**Weekly Fish and Water Operations Outlook 11/23/2021 – 11/29/2021**

Patchy valley fog over the next few mornings. A weak weather system brings cooler temperatures and northerly winds by Tuesday/Wednesday. Dry weather expected through the extended forecast period, with high temperatures at or above seasonal norms.

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| **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 hatching, and fry are rearing in the system * Adult fall-run Chinook Salmon spawning continues, peak has past. Many millions of Fall-run Chinook Salmon eggs are incubating in the gravel * O. mykiss and steelhead adults present, their migrations into Clear Creek and upstream into Clear Creek will continue through the next few months. Spawning season begins in December. * Late-fall run Chinook Salmon migrating. Spawning season begins in December.   (*updated 11/22/2021*) |
| Sacramento River | * Shasta Storage: 1.112 MAF * Current Release: 3,250 cfs * Anticipated Weekly Range of   Releases: 3,250 cfs | * Winter-run Chinook Salmon juveniles present * Spring-run Chinook Salmon spawned eggs, alevins in gravel, some fry present * Fall-run Chinook Salmon adult spawning, eggs and alevin in gravel, and some adults still holding and waiting to spawn in November * Late fall-run Chinook Salmon holding * Green Sturgeon adults and juvenile present * Adult and juvenile steelhead present   (*updated 11/16/21*) |
| Feather River | * Oroville Storage: 1.045 MAF * Current Release: 950 cfs * Anticipated Weekly Range of Releases: 950 cfs * Daily temperature targets: 51°F (±4°F) at Fish Hatchery | * Fall-run Chinook Salmon spawning, eggs and alevin in gravel. * Juvenile and Adult steelhead present * Spring-run Chinook Salmon eggs and alevins in gravel.   (*updated 11/23/21*) |
| American River | * Folsom Storage: 344 TAF * Current Release: 550 cfs * Anticipated Weekly Range of Releases: 550 cfs | * Fall-run Chinook Salmon holding and spawning. Eggs are in gravel. * Juvenile and adult steelhead are present.   *(updated 11/18/21)* |
| Stanislaus River | * New Melones Storage: 851 TAF * Current Release: 200 cfs * Anticipated Range of Weekly Releases: 200 cfs | * Juvenile and adult *O. mykiss* expected to be present * Adult fall-run Chinook Salmon present * Adult Chinook Salmon spawning observed   (*updated 11/18/21)* |
| Delta | * Freeport: 5,500 to 7,500 cfs * Vernalis: 400 to 700 cfs * Delta Outflow index: 2,000 to 3,500 cfs * Combined Exports: 1,900 to 3,200 cfs * JPP: 1,700 cfs to 2,700 cfs * CCF: 200 cfs to 500 cfs * Expected OMR Index Values: -1,500 to -3,000 cfs * DCC Gates: Closed on 11/23 to meet Rio Vista standard; further potential operation for Delta salinity possible. | * Juvenile winter-run Chinook Salmon 70-75% yet to enter Delta, 25-29% in Delta, 0-1% exited Delta past Chipps Island * YOY spring-run Chinook Salmon: 97-100% yet to enter Delta, 0-3% in Delta, 0% exited past Chipps Island * Juvenile Steelhead: 93-98% yet to enter Delta, 2-6% in Delta, 0-1% exited Delta past Chipps Island * Adult fall-run Chinook Salmon entering Delta and migrating upstream towards spawning grounds * Adult steelhead present * Adult and juvenile Green Sturgeon present * Subadult Delta Smelt expected to be present in the Deep Water Ship Channel and downstream of the confluence. * Longfin Smelt juveniles >60mm have been detected at Chipps, and may be starting to move into the Delta. Juveniles present in Suisun Marsh, San Pablo and Central Bay. Adults present in Suisun Bay and Suisun Marsh.   (*updated 11/23/2021*) |

\* Environmental and fish conditions updated by respective watershed groups at varying intervals that may not coincide with the weekly range of Water Operations

Table 2a-b: WY 2022 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 2022 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).

