Weekly Fish and Water Operations Outlook

5/28/2024 – 6/3/2024

Water Project Operational Intent for Week

* Effective beginning 4/1, CVP and SWP project operations are limited to a 14-day average OMRI flow no more negative than -2,500 cfs per the Director’s decision on 3/29.
* Reclamation and DWR propose joint water project operations for the week be limited to a 14-day average OMRI flow no more negative than –5,000 cfs.
* I/E ratio export constraints per Section 8.17 of State ITP will control SWP exports through 5/31.

Forecasted Weather

* Warm weather continues, with occasional gusty winds. Elevated fire concerns on Thursday. Onshore flow returns by the weekend.

Table 1: Anticipated weekly operational ranges by tributary. Note that all reservoir storage, flow, X2 position, etc. shown below are entered into the table as of 5/27. 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: 250 cfs * Anticipated Weekly Range of Releases: 150 cfs to 250 cfs, attraction pulse | * Juvenile spring run, fall run, and late fall run Chinook salmon are rearing and out-migrating. * Adult *O. mykiss* eggs are incubating and hatching, and juveniles are rearing. * Adult spring run Chinook Salmon are migrating into Clear Creek.   (*Updated 4/15/2024*) |
| Sacramento River | * Shasta Storage: 4.328 MAF * Current Release: 8,700 cfs * Anticipated Weekly Range of Releases: 7,700 cfs to 9,700 cfs, for spring pulse flow. | * Most Late-fall run Chinook eggs/alevins are finished residing in the gravel, some later February-March spawned fry remain in the gravel. Fry are actively migrating downstream. * Spring run smolts 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. Spawning for winter-run has begun. Juvenile steelhead are outmigrating in low numbers. * Larval Green Sturgeon are being captured in low numbers while adult spawning continues into June-July.   *(Updated 5/28/2024)* |
| Feather River | * Oroville Storage: 3.518 MAF * Current Release: 2,100 cfs * Anticipated Weekly Range of Releases: 1,050 cfs to 2,500 cfs. | * Fall-run Chinook salmon fry are migrating downstream, majority have left the system. * *O. mykiss*  juveniles are rearing or migrating downstream. * Majority of adult green sturgeon are still holding in the LFC near Fish Barrier Dam. * A majority of Spring-run Chinook salmon juveniles have left the system. * Adult spring-run Chinook salmon are migrating up into the system past the fish monitoring station. Some have entered the hatchery and have been tagged.   (*Updated 5/21/2024*) |
| American River | * Folsom Storage: 931 TAF * Current Release: 3,000 cfs * Anticipated Weekly Range of Releases:  2,500 cfs to 3,500 cfs | * *O. mykiss* juveniles are rearing. * Fall-run Chinook salmon fry are migrating downstream. * O. *mykiss* Adults are present.   (*Updated 5/14/2024*) |
| Stanislaus River | * New Melones Storage: 2.095 MAF * Current Release: 1,000 cfs * Anticipated Weekly Range of Releases: Possible 950 cfs to 2,250 cfs for spring pulse flow. | * *O. mykiss* Adult and juveniles are present. Spawning complete. Eggs are incubating and fry emerging. * Fall-run Chinook fry, parr, and smolts are rearing and migrating.   (*Updated 5/20/2024*) |
| Delta | * Freeport: 12,000 to 19,000 cfs * Vernalis: 3,000 to 6,000 cfs * Delta Outflow index: 10,000 to 19,000 cfs * Combined Exports: 3,100 to 7,700 cfs * JPP: Current 3,500 cfs, Anticipated Weekly Range: 2,700 cfs to 4,200 cfs * CCF: Current 600 cfs, Anticipated Weekly Range = 400 cfs to 3,500 cfs * San Luis Storage: Total = 1.246 MAF; Fed share = 794 TAF; State share = 452 TAF * Expected OMR Index Values: -2,000 cfs  to –5,000 cfs * DCC Gates: Closed on 11/27/23; open on 5/31 and closed on 6/3 * X2 = 64 km * Tides: Transitioning from Neap to Spring; Last Quarter Moon on 5/30 | * 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. * Adult DS spawning is ongoing. DS larvae have been detected in Suisun Marsh, Suisun Bay, the Lower Sacramento, and the Deep Water Shipping Channel since 4/22. One juvenile DS was detected in Salvage on 4/29 and one larval DS was detected in the South Delta on 5/13. * 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 have 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. Two juvenile LFS were salvaged on 4/10 and 4/26.   (*Updated 5/28/2024*) |

