Weekly Fish and Water Operations Outlook 12/19/2023 – 12/25/2023

Water Project Operational Intent for Week

* Monthly Delta Outflow and Rio Vista flow for December greater than 4,500 cfs; E/I ratio not to exceed 0.65.

Forecasted Weather

* Moderate to heavy rain, high elevation snow and thunderstorm chances at the start of the week (Monday through Wednesday). Changing into quiet and seasonable weather from late week into the Xmas 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: 200 cfs * Anticipated Weekly Range of Releases: 200 cfs | * Spring-run Chinook salmon fry are emerging and rearing. * Fall-run Chinook salmon eggs are incubating. * Late fall-run Chinook Salmon adults are migrating and will soon be spawning. * Adult *O. mykiss* are migrating and spawning. Eggs are incubating, and juveniles are rearing.   (*Updated 12/6/2023*) |
| Sacramento River | * Shasta Storage: 3.024 MAF * Current Release: 5,000 cfs * Anticipated Weekly Range of Releases: 5,000 cfs. | * Adult fall-run Chinook salmon spawning has likely completed. Late fall-run Chinook adults are now starting to spawn as well as continuing to migrate and hold prior to spawning. * Fall-run redds are in various stages with the earliest redds nearing emergence, while later ones have eggs incubating in the gravel. * Juvenile fall run (yolk-sac fry and fry) are being captured in low numbers at RBDD   *(Updated 12/18/2023)* |
| Feather River | * Oroville Storage: 2.324 MAF * Current Release: 1,750 cfs * Anticipated Weekly Range of Releases: 1,750 cfs. | * Fall-run Chinook salmon adult spawning is nearing completion. Redds are being observed in both the HFC and LFC. * *O. mykiss* juveniles are rearing.  Adults are migrating upstream. * Adult green sturgeon are still holding in the LFC. * Spring-run Chinook salmon adults have completed spawning.  Eggs are incubating in gravel. Fry are beginning to emerge and migrate downstream.   (*Updated 12/18/2023*) |
| American River | * Folsom Storage: 457 TAF * Current Release: 2,000 cfs * Anticipated Weekly Range of Releases:  2,000 cfs | * *O. mykiss* juveniles are rearing. * Adult fall-run Chinook salmon are spawning. Eggs are incubating in gravel. * Fry are beginning to emerge.   (*Updated 12/19/2023*) |
| Stanislaus River | * New Melones Storage: 1.965 MAF * Current Release: 200 cfs * Anticipated Weekly Range of Releases: 200 cfs | * *O. mykiss* - Adult and juveniles present * Fall-run Chinook salmon adults are spawning. Eggs are incubating in gravel.   (*Updated 12/4/2023*) |
| Delta | * Freeport: 10,000 to 20,000 cfs * Vernalis: 1,000 to 1,750 cfs * Delta Outflow index: 5,000 to 15,000 cfs * Combined Exports: 5,600 to 11,400 cfs * JPP: Current 3,600 cfs, Range 3,600 cfs to 4,200 cfs * CCF: Current 3,000 cfs, Range 2,000 cfs to 7,200 cfs * Expected Daily OMR Index Values: -4,000 cfs to   -8,000 cfs   * DCC Gates: Closed on 11/27 * X2 is greater than 81 km * Tides: Transitioning from Neap to Spring tide; Full Moon on 12/26 | * Adult O. mykiss present * Adult and juvenile Green Sturgeon present * Delta Smelt sub-adults and adults (size-based) are present in the lower Sacramento River. * Longfin Smelt sub-adults and adults have been detected in Suisun Marsh and Bay, Grizzly Bay, San Pablo Bay, and at Chipps Island. Sub-adult LFS have also been detected at the Confluence and Lower Sacramento River. Water temperatures (<14C) are now conducive for LFS spawning. LFS population scale migration is ongoing and spawning has started.   (*Updated 12/19/2023*) |

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. \* TBD – no draft JPE produced, 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 | 12/19/2023 |
| Natural winter-run Chinook Salmon | WY 2024 loss = TBD\*  (50% of 1.17% of JPE) | WY 2024 loss = 0 (0%) | No change expected | 12/19/2023 |
| Natural Steelhead | Dec 1 – Mar 31 =  707; (50% of 1,414)  Apr 1 – June 15 = 776 (50% of 1,552) | WY 2024 loss = 0.68  Dec 1 – Mar 31 = 0.68 (0.096 % of the 50% threshold)  Apr 1 – June 15 = 0(0% of the 50% threshold) | No change expected | 12/19/2023 |
| Sacramento River Hatchery winter-run Chinook salmon | WY 2024 loss = TBD\* (50% of 0.12% of JPE) | WY 2024 loss = 0 (0%) | No change expected | 12/19/2023 |
| Battle Creek  Hatchery winter-run Chinook salmon | WY 2024 loss = TBD\* (1% of JPE) | WY 2024 loss = 0 (0%) | No change expected | 12/19/2023 |
| Proposed Action Hatchery yearling spring-run Chinook salmon surrogates | > 0.5% of each release group | WY 2024 loss = 0 (0%) | No change expected | 12/19/2023 |
| 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 | Freeport 3-day avg.  Flow = 10115.96 cfs;  Turbidity = 6.57 FNU | Increase in response to precipitation | 12/17/2023 |
| Delta Smelt | Daily avg. Turbidity at OBI=>12 FNU | OBI Daily Average = Not relevant | Not relevant | 11/27/2023 |
| Delta Smelt | Daily avg. Temperature at CCF > 25°C for three consecutive days | CCF daily avg. Temperature = Not relevant | Not relevant | 11/27/2023 |

