**Weekly Fish and Water Operations Outlook**

**12/27/2022 – 1/2/2023**

**FORECASTED WEATHER: Major pattern shift to wet weather beginning Monday evening. Some drying out between storms is likely on Wednesday and Sunday, otherwise wet conditions continue this week and for the start of next week.**

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 eggs are incubating and fry are emerging from redds. Fall-run Chinook salmon eggs are incubating in the gravel. * Late fall-run Chinook salmon are entering and will begin spawning soon. * *O. mykiss* adults are migrating and holding in Clear Creek. Last year's juvenile *O. mykiss* are present. * *(updated 12/27/22)* |
| Sacramento River | * Shasta Storage: 1.442 MAF * Current Release: 3,250 cfs * Anticipated Weekly Range of Releases: 3,250 cfs w/ possibility of increases due to Keswick side-flow management. | * Spring-run Chinook salmon fry are emerging from redds into the river. Final redd emergence will be in late December. * Winter-run Chinook juvenile salmon have all emerged from redds and are migrating downstream. * Winter-run and spring-run Chinook salmon (length-at-date) juveniles are being caught in low numbers and genetics being taken to confirm run assignment. * Fall-run Chinook salmon spawning is wrapping up. Carcass surveys for fall-run are underway. Eggs/fry are incubating in gravel. First emergence estimated around mid-Dec. * Late fall-run Chinook salmon are entering and have begun spawning. * Fall-run juveniles, according to length-at-date-criteria, are being caught at increasing numbers at the RBDD rotary traps. * (updated 12/27/22) |
| Feather River | * Oroville Storage: 1.059 MAF * Current Release: 950 cfs * Anticipated Weekly Range of Releases: 950 cfs * Daily temperature maximum: 55 F at Fish Hatchery | * Fall-run Chinook salmon spawning has ended. Eggs are incubating in gravel and fry are beginning to emerge. * Spring-run Chinook salmon fry are emerging and juveniles are moving downstream * Approximately 15-20 green sturgeon present from Sunset Pumps to Boyd’s Pump. * Adult and juvenile *O. mykiss* present.   *(updated 12/27/22)* |
| American River | * Folsom Storage: 293 TAF * Current Release: 1,300 cfs * Anticipated Weekly Range of Releases: 1,300 cfs w/ possibility of increases due to Natoma side-flow management | * Adult fall-run Chinook Salmon are present and spawning. Eggs are incubating in gravel. Fry are emerging from eggs. Redd and carcass surveys are underway. * Juvenile and adult *O. mykiss* are present.   (*updated 12/27/22*) |
| Stanislaus River | * New Melones Storage: 625 TAF * Current Release: 200 cfs * Anticipated Range of Weekly Releases: 200 cfs w/ possibility of increases due to Tulloch side-flow management | * Juvenile and adult *O. mykiss* are present. * Adult fall-run Chinook salmon are present and spawning. Eggs are in the gravel. * *(updated 11/29/22)* |
| Delta | * Freeport: 7,000 to 30,000 cfs * Vernalis: 800 to 2,500 cfs * Delta Outflow index: 2,000 to 40,000 cfs * Combined Exports: 1,200 to 8,000 cfs * JPP: 900 cfs to 4,200 cfs * CCF: 300 cfs to 6,680 cfs * Expected Daily OMR Index Values: -2,500 to –7,500 cfs * DCC Gates: Closed as of 11/28 and expected to remain closed for seasonal operation, however, adjustments could be necessary to respond to real-time salinity conditions. | * Adult O. mykiss present. * Young-of-year spring-run and winter-run Chinook salmon juveniles are moving downstream. * Adult and juvenile Green Sturgeon present * Delta Smelt adults were recently detected in the lower Sacramento River in mid-December. Experimental release of hatchery Delta Smelt at Rio Vista occurred 11/30/22. * Longfin Smelt sub-adults and adults have recently been detected in the lower Sacramento River and Chipps, as well as Suisun Marsh and Suisun Bay. Spawning has started and LFS larvae have been detected in the lower Sacramento River, north Delta, confluence, and the lower San Joaquin River. * (updated 12/27/22) |

Table 2a-b: WY 2023 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 2023 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). \* TBD – no draft JPE produced, ITL and performance thresholds are TBD currently

| Species/run | Threshold | Current Status | Weekly Trend | Updated |
| --- | --- | --- | --- | --- |
| Green sturgeon | WY 2023 salvage = 74 | WY 2023 salvage = 0 (0%) | No change expected | 12/27/2022 |
| Natural winter-run Chinook Salmon | WY 2023 loss = TBD \*  (50% of 1.17% of JPE) | WY 2023 loss = 17.54 | Possible salvage | 12/27/2022 |
| Natural Steelhead | Dec 1 – Mar 31 = 707 (50% of 1,414)  Apr 1 – June 15 = 776 (50% of 1,552) | WY 2023 loss = 0  Dec 1 – Mar 31 = 0 (0%)  Apr 1 – June 15 = 0 (0%) | No change expected | 12/27/2022 |
| Sacramento River Hatchery winter-run Chinook salmon | WY 2023 loss = TBD\* (50% of 0.12% of JPE) | WY 2023 loss = 0 (0%) | No change expected | 12/27/2022 |
| Battle Creek  Hatchery winter-run Chinook salmon | WY 2023 loss = TBD \*  (50% of 0.12% of JPE) | WY 2023 loss = 0 (0%) | No change expected | 12/27/2022 |
| Proposed Action Hatchery yearling spring-run Chinook salmon surrogates | > 0.5% of each release group | WY 2023 loss = 0 (0%) | No change expected | 12/27/2022 |
| Delta Smelt | After Dec. 1:  Running 3-day avg. flows at Freeport >25,000 cfs  Running 3-day avg. turbidity at Freeport =>50 FNU | Freeport 3-day avg.  Flow = 7319 cfs  Turbidity = 4.82 FNU | Increase | 12/27/2022 |
| Delta Smelt | Daily avg. Turbidity at OBI=>12 FNU | OBI daily Avg Turbidity = Not relevant | Not relevant | 12/20/2022 |
| Delta Smelt | Daily avg. Temperature at CCF > 25°C for three consecutive days | CCF daily avg. Temperature = Not relevant | Not relevant | 12/20/2022 |

