# 2024 SWP ITP Operations Summary and Chinook Salmon Assessment

Date: 1/21/2025

## Summary for the Water Operations Management Team (WOMT):

For the week beginning 1/21/25, COA 8.4.2/PA 3.7.4.5 (OMRI -3,500 cfs) is controlling exports at the Central Valley Project (CVP) and the State Water Project (SWP). Combined exports on 1/21/25 are 4,400 cfs resulting in an Old and Middle River Index (OMRI) of -3,500 cfs and 10.9% of inflow diverted (14-day average). The Delta Cross Channel (DCC) gates were closed on 11/18/24 and will likely remain closed this upcoming week. The SWP is exporting this week and no outages are planned.

Spring-run Chinook Salmon (SR) risk into the central Delta remains low this week. Yearling and YOY SR are anticipated to move into the Delta in the upcoming week due to seasonal migration timing; however, due to hydrological conditions it is not anticipated that spring-run have a high risk of being entrained into the central Delta. SR risk into the facilities has increased to medium this week primarily due to the release of yearling spring-run surrogates on 1/17/25 that may end up in the Delta, and because hatchery-origin yearling surrogates from the other release groups are continuing to be observed at the salvage facilities.

Winter-run Chinook Salmon (WR) are migrating downstream and are entering the Delta in increasing numbers. 1 genetically-confirmed winter-run Chinook Salmon was observed at the salvage facilities on 1/16/25. 1 LAD WR was observed on 1/19/25. Total loss for both fish exceeded COA 8.4.4 threshold; however, if genetics confirms that the LAD WR was NOT a genetic WR, then the 7-day rolling sum will no longer be triggered and COA 8.4.4 will no longer be triggered.

## Spring-run Chinook Salmon Risk Assessment for 1/21/25 - 1/27/25

### Section 1: Sacramento River and Confluence

### Assessment of risk of entrainment into the central Delta for SR in the Sacramento River:

- Exposure Risk:
  - SR: Medium
- Routing Risk:
  - SR: Low
- Overall Entrainment Risk:
  - SR: Low
- Change in risk of entrainment into the central Delta (increased/decreased risk compared to last week):
  - SR: Similar to previous week
    - Exposure Risk is estimated as medium this week. YOY SR are not estimated to be in the Delta in large numbers due to seasonal timing; however, due to hydrological conditions and seasonal timing, both YOY and yearling SR are likely migrating downstream and into the Delta. Routing Risk is estimated as low this week based on hydrologic conditions, DCC gates projected to be closed, Freeport flows remain high (~20,000 cfs), and the STARS Model is predicting ~20% entrainment into Georgiana Slough. Due to hydrological conditions and the Georgiana BAFF installation, it is less likely that fish will have a high entrainment risk into the central Delta this week. Therefore, the overall entrainment into the central Delta remains at low risk.

## Section 2: Facilities Risk

### Central Valley Project/State Water Project (CVP/SWP) facilities entrainment risk for SR in the central Delta over the next week:

- Exposure Risk:
    - SR: Medium
- Reporting OMR/Export Risk:
    - Baseline OMR (-5,000 cfs)
        - SR: Medium
    - Scenario 1 OMR: (-3,400 cfs)
        - SR: Low
    - Scenario 2 OMR: (-5,100 cfs)
        - SR: Medium
- Overall Entrainment Risk:
    - SR: Medium
- Change in risk of entrainment into the facilities (increased/decreased risk compared to last week):
    - SR: Increased from previous week
        - Exposure Risk is medium this week due to hatchery-origin yearling SR surrogates being salvaged throughout the previous week. Reporting OMR/Export Risk is medium to low this week depending on which OMRI target is being operated to. Since the hatchery-origin spring-run surrogates indicate that natural-origin yearling SR are migrating through the system and may be present near the salvage facilities, it is also possible that natural-origin yearling SR will also be salvaged in the upcoming week. Since another yearling SR surrogate release was released last week, it is possible that those fish may end up in salvage in the upcoming week. Therefore, the overall entrainment risk into the facilities is estimated to increase to medium this week.

