</i>
American River	<ul style="list-style-type: none"> • Folsom Storage: 719 TAF • Current Release: 1,000 cfs • Anticipated Weekly Range of Releases: 1,000 to 1,200 cfs 	<ul style="list-style-type: none"> • Fall-run Chinook Salmon juveniles are present. • Juvenile and adult O. mykiss are present. Spawning is likely coming to an end for the year and eggs are in gravel. <i>(updated 4/18/22)</i>
Stanislaus River	<ul style="list-style-type: none"> • New Melones Storage: 925 TAF • Current Release: 500 cfs • Anticipated Range of Weekly Releases: 500 to 1,000 cfs. Stanislaus pulse flow. 	<ul style="list-style-type: none"> • Juvenile and adult O. mykiss are present. Spawning is likely coming to an end for the year and eggs are in gravel. • Fall-run Chinook Salmon juveniles are present. <i>(updated 4/18/22)</i>
Delta	<p>Freeport: 7,000 to 11,000 cfs</p> <p>Vernalis: 700 to 1,600 cfs</p> <p>Delta Outflow index: 6,000 to 12,000 cfs</p> <p>Combined Exports: 1,100 to 1,500 cfs</p> <p>JPP: 800 cfs to 900 cfs</p> <p>CCF: 300 cfs to 600 cfs</p> <p>Expected Daily OMR Index Values: -1,000 to -1,650 cfs</p> <p>DCC Gates: Closed as of 11/30/2021</p>	<ul style="list-style-type: none"> • Juvenile winter-run Chinook Salmon 0-2% yet to enter Delta, 20-43% in Delta, 55-80% exited Delta past Chipps Island • YOY spring-run Chinook Salmon: 5-10% yet to enter Delta, 30-55% in Delta, 40-60% exited past Chipps Island <p>Juvenile Steelhead: 5-10% yet to enter Delta, 20-35% in Delta, 55-75% exited Delta past Chipps Island</p> <p>Adult spring-run Chinook Salmon entering Delta and migrating upstream towards spawning grounds</p> <p>Adult steelhead present</p> <p>Adult and juvenile Green Sturgeon present</p> <ul style="list-style-type: none"> • Adult Delta Smelt are present in the Sacramento Deep Water Ship Channel (SDWSC), lower Sacramento River, and Suisun Marsh. Delta Smelt are currently spawning. • Larval Delta Smelt have been detected in the confluence, Lower San Joaquin River, Lower Sacramento River, Old River, and in the north Delta. • Longfin Smelt sub-adults and adults are present at Chipps, Lower Sacramento, Confluence, and Suisun Bay/Marsh. Longfin Smelt YOY are present in the central and south Delta, Sacramento Deep Water Ship Channel, lower Sacramento River, confluence and downstream, as well as in salvage. <i>(updated 4/26/22)</i>

*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	4/24/2022
Natural winter-run Chinook Salmon	WY 2022 loss = 731.47 (50% of 1.17% of JPE)	WY 2022 loss = 73.04 (10.0%)	Possible additional salvage	4/24/2022
Natural Steelhead*	Dec 1 – Mar 31 = 707 (50% of 1,414) Apr 1 – June 15 = 776 (50% of 1,552)	WY 2022 loss = Dec 1 – Mar 31 = 84.28 (11.9%) Apr 1 – June 15 = 72.0 (9.3%)	Likely additional salvage	4/24/2022
Sacramento River Hatchery winter-run Chinook salmon	WY 2022 loss = 90.93 (50% of 0.12% of JPE)	WY 2022 loss = 6.71 (7.4%)	Possible salvage	4/24/2022
Battle Creek Hatchery winter-run Chinook salmon	WY 2022 loss = 4.39 (50% of 0.12% of JPE)	WY 2022 loss = 0 (0%)	Possible salvage	4/24/2022
Proposed Action Hatchery yearling spring-run Chinook salmon surrogates	> 0.5% of each release group: 1) 12/15/2021 group 1: 84,343 = 421.7 2) 12/22/2021 group 2: 82,626 = 413.1 3) 1/6/2022 group 3: 77,325 = 386.6	WY 2022 loss = 1) 48.18 (11.4%) 2) 17.61 (4.3%) 3) 20.04 (5.2%)	Unlikely additional salvage	4/24/2022
Delta Smelt	Daily avg. Turbidity at OBI=>12 FNU	OBI daily Avg Turbidity = 2.41	No Change Expected	4/26/2022