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 | 5/27/2024 |
| Natural winter-run Chinook Salmon | WY 2024 loss = 2748  (100% of 1.17% of JPE)  Single-year ITL= 4698 (2% of JPE)  Three-year rolling average ITL = 5,145 (number needed to achieve the average of 1.3% of JPE for the last 3 years: 1776) | WY 2024 loss =  4205.05 (89.5% of single-year ITL)  100% threshold exceeded  3/20/2024  75% threshold exceeded  3/7/2024  50% threshold exceeded 2/25/2024 | No change expected | 5/27/2024 (data as of 5/23/2024) |
| Natural Steelhead | Dec 1 – Mar 31 =  1414;  Incidental Take =3,040  Apr 1 – June 15 = 1552 | WY 2024 loss = 5210.22  Dec 1 – Mar 31 =  3374.81  Incidental Take limit exceeded on 3/20/24  Apr 1 – June 15 = 1884.62 (62% of the Incidental Take Limit)  100% threshold exceeded on 4/26/2024  75% threshold exceeded 4/15/2024  50% threshold exceeded 4/9/2024 | Increasing | 5/27/2024 (data as of 5/23/2024) |
| 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%) | No change expected | 5/27/2024 (data as of 5/23/2024) |
| Battle Creek  Hatchery winter-run Chinook salmon | WY 2024 loss = 234.90 (1% of JPE) | WY 2024 loss = 0 (0%) | No change expected | 5/27/2024 (data as of 5/23/2024) |
| 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) 38.96 (11%)  3) 81.18 (24.2%) | No Change Expected | 5/27/2024 (data as of 5/23/2024) |
| 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 = 19.8°C | Increase expected | 5/28/2024 (data as of 5/27/2024) |

Table 2b. 10-Year Salmonid Cumulative Loss

| Species/run | Threshold | Current Status | Updated |
| --- | --- | --- | --- |
| Natural winter-run Chinook salmon | Loss = 8,738 | Cumulative loss =  4575.3 (52.36%) | 5/27/2024 (data as of 5/23/2024) |
| Hatchery winter-run Chinook salmon | Loss = 5,356 | Cumulative loss =  11.04 (0.21%) | 5/27/2024 (data as of 5/23/2024) |
| Natural steelhead | Loss = 6,038 (Dec 1 – Mar 31) Loss = 5,826 (Apr 1 – June 15) | Cumulative loss =  4951.27 (82%, Dec 1 – Mar 31)  2897.12 (49.7%, Apr 1 – June 15) | 5/27/2024 (data as of 5/23/2024) |

Table 3a: 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 =  4205.05  Loss of total hatchery WR = 4.33 (1.86% of hatchery WR threshold) | Salvage may occur in the upcoming week | 6/10/24 | Natural-origin LAD winter-run Chinook salmon (WR) were **not** 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 |
| **Mid and late season Winter-run daily loss threshold (8.6.3)** | Jan 1 – May 31 | **Not in effect** | Loss threshold for May 5/1-5/31: 0 (0% of WR JPE) | No loss has occurred for older LAD in previous week. | Salvage of older juveniles may occur in the upcoming week. | 6/10/24 | 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  Feather River Hatchery CWT (Group 2) loss threshold: 1,751.57  Feather River Hatchery CWT (Group 3) loss threshold: 1,400.76  Coleman National Fish Hatchery CWT (Group 1) loss threshold: 1,792.94  Coleman National Fish Hatchery CWT (Group 2) loss threshold: 266.33    Nimbus Fish Hatchery CWT (Group 1) loss threshold: 525.88 | None have been observed at the salvage facilities yet | Salvage may occur from any of these groups in the upcoming week | 6/10/24 |  |

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 20mm 5 | - 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 = 168 cm (as of 5/13-5/16) | Secchi depth stable | 5/20/24 | N/A |

Table 3c: Longfin Smelt

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| --- | --- | --- | --- | --- | --- | --- | --- |
| 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 20 mm 5 | -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 5 did not detect any larvae in the South and Central Delta. | N/A | 5/21/24 | 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 = 8,000 – 13,000 cfs  SJ = 2,500 – 3,000 cfs | Flows are variable | 6/10/24 | 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 5/28/2024) | Status |
| --- | --- | --- | --- |
| SWP regular counts, CWT reading | Delta | Active | 1 |
| SWP larval sampling | Delta | Active | 1 |
| 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 | 1 |
| 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 |
| Sacramento Carcass and Redd Surveys (Winter-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 | Not Active | 4 |
| Caswell RST | Stanislaus River | Active | 1 |
| Wallace Weir | Cache Slough | Active | 1 |
| Butte Creek RST/Diversion Trap | Butte Creek | Active | 1 |