## Section 3: Distribution and Biology

- Adult escapement:
    - Adult SR have completed their spawning.
- Redd distribution and fry emergence timing:
    - YOY SR eggs are beginning to emerge. There have been detections of emergence based on detections at the Tisdale RST, Lower Sacramento RST, and Knights Landing on the Sacramento River and at the Eye-side RST and Lower Feather RST on the Feather River. Butte Creek RSTs are also observing higher juvenile counts which indicate that fry emergence is occurring.
- Hatchery releases (Feather River Fish Hatchery and Coleman National Fish Hatchery):
    - Coleman National Fish Hatchery (CNFH) have released four late fall-run Chinook Salmon release groups into Battle Creek on 11/20/24, 11/25/24, 12/13/24, and 1/17/25.
    - The release that occurred on 11/20/24 will count towards COA 8.4.5 for yearling SR surrogate releases as Group #1 and tracking of these fish in the SWP and CVP facilities will be closely monitored.
    - The release that occurred on 12/13/24 will count towards COA 8.4.5 for yearling SR surrogate releases as Group #2 and tracking of these fish in the SWP and CVP facilities will be closely monitored.
    - The release that occurred on 1/17/25 will count towards COA 8.4.5 for yearling SR surrogate releases as Group #3 and tracking of these fish in the SWP and CVP facilities will be closely monitored.
    - Loss has occurred from the SR surrogate Group #1 and Group #2. See the *Thresholds for Relevant Conditions of Approval (COAs)* section for more detailed information.
- Distribution of length-at-date (LAD) natural-origin young-of-year (YOY) and yearling SR:

- Feather River: Lower Feather RSTs have caught a few LAD SR so far this season. Juveniles are beginning to emerge from redds and migrate downstream but most are still emerging and rearing upstream.
    - Butte Creek: Butte Creek Carcass Surveys ended on 10/28/24. Only 20 carcasses were observed. 1 juvenile SR was observed passing through the RSTs on 12/3/24.
- Sacramento River: Carcass surveys are still ongoing. Red Bluff Diversion Dam (RBDD) RSTs are observing juveniles passing through.
    - Mill and Deer Creek: As of 12/16/24, 3 yearling SR were observed at the Mill Creek RST. The RSTs had not been trapping in the previous few weeks due to a storm event that damaged the traps. Mill Creek RST began trapping again but have not observed any new juveniles. Deer Creek RST is expected to begin trapping next week.

- Distribution of natural-origin yearling SR:
    - Yearling SR are likely still migrating downstream into the Delta due to the continued hatchery-origin yearling spring-run surrogates that are being observed in the SWP and CVP facilities. Genetically-identified yearling fall-run Chinook Salmon have been observed at the CVP facility over the previous week and many hatchery-origin yearling SR surrogates have been observed at both the SWP and CVP salvage facilities. This indicates that natural-origin yearling SR are continuing to migrate downstream and present near the salvage facilities.
    - Any genetic SR that is larger than the LAD YOY SR, according to the Delta Model, will be classified as a yearling SR.

