**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)* |
| 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)* |
| 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) |
| 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 |
| 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 |
| 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 |
| Butte Creek RST/Diversion Trap | Butte Creek | Active | 1 |