* 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 = 277.93 (3.18%)	4/24/2022
Hatchery winter-run Chinook salmon	Loss = 5,356	Cumulative loss = 6.71 (0.13%)	4/24/2022
Natural steelhead	Loss = 6,038 (Dec 1 – Mar 31) Loss = 5,826 (Apr 1 – June 15)	Cumulative loss = 530.2 (8.8%, Dec 1 – Mar 31) 392.12 (6.7%, Apr 1 – June 15)	4/24/2022

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 = 25-58% estimated in the Delta; Spring-run = 60-75% estimated in the Delta	Potential increase in presence of winter and spring-run	4/25/22	Based on 4/19/22 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) = 73.04; Current yearly WR loss (hatchery) = 6.71	Possible additional salvage of natural Winter-run	4/25/22	Based on salvage data from 4/24/22
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
Mid and late season Winter-run daily loss threshold (8.6.3)	Jan 1 – May 30	In effect	Apr 1-Apr 30 (0.0000507% of JPE) = 6.34	max single daily loss of Winter-run from previous week = 17.57 fish (salvaged at SWP on 4/16/22)	N/A	4/25/22	Based on salvage data from 4/24/22
Spring-run surrogate protection (8.6.4)	Feb. 1 - Jun. 30	In effect	-Coleman Group 1 of 719,838 ad-clip x 0.25% = 1799.60 fish - Coleman Group 2 of 749,368 ad-clip x 0.25% = 1873.42 fish *Coleman Group 3 of 1,058,439 ad-clip x 0.25% = 2646.10 fish *Coleman Group 4 of 360,000 ad-clip x 0.25% = 900.00 fish (will be released on 4/4& 4/6) -Feather Group 1 of 729,199 ad-clip x 0.25% = 1,823.00 fish	Cumulative loss Coleman fall-run (Group 3) = 4.33 fish Cumulative loss Feather spring-run = 0.00 fish	There is potential for more Coleman fall-run surrogate salvage to be observed this week	4/25/22	Based on salvage data from 4/24/22
Integrated Early Winter Pulse	Dec. 1 - Jan. 31	Not in effect, triggered on Dec 17, last	- three-day Freeport daily	N/A	N/A	N/A	N/A

Action	Timeframe	Current Action Status	Threshold(s)	Current Relevant Data	Weekly Trend	Last Updated	Comments
Protection ('First Flush') (8.3.1)		day of action was 1/2/22	flow running avg $\geq 25,000$ AND [three-day Freeport turbidity running avg ≥ 50 NTU OR Smelt Monitoring Team recommendation]				
Turbidity Bridge Avoidance (8.5.1)	Dec. 15 - Apr. 1	Not in effect, offramped	Occurs after the Integrated Early Winter Pulse protection or February 1 (whichever until April 1) comes first - avg. OBI turbidity > 12 NTU	N/A	N/A	N/A	N/A
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	4/4/22	Based on salvage data from 4/3/22

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 $\geq 25,000$ 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	Offramped	Occurs after the Integrated Early Winter Pulse protection or February 1	N/A	N/A	N/A	N/A

Action	Timeframe	Current Action Status	Threshold(s)	Current Relevant Data	Weekly Trend	Last Updated	Comments
			(whichever until April 1) comes first -avg. OBI turbidity > 12 NTU				
Larval and/Juvenile Delta smelt Protection (8.5.2)	ongoing	In effect, not triggered	- 5-day cum. salvage of juv.DS >= 1[average 3-yrFMWT index + 1] OR, - 3-day cum. Salvage of juv. DS > 11	current 5-day salvage = 0	no change expected	4/25/22	Based on salvage data from 4/24/22

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 >=2stations	20mm #2 detected larvae at 4 stations in the south and central delta	No change expected	4/25/22	20mm #2 sampled week of 4/4/22
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 1,600 cfs	N/A	4/25/22	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 exceeds 22.2°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 4/26/2022)	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	Not Active	4
LEPS	Active	1
20mm Survey	Active	1
Spring Kodiak Trawl	Active	1
Fall Mid-water Trawl	Not Active	4
Summer Towntnet Survey	Not Active	4
Bay Study	Active	1
DJFMP- Chipps and Sacramento Trawls	Active	1
DJFMP- Seines	Active (no sampling in South Delta)	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
Knights Landing screw trap	Active	1
Tisdale screw trap	Active	1
GCID screw trap	Active	1

Monitoring survey	Notes (as of 4/26/2022)	Status
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)