## Section 4: Risk Evaluation

- Levels of risk and change in risk
    - Definitions of what "high, medium, and low" risk means relative to cumulative thresholds, weekly thresholds, and hatchery surrogate thresholds. These thresholds are based on professional opinion and scientific literature, including Perry et al. 2018, Hance et al. 2021, and NMFS 2019.
        - **Central Delta Entrainment Risk**: The intent is to characterize the risk of exceeding weekly thresholds such as Knights Landing triggers and the potential to set fish up rearing in the interior with reduced survival and for those fish that would pass closer to the export facilities when they transition to emigrating, elevating the chance that those fish would be lost at the export facilities.
            - Exposure Risk: Percentage of fish anticipated to be near the DCC gates, Knights Landing, Lower Sacramento River, and/or in the North Delta and anticipated to be moving downstream (due to storm events, seasonal migration timing, etc.). For YOY SR, the percentages below may be based on the fish distribution table. For yearling SR, the percentages may be based on genetically confirmed observations at the salvage facilities and detections of yearling SR surrogates and yearling FR in RSTs and other real-time monitoring stations.
                - High: Majority of the population is estimated to be in the Delta (> 60%)
                - Medium: 40%-60% of the population is estimated to be in the Delta
                - Low: Minimal proportion of population estimated to be in the Delta (0%-40%)
            - Routing Risk: Characterize risk of fish affected by flow conditions that divert fish from the main channel.
                - High:
                    - Low flows at Freeport [FPT gauge] (< 12,000 cfs)

        - DCC gates are open
        - STARS Model indicates a significant proportion of flow being diverted into Georgiana Slough (> 35%)
        - Georgiana Slough Bio-Acoustic Fish Fence (BAFF) not operating
    - Medium:
        - Low flows at Freeport (< 12,000 cfs)
        - STARS Model indicates a proportion of flow being diverted into Georgiana Slough (30-40%)
    - Low
        - High flows at Freeport (> 12,000 cfs)
        - Mute tidal effects at Georgiana Slough junction and STARS Model indicates a low proportion of flow being diverted into Georgiana Slough (< 30%)
    - Overall Risk: Informed by above two risk categories

- **Facilities Entrainment Risk**: The intent is to characterize the risk of exceeding COA 8.4.5. For fish in the central Delta, OMR index flows could result in entrainment into the facilities.
    - Exposure Risk:
        - High:
            - Large numbers of fish are being observed in salvage over the previous week
            - Exposure Risk for central Delta entrainment is high
        - Medium:
            - Fish are being observed over the previous week
        - Low:
            - No fish have been observed over the previous week
            - Exposure Risk for central Delta entrainment is low
    - Reporting Risk:
        - High: OMR index is more negative -5,000 cfs
        - Medium: OMR index is between -3,500 cfs to -5,000 cfs
        - Low: OMR index is more positive than -3,500 cfs

    - Overall Risk: Informed by above two risk categories and can be further informed by models such as the STARS model

# Thresholds for Relevant Conditions of Approval (COAs)

**COA 8.4.3 Winter-run Chinook Salmon Annual Loss Thresholds**

- The final natural-origin WR JPE for BY 2024 was 98,893 and was distributed on 1/10/25. The thresholds below are based on the final JPE for natural-origin WR and hatchery-origin WR from both Livingston Stone National Fish Hatchery (LSNFH) and Battle Creek.
- Natural-origin WR: **494.47** [0.5% of the natural-origin WR JPE]
    - Current Annual Loss: 2.54
        - 50% Threshold based on natural-origin WR JPE: 247.24
            - Risk of exceeding threshold: Low
            - Days Threshold was exceeded in previous week: None
            - Days Operated to Threshold after Exceedance: None
        - 75% Threshold based on natural-origin WR JPE: 370.85
            - Risk of exceeding threshold: Low
            - Winter-run Chinook Salmon Machine Learning Model Prediction: N/A
        - 100% Threshold based on natural-origin WR JPE: 494.47
            - Risk of exceeding threshold: Low
- LSNFH Hatchery-origin WR: **162.41** [0.12% of the LSNFH release JPE]
    - Current Annual Loss: 0
        - 50% Threshold based on hatchery WR JPE: 81.21
            - Risk of exceeding threshold: Releases have not occurred
        - 75% Threshold based on hatchery WR JPE: 121.81
            - Risk of exceeding threshold: Releases have not occurred
        - 100% Threshold based on hatchery WR JPE: 162.41
            - Risk of exceeding threshold: Releases have not occurred
- Battle Creek Hatchery-origin WR: **3.44** [0.12% of the Battle Creek release JPE]
    - Current Annual Loss: 0
        - 50% Threshold based on hatchery WR JPE: 1.72
            - Risk of exceeding threshold: Releases have not occurred
        - 75% Threshold based on hatchery WR JPE: 2.58
            - Risk of exceeding threshold: Releases have not occurred
        - 100% Threshold based on hatchery WR JPE: 3.44
            - Risk of exceeding threshold: Releases have not occurred