Table 2b. 10-Year Salmonid Cumulative Loss

| Species/run | Threshold | Current Status | Updated |
| --- | --- | --- | --- |
| Natural winter-run Chinook salmon | Loss = 8,738 | Cumulative loss =  368.95 (4.2%) | 12/19/2023 |
| Hatchery winter-run Chinook salmon | Loss = 5,356 | Cumulative loss =  6.71 (0.13%) | 12/19/2023 |
| Natural steelhead | Loss = 6,038 (Dec 1 – Mar 31) Loss = 5,826 (Apr 1 – June 15) | Cumulative loss =  1576.53 (26.1%, Dec 1 – Mar 31)  976.75(16.8%, Apr 1 – June 15) | 12/19/2023 |

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)* | Not in effect | 5% of the  Winter-run or Spring-run population in  Delta | N/A | N/A | 9/29/23 | Will be updated when in effect. |
| Winter-run yearly loss  (8.6.1) | Nov. 1 - Jun. 30 | In effect | TBD  (based on LAD Winter-run; WY 2024 JPE) | N/A | N/A | 12/18/23 |  |
| Winter-run discrete daily loss (8.6.2) | Nov. 1 - Dec. 31 | In effect | 12/1-12/31: loss of 26 fish /day of unclipped LAD older juvenile  (Winter-run, Yearling fall-run, and Late fall-run) | Max Older Juvenile discrete daily loss observed last week = 0 | Possible salvage of LAD older juveniles in the upcoming week | 12/18/23 | No salvage of LAD older juveniles during the previous week. |
| Mid and late season Winter-run daily loss threshold (8.6.3) | Jan 1 – May 31 | Not In effect | TBD  (Based on LAD Older Juvenile) | N/A | N/A | 9/29/23 | Will be updated when in effect. |
| Spring-run surrogate protection  (8.6.4) | Feb. 1 - Jun. 30 | Not in effect | TBD |  | N/A | 9/29/23 | Will be updated when in effect |

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 | In effect | - three-day Freeport daily flow running avg>= 25,000 AND    [three-day Freeport turbidity running avg >=50 FNU OR Smelt Monitoring Team recommendation] | Freeport 3-day avg.  Flow = 10115.96 cfs;  Turbidity = 6.57 FNU | Increase in response to precipitation | 12/18/23 | N/A |
| Turbidity Bridge Avoidance (8.5.1) | Dec. 15 -  Apr. 1 | Not in effect | Occurs after the Integrated Early Winter Pulse protection or February 1 whichever comes first until April 1  -avg. OBI turbidity>12 FNU | N/A | N/A | 11/27/23 | N/A |
| Larval and/Juvenile Delta smelt Protection (8.5.2) | Nov. 1 – Jun. 30 | In effect, not triggered | - 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 SJJ temp= 11.19 °C  Average Secchi Depth = 166 cm | N/A | 12/18/23 | 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 | In effect | -Cum. salvage > [most recent FMWT/10] = 28 fish (Sept.-Nov. Index) OR  -Smelt Monitoring Team determines high likelihood of LFS movement into high-risk areas | Cumulative salvage = 0 | N/A | 12/11/23 | N/A |
| OMR Mgt. for Adults (8.4.1) | Onset of OMR mgmt -Feb. 28 | Offramped | -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 in effect | -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 | N/A | N/A | 11/27/23 | 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 | In effect, not triggered | -Sac. R. at Rio Vista>55,000, OR    SJR at Vernalis >8,000 | Rio Vista = 7,000 – 15,000 cfs  SJ = 1,000 – 1,750 cfs | N/A | 12/18/23 | 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 12/19/2023) | Status |
| --- | --- | --- | --- |
| SWP regular counts, CWT reading | Delta | Active | 1 |
| SWP larval sampling | Delta | Not Active | 4 |
| CVP regular counts, CWT reading | Delta | Active | 1 |
| CVP larval sampling | Delta | Not Active | 4 |
| Smelt Larval Survey | Delta | Active | 1 |
| LEPS | Delta | Not Active | 4 |
| 20mm Survey | Delta | Not Active | 4 |
| Fall Mid-water Trawl | Delta | Active | 1 |
| 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 |
| EMP | Delta | Active | 1 |
| Mossdale | 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 |
| GCID RST | Sacramento River | Not Active | 4 |
| Yuba River (Hallwood) RST | Yuba River | Active | 1 |
| Redd dewatering and stranding surveys | Sacramento River | Active | 1 |
| Sacramento Carcass and Redd Surveys | 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 |
| 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 | American River | Active | 1 |
| Caswell RST | Stanislaus River | Not Active | 4 |
| Wallace Weir | Cache Slough | Active | 1 |
| Butte Creek RST/Diversion Trap | Butte Creek | Active | 1 |