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| **Species/run** | **Threshold** | **Current Status** | **Weekly Trend** | **Updated** |
| Green sturgeon | WY 2022 salvage = 74 | WY 2022 salvage = 0 (0%) | No change expected | 11/21/2021 |
| Natural winter-run Chinook Salmon | WY 2022 loss = TBD \* | WY 2022 loss = 0 | Possible but unlikely | 11/21/2021 |
| Natural Steelhead  \*\* | Dec 1 – Mar 31 = 707 (50% of 1,414) Apr 1 – June 15 = 776 (50% of 1,552) | Dec 1 – Mar 31 = 3.29 (0.47%)  Apr 1 – June 15 = 0 (0%) | Possible | 11/21/2021 |
| 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 = 6030  Turbidity = 5.42 | Not applicable until Dec. 1 | 11/23/2021 |

\* TBD – no draft JPE produced, ITL and performance thresholds are TBD currently

\*\* Steelhead observed on 10/30/2021 and 11/19/2021 are included in the December 1 through March 31 period.

# Table 2b. 10-Year Salmonid Cumulative Loss

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| **Species/run** | **Threshold** | **Current Status** | **Updated** |
| Natural winter-run Chinook salmon | Loss = 8,738 | Cumulative loss = 204.9 (2.3%) | 11/21/2021 |
| Hatchery winter-run Chinook salmon | Loss = 5,356 | Cumulative loss = 0 (0%) | 11/21/2021 |
| Natural steelhead  \*\* | Loss = 6,038 (Dec 1 – Mar 31) Loss = 5,826 (Apr 1 – June 15) | Cumulative loss =  446.48 (7.4%, Dec 1 – Mar 31)  374.8 (6.4%, Apr 1 – June 15) | 11/21/2021 |

Table 3a-d: Relevant Water Year 2022 Fish Criteria and Status for Listed Fish under the SWP Long-Term Incidental Take Permit.

Table 3a: Chinook Salmon

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| **Action** | **Timeframe** |  | **Threshold(s)** |  | **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 | NA | NA | **10/4/21** |  |
| Winter-run yearly loss  (8.6.1) | Nov. 1 - Jun. 30 | In effect  (Based on JPE  Value) | TBD (Based on JPE guidance) | Current yearly WR loss (natural) = 0;  Current yearly WR loss (hatchery) = 0 | Possible but unlikely for natural Winter-run | **11/22/21** | **Based on salvage data from 11/21/21** |
| Winter-run discrete daily loss (8.6.2) | Nov. 1 - Dec. 31 | In effect | 11/1-11/30: loss of 6/day unclipped older juv. Winter-run  12/1-12/31: loss of 26/day unclipped older juv. Winter-run | max single daily loss from previous week = 0.00 fish (no WR observed yet) | No change expected | **11/22/21** | **Based on salvage data from 11/21/21** |
| Spring-run surrogate protection  (8.6.4) | Feb. 1 - Jun. 30 | Not in effect: | TBD (based on the number of fish released) | NA |  | **11/1/21** |  |
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Table 3b: Delta Smelt

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| 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 | Not in effect | * three-day Freeport daily flow running avg >= 25,000 AND   [three-day Freeport turbidity running avg >=50 NTU OR Smelt Monitoring Team recommendation] | **N.A.** | **N.A.** | **N.A.** | **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 until April 1) comes first  - avg. OBI turbidity > 12 NTU | **N.A.** | **N.A.** | **N.A.** | **N.A.** |
| Larval and/Juvenile Delta smelt Protection (8.5.2) | ongoing | In effect | * 5-day cum. salvage of juv. DS >= 1.67 [average 3-yr FMWT index + 1] OR,   3-day cum. salvage of juv. DS >11 | **current 5-day salvage = 0** | **no change expected** | **11/22/2021** | **Based on salvage data from 11/21/21** |