**COA 8.4.4 Natural-origin Winter-run Chinook Salmon Weekly Distributed Loss Thresholds**

- January Weekly Loss Thresholds based on final natural-origin CHNWR JPE: [50% of the annual loss threshold x Weekly percentage of CHNWR in the Delta x Annual Loss Threshold based on final JPE]
    - January 15 – January 21 (Week 3): 0.50 x 0.013 x 494.47 = **3.21**
        - Date(s) threshold was triggered in previous week: 1/20/25
        - Days operated to threshold: Due to COA 8.1.7, Permittee has not implemented any operational changes for COA 8.4.4. COA 8.1.7 states that Permittee is allowed a 3-day response to any COA triggered in order to allow for efficient power scheduling.
    - January 22 – January 28 (Week 4): 0.50 x 0.013 x 494.47 = **3.21**
        - Date(s) threshold was triggered in previous week: N/A
        - Days operated to threshold: N/A
    - January 29 – February 4 (Week 5): 0.50 x 0.0691 x 494.47 = **17.08**

- Date(s) threshold was triggered in previous week: N/A
- Days operated to threshold: N/A

**COA 8.4.5 Spring-run Chinook Salmon Protection Action and Surrogate Annual Loss Threshold**

- COA 8.4.5 requires a weekly risk assessment for spring-run Chinook Salmon. See above section (*Spring-run Chinook Salmon Assessment for 1/14/25 – 1/20/25*) for weekly risk assessment that fulfills that requirement.
- Hatchery-origin Yearling SR Surrogates (0.25% of total in-river FR releases for each release group from Coleman National Fish Hatchery (CNFH):
    - Group 1 Loss Threshold: 1,747.23
        - Total Loss as of 1/20: 984.60
        - Highest Daily Loss: 252.2 on 12/4
    - Group 2 Loss Threshold: 193.39
        - Total Loss as of 1/20: 72.52
        - Highest Daily Loss: 17.64
    - Group 3 Loss Threshold: 186.10
        - Total Loss as of 1/12: 0
        - Highest Daily Loss: 0
- Hatchery-origin Young-of-Year SR Surrogates (0.25% of total in-river FR releases for each release group from Coleman National Fish Hatchery (CNFH)): Releases have not yet occurred.
- Hatchery Origin Young-of-Year SR Surrogates (0.25% of total in-river SR releases for each release group from Feather River Hatchery (FRH)): Releases have not yet occurred.

# Hydrology and Operations Updates

## Water Operations

Antecedent Actions: (e.g., Actions such as integrated early winter pulse protection, etc.)

- COA 8.4.2 Adult Delta Smelt Entrainment Protection Action triggered in the previous week, which limits the CVP and SWP facilities to a 7-day average OMRI of -3,500 cfs.

Georgiana Slough Bio-Acoustic Fish Fence (BAFF):

- The Georgiana Slough BAFF is installed and began operating on 11/15/24. However, a car collided into the facility which caused the aerator machine to break and is unrepairable. A temporary aerator is likely to be installed soon; however, in the meantime the lights and sound are the only thing working on the BAFF until the temporary aerator is installed. It is expected that the BAFF will be fully operational by the end of January.
- Releases of acoustically-tagged hatchery fish are anticipated to occur from December through March to study the effectiveness of the BAFF. These studies are included in the table below and on CalFishTrack (https://oceanview.pfeg.noaa.gov/CalFishTrack/pageGSSMB_LFCS_2025.html).

