BUREAU OF RECLAMATION

Weekly Fish and Water Operations Outlook

4/2/2024 – 4/8/2024

Water Project Operational Intent for Week

- Effective 4/1 - 4/3, CVP and SWP project operations will be limited to a 14-day average OMRI flow no more negative than -2,500 cfs per the Director's decision on 3/29.
- I/E ratio export constraints per Section 8.17 of State ITP are projected to be temporarily suspended from 4/1 through 4/3 due to the three-day average Delta outflow exceeding 44,500 cfs.
- WOMT will be reviewing operational conditions for the remainder of the week on 4/3.

Forecasted Weather

- Dry conditions and warm temperatures through midweek; unsettled weather brings cooler temperatures, chances of rain and snow, and gusty winds late week into the weekend.

Tables

Table 1: Anticipated weekly operational ranges by tributary. Environmental and fish conditions updated by respective watershed groups at varying intervals that may not coincide with the weekly range of Water Operations

Tributary/Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions
Clear Creek	• Current Release: 265 cfs • Anticipated Weekly Range of Releases: 200 cfs to 265 cfs, spring pulse	• Spring-run and fall run Chinook salmon juveniles are rearing and beginning to outmigrate. • Late fall-run Chinook Salmon eggs are incubating. • Adult O. mykiss are spawning. Their eggs are incubating, and juveniles are rearing. *(Updated 3/12/2024)*

Tributary/Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions
Sacramento River	• Shasta Storage: 4.194 MAF • Current Release: 4,000 cfs • Anticipated Weekly Range of Releases: 4,000 cfs to 10,000 cfs	• Late fall-run Chinook adults are continuing their spawning but are past the peak period. • Late-fall run Chinook eggs/alevins are currently incubating/residing in the gravel, with some early fry likely emerging from the gravel. • Fall-run redds are mostly emerged. Fry are actively migrating downstream. • Spring run adults are moving upstream in the Sac and into various tributaries where they will spend the summer before spawning in Sep-Oct. • Adult winter-run are arriving in the upper river and holding. *(Updated 3/18/2024)*
Feather River	• Oroville Storage: 3.109 MAF • Current Release: 10,000 cfs • Anticipated Weekly Range of Releases: 8,000 cfs to 12,000 cfs.	• Fall-run Chinook salmon fry are emerging and migrating downstream. • O. mykiss adult spawning is complete, eggs are incubating in gravel, fry are beginning to emerge and juveniles are rearing. • Majority of adult green sturgeon are still holding in the LFC near Fish Barrier Dam, a few have moved downstream. • Spring-run Chinook salmon juveniles are rearing and migrating downstream. *(Updated 3/12/2024)*
American River	• Folsom Storage: 708 TAF • Current Release: 4,000 cfs • Anticipated Weekly Range of Releases: 3,000 cfs to 4,000 cfs	• O. mykiss juveniles are rearing. • Adult fall-run Chinook salmon spawning has ended. • Eggs are incubating in gravel. • Fry are beginning to emerge and migrate downstream. • O. mykiss Adults are present. *(Updated 3/19/2024)*