Table 2b. 10-Year Salmonid Cumulative Loss

| Species/run | Threshold | Current Status | Updated |
| --- | --- | --- | --- |
| Natural winter-run Chinook salmon | Loss = 8,738 | Cumulative loss =  281.7 (3.2%) | 12/27/2022 |
| Hatchery winter-run Chinook salmon | Loss = 5,356 | Cumulative loss =  6.71 (0.13%) | 12/27/2022 |
| 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)  474.5 (8.1%, Apr 1 – June 15) | 12/27/2022 |

Table 3a-d: Relevant Water Year 2023 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 | 12/18/22 |  |
| Winter-run yearly loss  (8.6.1) | Nov. 1 - Jun. 30 | In effect | TBD (based on JPE) | WR loss: 17.54 | N/A | 12/18/22 | Based on salvage data from 12/18/22 |
| Winter-run discrete daily loss (8.6.2) | Nov. 1 - Dec. 31 | In effect | 12/1-12/31: loss of 26/day unclipped older juv. Winter-run | Daily loss from 12/18 unclipped WR salvage: **17.54** fish/TAF<26 fish/TAF | Possible salvage | 12/18/22 | Based on salvage data from 12/18/22 |
| Mid and late season Winter-run daily loss threshold (8.6.3) | Jan 1 – May 31 | Not in effect |  | N/A | N/A | 102/31/22 |  |
| Spring-run surrogate protection  (8.6.4) | Feb. 1 - Jun. 30 | Not in effect | TBD (based on the number of fish released) | N/A | N/A | 10/31/22 |  |

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 | In effect, not triggered | - three-day Freeport daily flow running avg>= 25,000 AND  [three-day Freeport turbidity running avg >=50 NTU OR Smelt Monitoring Team recommendation] | FPT flow: 7319 cfs  FPT turbidity: 4.82 FNU | Increase | 12/27/22 | Data from 12/26/22 |
| 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 NTU | N/A | N/A | 12/27/22 | N/A |
| Larval and/Juvenile Delta smelt Protection (8.5.2) | ongoing | In effect, not triggered | - If 5-day cum. salvage of juv.DS >= 1[average 3-yrFMWT 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 = 8.75  SLS 13 avg Secchi = 152 cm | No change expected | 12/27/22 | 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, not triggered | -Cum. salvage > [most recent FMWT/10] =32 fish (Sept.-Nov. Index) OR  -Smelt Monitoring Team determines high likelihood of LFS movement into high-risk areas | Cum salvage total = 0 | No change expected | 12/27/22 | N/A |
| OMR Mgt. for Adults (8.4.1) | Dec. 1 -Feb. 28 | Off-ramped | -Smelt Monitoring Team recommendation | N/A | N/A | 12/27/22 |  |
| 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 | 12/27/22 | Will take effect Jan 1 |
| 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 7,000 cfs  SJ = 800 to 1,400 cfs | N/A | 12/1/22 | N/A |

Table 3d: OMR

| Action | Timeframe | Current Action Status | Threshold(s) | Current Relevant Data | Weekly Trend | Last Updated | Comments |
| --- | --- | --- | --- | --- | --- | --- | --- |
| OMR  Mgmt.  Offramp  (8.8) | 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 and Prisoners Point.   * Days exceeded: Criteria met as of 6/16/2022 |  | N/A | 10/10/22 |  |

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 12/27/2022) | 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 |
| Spring Kodiak Trawl | Delta | Not Active | 4 |
| 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 (sampling three days a week starting in May) | 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 screw trap | Sacramento River | Active | 1 |
| Knights Landing screw trap | Sacramento River | Partial Interruption (inactive on 12/24-12/26) | 2 |
| Tisdale screw trap | Sacramento River | Partial Interruption (inactive on 12/23-12/26) | 2 |
| GCID screw trap | Sacramento River | Active | 1 |
| Yuba River (Hallwood) screw trap | Yuba River | Active – weekdays only | 1 |
| Redd dewatering and stranding surveys | Sacramento River | Not Active | 4 |
| Sacramento Carcass and Redd Surveys | Sacramento River | Active | 1 |
| Lower Sacramento Rotary Screw Trap | Sacramento River | Partial Interruption (inactive on 12/23-12/26) | 2 |
| Feather River (upper DWR) | Sacramento River | Active | 1 |
| Feather River (lower CDFW) | Sacramento River | Partial Interruption (inactive on 12/23-12/26) | 2 |
| SJRRP CDFW Field Monitoring | San Joaquin River | Active | 1 |
| SJRRP USFWS and USBR Field Monitoring | San Joaquin River | Not Active | 4 |
| Stanislaus Fish Weir | San Joaquin River | Active | 1 |