**Table 1.** Late fall-run Chinook Salmon acoustically tagged releases for efficiency of Georgiana BAFF.

| Release Date | Race | # of Fish Released | % Entrained into Georgiana Slough |
|---|---|---|---|
| 12/4/24 | Late Fall-Run | 478 | 14.6% |

# Real-time Monitoring Data

## SacPAS Tools

### Section 1: STARS Model

Available on SacPAS at: Delta STARS Model

**Table 2.** STARS Model

| Date: (1/17/25) | DCC Gates | Georgiana Slough | Sacramento River | Sutter and Steamboat Slough | Yolo Bypass |
|---|---|---|---|---|---|
| Late Fall-Run Proportion of Entrainment | N/A-not open | 0.21 | 0.47 | 0.31 | N/A |
| Late Fall-Run Survival | N/A-not open | 0.27 | 0.63 | 0.57 | N/A |

### Section 2: Historical Migration

Knights Landing RST and Chipps Island Trawls Historical Timing from Brood Years 2009-2023. Available at: Unclipped Winter Chinook Cohort Juvenile Migration Timing and Conditions Graph and Table: SacPAS Sacramento Prediction and Assessment of Salmon and other fishes

## Delta Monitoring Stations

### Rotary Screw Trap Data

Red Bluff Diversion Dam RST: Estimated juvenile WR passage at Red Bluff Diversion Dam for 12/15/24 is 414,399 fish.

**Table 3.** *Fish monitoring data for RST data for the 1/21/25 SaMT meeting. The following table presents fish monitoring data summarized over the past week. Unless otherwise noted, reported sizes are fork length. FR = fall-run, WR = winter-run, SR = spring-run, LFR = late-fall-run.*

| Location | Butte Creek RST | Tisdale RST | Knights Landing RST | Lower Sac RST | Lower Feather RST | Feather at Eye-Side RST | Feather at Herringer RST |
|---|---|---|---|---|---|---|---|
| Sample Date | 1/12/25 – 1/19/25 | 1/9/25 – 1/19/25 | 1/12/25 – 1/19/25 | 1/12/25 - 1/19/25 | N/A | 1/11/25 - 1/19/25 | 1/11/25 – 1/19/25 |
| FR Chinook | 0 | 510 | 396 | 149 | N/A | 11,082 | 10,156 |
| SR Chinook | 200 | 6 | 1 | 7 | N/A | 12 | 29 |
| WR Chinook | 0 | 1 | 1 | 1 | N/A | 0 | 0 |
| LFR Chinook | 0 | 0 | 0 | 0 | N/A | 0 | 0 |

| Location | Butte Creek RST | Tisdale RST | Knights Landing RST | Lower Sac RST | Lower Feather RST | Feather at Eye-Side RST | Feather at Herringer RST |
|---|---|---|---|---|---|---|---|
| Chinook (ad-clip) | 0 | 0 | 0 | 0 | N/A | 0 | 0 |

Delta Trawl and Seine Data

**Table 4.** *Fish monitoring data for trawl and seine data for the 1/21/25 SaMT meeting. The following table presents fish monitoring data summarized over the past week. Unless otherwise noted, reported sizes are fork length. FR = fall-run, WR = winter-run, SR = spring-run, LFR = late-fall-run.*

| Location | Chipps Island Midwater Trawls | Mossdale Kodiak Trawls | Beach Seines | Sac Trawls | EDSM Trawls |
|---|---|---|---|---|---|
| Sample Date | 1/12/25 – 1/18/25 | 1/12/25 - 1/18/25 | 1/12/25 - 1/18/25 | 1/12/25 - 1/18/25 | 1/12/25 - 1/18/25 |
| FR Chinook | 0 | 0 | 43 | 3 | 2 |
| SR Chinook | 0 | 0 | 3 | 0 | 0 |
| WR Chinook | 0 | 0 | 0 | 0 | 0 |
| LFR Chinook | 0 | 0 | 0 | 0 | 0 |
| Chinook (ad-clip) | 1 | 0 | 0 | 0 | 0 |

## Hatchery Release Information

Telemetry Data:

Information for telemetry data can be found at: CalFishTrack

The Central Valley Enhanced Acoustic Tagging Project has not tagged any fish so far this WY; therefore, there are no updates to the telemetry data this week.