Tributary/Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions
Stanislaus River	• New Melones Storage: 2.008 MAF • Current Release: 800 cfs • Anticipated Weekly Range of Releases: 300 cfs to 1,200 cfs for spring pulse flow.	• O. mykiss Adult and juveniles are present. • Fall-run Chinook salmon spawning has ended. • Eggs are incubating in gravel. Fry are beginning to emerge and migrate downstream. *(Updated 1/29/2024)*
Delta	• Freeport: 32,000 to 44,000 cfs • Vernalis: 4,000 to 4,500 cfs • Delta Outflow index: 35,000 to 47,000 cfs • Combined Exports: 1,500 to 4,700 cfs • JPP: Current 900 cfs, Range 900 cfs to 1,800 cfs • CCF: Current 2,600 cfs, Range 600 cfs to 3,800 cfs • Expected Daily OMR Index Values: +300 cfs to • -2600 cfs • DCC Gates: Closed on 11/27 for season • X2 = 62 km • Tides: Transitioning from Neap to Spring; New Moon on 4/8	• Juvenile and adult O. mykiss present. • Juvenile Chinook Salmon present. • Adult winter-run Chinook Salmon are present. • Adult and juvenile Green Sturgeon are present. • Adult spring-run Chinook Salmon are present. • Delta Smelt adults have been detected in Suisun Marsh, the Deep Water Shipping Channel, and the lower Sacramento River since 3/19. DS population scale migration is likely completed, and water temperatures are suitable for spawning. • Longfin Smelt sub-adults and adults have been detected downstream of the confluence and at Chipps Island. Longfin Smelt larvae have been detected in the Napa River, Carquinez Strait, San Pablo Bay, Suisun Bay and Marsh, the Confluence, lower Sacramento and San Joaquin rivers, and the Central and South Delta. A few juveniles has been detected in San Pablo Bay, Napa River, and Suisun Marsh. The centroid of distribution for all life-stages is west of the Confluence. LFS spawning is ongoing. *(Updated 4/2/2024)*

Table 2a-b: WY 2024 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 2024 Salmonid Current Loss and Delta Smelt Abiotic Conditions. Additional Real-Time OMR Restrictions and Performance Objectives (4.10.5.10.2, 4.10.5.10.3) and Onset of OMR Management (4.10.5.10.1). Genetic identification of salmon is not used in calculating loss, but results are included in the Assessment as they become available. The Final WR JPE for BY 2023 is 234,896. The ITL and performance thresholds are TBD.

Species/run	**Threshold**	**Current Status**	**Weekly Trend**	**Updated**
Green sturgeon	WY 2024 salvage = 74	WY 2024 salvage = 0 (0%)	No change expected	4/1/2024 (Data as of 3/28)
Natural winter-run Chinook Salmon	WY 2024 loss = 2748 (100% of 1.17% of JPE) Incidental Take = 4698 (2% of JPE)	WY 2024 loss = 3511.96 (74.8% of ITL) 100% threshold exceeded 3/20/2024 75% threshold exceeded 3/7/2024 50% threshold exceeded 2/25/2024	Increasing	4/1/2024 (Data as of 3/28)
Natural Steelhead	Dec 1 – Mar 31 = 1414; Incidental Take =2,760 Apr 1 – June 15 = 776 (50% of 1,552)	WY 2024 loss = 3172.8 Dec 1 – Mar 31 = 3172.8 Incidental Take limit exceeded on 3/20/24 100% threshold exceeded on 2/23/24 75% threshold exceeded 2/22/24 50% threshold exceeded 2/11/2024 Apr 1 – June 15 = 0 (0% of the 50% threshold)	Increasing	4/1/2024 (Data as of 3/28)
Sacramento River Hatchery winter-run Chinook salmon	WY 2024 loss = 140.93 (50% of 0.12% of JPE)	WY 2024 loss = 4.33 (3.07%)	Increasing	4/1/2024 (Data as of 3/28)
Battle Creek Hatchery winter-run Chinook salmon	WY 2024 loss = 234.90 (1% of JPE)	WY 2024 loss = 0 (0%)	No change expected	4/1/2024 (Data as of 3/28)

Species/run	Threshold	Current Status	Weekly Trend	Updated
Proposed Action Hatchery yearling spring-run Chinook salmon surrogates	> 0.5% of each release group 1) 12/22/2023 group 1: 60,764 = 303.82 2) 12/29/2023 group 2: 71,049 = 355.25 3) 1/11/2024 group 3: 67,018 = 335.09	WY 2024 loss = 1) 36.84 (12.12%) 2) 34.63 (9.7%) 3) 89.82 (26.8%)	May increase	4/1/2024 (Data as of 3/28)
Delta Smelt	After Dec. 1: Running 3-day avg. flows at Freeport >25,000 cfs AND Running 3-day avg. turbidity at Freeport =>50 FNU	Offramped. Implemented 1/23/2024-2/5/2024. Flow = N/A; Turbidity = N/A	Not relevant	2/12/2024
Delta Smelt	Daily avg. Turbidity at OBI=>12 FNU	Offramped. OBI Daily Average = N/A	Not relevant	4/1/2024
Delta Smelt	Daily avg. Temperature at CCF > 25°C for three consecutive days	In effect. Not triggered. CCF (CLC CDEC station) daily avg. Temperature = N/A	Not relevant	3/11/2024