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 | Not in effect | * Cum. salvage > [most recent FMWT/10] = 1.2 fish OR * Smelt Monitoring Team determines high likelihood of LFS movement into high-risk areas | **N.A.** | **N.A.** | **N.A.** | **N.A.** |
| OMR Mgt. for Adults (8.4.1) | Dec. 1 -Feb. 28 | Not in effect | - Smelt Monitoring Team recommendation | **N.A.** | **N.A.** | **N.A.** | **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 >=2 stations | **N.A.** | **N.A.** | **N.A.** | **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 in effect | * Sac. R. at Rio Vista >55,000, OR   SJR at Vernalis >8,000 | **Rio Vista = 5,000 to 7,000 cfs**  **SJ = 800 to 1,000 cfs** |  |  |  |

Table 3d: OMR

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| Action | Timeframe | Current  Action  Status | Threshold(s) | **Current**  **Relevant**  **Data** | **Weekly Trend** | **Last**  **Updated** | **Comments** |
| OMR  Mgmt.  Offramp  (8.3.2) | Jun. 1 – Jun. 30 | Not in effect | * >95% of the Winter-run and Springrun populations have   migrated past Chipps Island AND     * Current daily average water temperature at Mossdale   exceeds22.2°C for 7 nonconsecutive days in June  AND     * Current daily average water temperature at Prisoners Point exceeds 22.2°C for 7 non-consecutive days in June.      * Current daily mean water temperature at CCF is greater than 25°C for three consecutive days | N/A |  | **10/4/21** |  |

Table 4. Fish monitoring gear efficiency and disruptions.

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| **Monitoring Survey** | **Notes (as of 11/23/2021)** | **Status \*** |
| **Delta** |  |  |
| SWP regular counts, CWT reading, and larval sampling | Active (No disruptions) | 1 |
| CVP regular counts, CWT reading, and larval sampling | Active (No disruptions) | 1 |
| Smelt Larval Survey | Not Active | 4 |
| 20mm Survey | Not Active | 4 |
| Spring Kodiak Trawl | Not Active | 4 |
| Fall Mid-water Trawl | Active (No disruptions) | 1 |
| Summer Townet Survey | Not Active | 4 |
| Bay Study | Active (No disruptions) | 1 |
| DJFMP- Chipps and Sacramento  Trawls | Active (some disruptions due to fog) | 2 |
| DJFMP- Seines | Active with one disruption: not sampling San Joaquin Seines (due to low water) | 2 |
| EDSM | Active (some disruptions due to fog) | 2 |
| EMP | Active (No disruptions) | 1 |
| Mossdale | Active (some disruptions due to low water and some fleet issues) | 2 |
| USGS Flow monitoring | Active (No disruptions) | 1 |
| **Sacramento River** |  |  |
| Red Bluff Diversion Dam screw trap | Active (No disruptions) | 1 |
| Knights Landing screw trap | Active (No disruptions) | 1 |
| Tisdale screw trap | Active (No disruptions) | 1 |
| GCID screw trap | Active | 1 |
| Redd dewatering and stranding surveys | Not Active | 4 |
| Sacramento Carcass and Redd Surveys | Active (No disruptions) | 1 |
| **Feather River** |  |  |
| Feather River screw trap | Active (upper rotary screw trap at Eye Riffle active from 11/15 to 11/19; lower rotary screw trap active next week, weekdays only) | 2 |
| **San Joaquin River** |  |  |
| SJRRP CDFW Field Monitoring | Active (No disruptions) | 1 |
| SJRRP USFWS and USBR Field  Monitoring | Active (No disruptions) | 1 |
| Stanislaus Fish Weir | Active (No disruptions) | 1 |

\* Status: Weekly categories include:

1. Active (ongoing sampling)
2. Partial Interruption (some sampling interruptions)
3. Interrupted (sampling fully suspended)
4. Not Active (sampling not scheduled)