Tracking Hatchery Releases:

Currently there have not been any hatchery-origin WR releases so far this WY.

**Table 5.** Hatchery salmon release data for BY 2024 and WY 2025.

| Release Date | Hatchery | Race | CWT | Marked Release Number | Total Release | Percent Marked | Release Location | Mark | Agency | Release Type |
|---|---|---|---|---|---|---|---|---|---|---|
| 11/20/24 | CNFH | Late Fall | 05-00-38 | 74,376 | 74,376 | 100% | Battle Creek at CNFH | CWT and Ad-Clip | USFWS | Production |
| 11/20/24 | CNFH | Late Fall | 05-00-39 | 50,787 | 50,787 | 100% | Battle Creek at CNFH | CWT and Ad-Clip | USFWS | Production |
| 11/20/24 | CNFH | Late Fall | 05-00-40 | 71,154 | 71,154 | 100% | Battle Creek at CNFH | CWT and Ad-Clip | USFWS | Production |
| 11/20/24 | CNFH | Late Fall | 05-00-41 | 68,959 | 68,959 | 100% | Battle Creek at CNFH | CWT and Ad-Clip | USFWS | Production |
| 11/20/24 | CNFH | Late Fall | 05-00-42 | 62,132 | 62,132 | 100% | Battle Creek at CNFH | CWT and Ad-Clip | USFWS | Production |
| 11/20/24 | CNFH | Late Fall | 05-00-43 | 73,963 | 73,963 | 100% | Battle Creek at CNFH | CWT and Ad-Clip | USFWS | Production |

| Release Date | Hatchery | Race | CWT | Marked Release Number | Total Release | Percent Marked | Release Location | Mark | Agency | Release Type |
|---|---|---|---|---|---|---|---|---|---|---|
| 11/20/24 | CNFH | Late Fall | 05-00-44 | 57,585 | 57,585 | 100% | Battle Creek at CNFH | CWT and Ad-Clip | USFWS | Production |
| 11/20/24 | CNFH | Late Fall | 05-26-00 | 46,496 | 46,406 | 100% | Battle Creek at CNFH | CWT and Ad-Clip | USFWS | Production |
| 11/20/24 | CNFH | Late Fall | 05-33-00 | 66,185 | 66,185 | 100% | Battle Creek at CNFH | CWT and Ad-Clip | USFWS | Production |
| 11/20/24 | CNFH | Late Fall | 05-34-00 | 61,619 | 61,619 | 100% | Battle Creek at CNFH | CWT and Ad-Clip | USFWS | Production |
| 11/20/24 | CNFH | Late Fall | 05-35-00 | 65,726 | 65,726 | 100% | Battle Creek at CNFH | CWT and Ad-Clip | USFWS | Production |
| 11/25/24 | CNFH | Late Fall | 05-32-00 | 67,422 | 67,422 | 100% | Battle Creek at CNFH | CWT and Ad-Clip | USFWS | Production |
| 12/10/24 - 12/11/24 | SCARF | Spring | 06-19-69 | 514 | 514 | 100% | San Joaquin River at Highway 140 | PIT, CWT, and Ad-clip | CDFW | SJRRP |
| 12/10/24 - 12/11/24 | SCARF | Spring | 06-07-00 | 5,201 | 5,201 | 100% | San Joaquin River at Highway 140 | PIT, CWT, and Ad-clip | CDFW | SJRRP |
| 12/10/24 - 12/11/24 | SCARF | Spring | 06-26-09 | 4,300 | 4,300 | 100% | San Joaquin River at Highway 140 | PIT, CWT, and Ad-clip | CDFW | SJRRP |
| 12/13/2024 | CNFH | Late Fall | 05 31 00 | 77,355 | 77,355 | 100% | Battle Creek at CNFH | CWT and Ad-clip | USFWS | Experimental |
| 1/17/2025 | CNFH | Late Fall | 05 30 00 | 74,425 | 74,425 | 100% | Battle Creek at CNFH | CWT and Ad-clip | USFWS | Experimental |