Table 2b. 10-Year Salmonid Cumulative Loss

Species/run	Threshold	Current Status	Updated
Natural winter-run Chinook salmon	Loss = 8,738	Cumulative loss = 3882.21 (44.4%)	4/1/2024 (Data as of 3/28)
Hatchery winter-run Chinook salmon	Loss = 5,356	Cumulative loss = 6.71 (0.13%)	4/1/2024 (Data as of 3/28)
Natural steelhead	Loss = 6,038 (Dec 1 – Mar 31) Loss = 5,826 (Apr 1 – June 15)	Cumulative loss = 4749.26 (78.66%, Dec 1 – Mar 31) 1012.50 (17.4%, Apr 1 – June 15)	4/1/2024 (Data as of 3/28)

Table 3a-c: Relevant Water Year 2024 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 ≥ 5% of spring-run or winter- run in Delta)	In effect	≥ 5% of the Winter-run or Spring-run population in Delta	N/A	N/A	2/26/2024	In effect as of January 1.
Winter-run yearly loss (8.6.1)	Nov. 1 - Jun. 30	In effect	2,748.28 (1.17% of Natural LAD WR of Final JPE) 232.30 (0.12% of LSNFH WR of Final JPE)	Loss of total LAD WR = 3741.18 (110.27% of Natural LAD WR threshold) Loss of total hatchery WR = 4.33 (1.86% of hatchery WR threshold)	Salvage is likely to occur in the upcoming week	3/3024	Natural-origin LAD winter-run Chinook salmon (WR) were observed in salvage the previous week. The 100% Annual Loss Threshold was exceeded on 3/20/24.
Winter-run discrete daily loss (8.6.2)	Nov. 1 - Dec. 31	Not in effect	26 older juvenile/day	Max Older Juvenile discrete daily loss observed last week = N/A	N/A	1/22/2024	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 31	In effect	4/1-4/30: loss of 5.31 fish /day of natural-origin LAD older juvenile (Winter-run, Yearling fall-run, and Late fall-run). Updated with genetic results as they become available. If genetics confirms that the older juvenile is NOT a WR then that fish will not count towards the threshold.	Max daily Loss of older juvenile Chinook occurred on 3/27 with loss of 214.48	Salvage of older juveniles is likely in the upcoming week.	4/1/2024	23 genetically confirmed WR have been observed in salvage so far this season.
Spring-run surrogate protection (8.6.4)	Feb. 1 - Jun. 30	In effect	Feather River Hatchery CWT (Group 1) loss threshold: 1,749.64 (0.25% of 699,854) Coleman National Fish Hatchery CWT (Group 1) loss threshold: 1,792.94 (0.25% of 712,177)	None have been observed at the salvage facilities yet	Possible Salvage from this group in the upcoming week	3/24/24	On March 21, 712,177 BY 2023 fall-run were released in Battle Creek at the CNFH. This group was 25% CWT marked and clipped.

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	Off-ramped	- three-day Freeport daily flow running avg>= 25,000 AND [three-day Freeport turbidity running avg >=50 FNU OR Smelt Monitoring Team recommendation]	Not relevant	Not relevant	2/12/24	N/A
Turbidity Bridge Avoidance (8.5.1)	Dec. 15 - Apr. 1	Off-ramped	Occurs after the Integrated Early Winter Pulse protection or February 1 whichever comes first until April 1 -avg. OBI turbidity>12 FNU	Not relevant	Not relevant	4/1/2024	N/A
Larval and/Juvenile Delta smelt Protection (8.5.2)	Nov. 1 – Jun. 30	In effect; not triggered by SLS 6 or 20mm 1	- If 5-day cum. salvage of juv.DS>= 1 [average 3-yr FMWT index + 1], then –5000 OMR - If DS in SLS/20mm or 3-d temp at Jersey Point >= 12C, and SLS/20mm Secchi for 12 south delta stations <= 1m, then –3500 OMR	Current 5-day salvage = 0 3-day average SJJ temp exceeded 12C on 1/31/2024 Average Secchi Depth = 124 cm (as of 3/18-3/19)	Secchi depth stable or increasing	4/1/24	N/A