**Table 6.** COA 8.4.5 Young-of-Year and Yearling Spring-run Chinook Salmon Hatchery Surrogate Summary Table, WY 2025.

| Hatchery | Release Group | Date | Race | Total Fish Released | CWT Fish | Tag Codes | Loss Threshold |
|---|---|---|---|---|---|---|---|
| **Coleman National Fish Hatchery (Late Fall-run Chinook Salmon)** | Group 1 | 11/20/24 | Late fall-run | 698,892 | 698,892 | 05-00-38<br>05-00-39<br>05-00-40<br>05-00-41<br>05-00-42<br>05-00-43<br>05-00-44<br>05-26-00<br>05-33-00<br>05-34-00<br>05-35-00 | 1,747.23 |
| | Group 2 | 12/13/24 | Late fall-run | 77,355 | 77,355 | 05-31-00 | 193.39 |
| | Group 3 | 1/17/25 | Late fall-run | 74,425 | 74,425 | 05-30-00 | 186.10 |
| | | | | | | | |
| **Feather River Fish Hatchery (Spring-run Chinook Salmon)** | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | | | | | | | |
| **Feather River Fish Hatchery (Fall-run Chinook Salmon)** | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

# LAD/Genetic Loss Data for Older Juvenile Chinook Salmon and Spring-run Chinook Salmon

## SWP and CVP Weekly Loss Updates:

- Loss of yearling SR surrogates from CNFH were observed at the SWP and CVP facilities last week that counted towards the COA 8.4.5 threshold. Total loss as of 1/12/25 for Group #1 is 984.60. Total loss as of 1/5/25 for Group #2 is 72.52.
- LAD natural-origin older juveniles were observed at the SWP and CVP facilities over the previous week that counted towards the threshold for COA 8.4.4. 1 genetically-confirmed WR was observed on 1/16/25. The LAD WR observed on 1/20/25 is still awaiting genetic confirmation.
- SacPAS - Salvage Timing

**Table 7.** Hatchery-origin Chinook Salmon data taken from Aasen Geir's spreadsheet (Salmon_2025_01212025.csv). Only Chinook Salmon data that are associated with the hatchery-origin Chinook Salmon COA's that are in effect will be included, which includes COA 8.4.5. Loss data from other fish were not included. *FR = fall-run, WR = winter-run, SR = spring-run, LFR = late-fall-run.*

| Race (LAD) | Race (DNA) | Race (CWT) | Associated COA for Tracking Loss | Weekly Total Loss 1/13- 1/20 | Total Loss for Season |
|---|---|---|---|---|---|
| N/A | N/A | LFR | COA 8.4.5: Group 1 | 5.76 | 984.60 |
| N/A | N/A | LFR | COA 8.4.5: Group 2 | 0 | 72.52 |
| udaN/A | N/A | LFR | COA 8.4.5: Group 3 | 0 | N/A |

**Table 8.** Natural-origin Chinook Salmon data taken from Aasen Geir's spreadsheet (Salmon_2025_01212025.csv). Only Chinook Salmon data that are associated with the natural-origin Chinook Salmon COA's that are in effect will be included, which includes COA 8.4.4. Loss data from other fish were not included. Older juvenile is defined as any Chinook Salmon measured above the minimum length for CHNWR, according to the Delta Model LAD criteria. *FR = fall-run, WR = winter-run, SR = spring-run, LFR = late-fall-run.*

| Race (LAD) | Genetically Confirmed as: (FR, LFR, WR, SR) | Associated COA for Tracking Loss | Weekly Total Loss 1/13 - 1/20 | 7-day Rolling Sum of Loss for COA 8.4.4 |
|---|---|---|---|---|
| LFR (older juvenile) | N/A | COA 8.4.4 | 0 | 11.34 *(pending genetic confirmation of loss of 8.80)* |
| Yearling FR (older juvenile) | N/A | COA 8.4.4 | 0 | |
| WR (older juvenile) | 2.54 | COA 8.4.4 | 11.34 | |