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	Off-ramped	-Cum. salvage > [most recent FMWT/10] = 46 fish (Sept.-Dec. Index) OR -Smelt Monitoring Team determines high likelihood of LFS movement into high-risk areas	Cumulative salvage = 0	N/A	12/26/23	N/A
OMR Mgt. for Adults (8.4.1)	Onset of OMR mgmt - Feb. 28	Off-ramped	-Smelt Monitoring Team recommendation	N/A	N/A	12/19/23	N/A
Larval and Juvenile Longfin Smelt Entrainment Protection (8.4.2)	Jan 1 – Jun 30	Not triggered by SLS 6 or 20mm 1	-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	SLS 6 and 20mm 1 detected no larvae in the South and Central Delta.	N/A	3/26/24	N/A
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	Not triggered	-Sac. R. at Rio Vista>55,000, OR SJR at Vernalis >8,000	Rio Vista = 28,000 – 38,000 – cfs SJ = 4,000 – 4,500 cfs	Flows are decreasing	4/1/24	N/A

Table 4: Fish monitoring gear efficiency and disruptions. Status Categories: [1] Active (ongoing sampling), [2] Partial Interruption (some sampling interruptions), [3] Interrupted (sampling fully suspended), [4] Not Active (sampling not scheduled)

Monitoring survey	Region	Notes (as of 4/2/2024)	Status
SWP regular counts, CWT reading	Delta	Active	1
SWP larval sampling	Delta	Active	1

Monitoring survey	Region	Notes (as of 4/2/2024)	Status
CVP regular counts, CWT reading	Delta	Active	1
CVP larval sampling	Delta	Active	1
Smelt Larval Survey	Delta	Not Active	4
LEPS	Delta	Active	1
20mm Survey	Delta	Active	1
Fall Mid-water Trawl	Delta	Not Active	4
Summer Townet Survey	Delta	Not Active	4
Bay Study	Delta	Active	1
DJFMP- Chipps and Sacramento Trawls	Delta	Active	1
DJFMP- Seines	Delta	Active	1
EDSM	Delta	Active	1
Environmental Monitoring Program (EMP)	Delta	Active	1
Mossdale Trawl	Delta	Active	1
USGS Flow monitoring	Delta	Active	1
Red Bluff Diversion Dam Rotary Screw Trap (RST)	Sacramento River	Active	1
Knights Landing RST	Sacramento River	Active	1
Tisdale RST	Sacramento River	Active	2
Yuba River (Hallwood) RST	Yuba River	Active	1
Redd dewatering and stranding surveys	Sacramento River	Active	1
Sacramento Carcass and Redd Surveys (Late fall-run Chinook salmon)	Sacramento River	Active	1
Lower Sacramento RST	Sacramento River	Active	1
Feather River (upper DWR) RST	Feather River	Active	1
Feather River (lower CDFW) RST	Feather River	Active	1
Lower American River at Watt Ave RST	American River	Active	1
SJRRP CDFW Field Monitoring	San Joaquin River	Active	1
SJRRP USBR Field Monitoring	San Joaquin River	Active	1
Stanislaus Fish Weir	Stanislaus River	Active	1
American River Carcass/Redd Surveys (Fall-run Chinook salmon)	American River	Not Active	4
Stanislaus Redd Survey (Steelhead)	Stanislaus River	Active	1
Caswell RST	Stanislaus River	Active	1
Wallace Weir	Cache Slough	Active	1

Monitoring survey	Region	Notes (as of 4/2/2024)	Status
Butte Creek RST/Diversion Trap	Butte Creek	Active	1