# 2024 SWP ITP COAs Currently in Effect

The 2024 Incidental Take Permit for Long-Term Operation of the State Water Project in the Sacramento-San Joaquin Delta 2081-2023-054-00 (SWP ITP). This week's operations summary and assessment is based on the following COAs which are currently applicable:

**COA 8.2.1 Natural-origin Winter-run Chinook Salmon Early Season Weekly Loss Thresholds**

*To minimize entrainment and loss of early-migrating natural-origin CHNWR, Permittee shall, in coordination with Reclamation, adjust south Delta exports to achieve a 7-day average of the OMR index no more negative than -5,000 cfs for seven consecutive days, when the genetically verified 7-day rolling sum of CHNWR loss, calculated daily, exceeds the following thresholds (see calculation details and survival variables in Attachments 2 and 6):*

- *From November 1 through November 30: Product of November Multiplier and the Red Bluff Diversion Dam juvenile CHNWR brood year passage total at the end of the second biweekly period in October, whereby the November Multiplier is: November Multiplier = 0.0011 x 0.25 x SurvivalFry-to-Smolt x SurvivalSmolt*
- *From December 1 through December 31: Product of December Multiplier and the Red Bluff Diversion Dam juvenile CHNWR brood year passage total estimated at the end of the second biweekly period in November, whereby the December Multiplier is: December Multiplier = 0.0021 x 0.25 x SurvivalFry-to-Smolt x SurvivalSmolt*

*If the 7-day rolling sum of CHNWR loss, calculated daily, is exceeded during a period of reduced exports, Permittee shall, in coordination with Reclamation, continue to adjust south Delta exports to achieve a 7-day average of the OMR index no more negative than -5,000 cfs, until seven days after the most recent exceedance. Loss shall be calculated for the south Delta export facilities using the 2018 CDFW loss equation (Attachment 8). Permittee shall, in coordination with Reclamation, initially adjust exports in response to meeting the thresholds above based on length-at-date identification of natural-origin older juvenile Chinook Salmon. If genetic analysis of natural-origin juvenile Chinook Salmon observed in salvage at the SWP or CVP subsequently indicates that any given Chinook Salmon is not a genetically confirmed CHNWR, that fish will not count toward the loss threshold exceedance, and continued export adjustments pursuant to the OMR limit may not be required. While a new, more rapid genetic method, SHERLOCK, undergoes field testing, both it and the current genetic method, GT-seq, shall be used to determine the final identification. In the event that SHERLOCK and GT-seq provide different run assignments, the results from the GT-seq method shall be used to determine the final run assignment for the purposes of implementing Condition of Approval 8.2.1. If a fish is not genetically identifiable or if genetic identification is pending, then the Delta model length-at-date criteria shall be used to classify the race of the juvenile Chinook Salmon in salvage for the purposes of implementing Condition of Approval 8.2.1.*

**COA 8.4.3 Winter-run Chinook Salmon Annual Loss Thresholds**

*To minimize entrainment and loss of juvenile CHNWR, Permittee shall, in coordination with Reclamation, adjust south Delta exports to manage the OMR index to avoid exceeding the following annual loss thresholds:*

- *Natural-origin CHNWR Loss Threshold: 0.5% of JPE*
- *Hatchery-origin CHNWR Loss Threshold: 0.12% of JPE*

*JPEs and annual loss thresholds will be calculated for natural-origin CHNWR, for hatchery-origin CHNWR from Livingston Stone National Fish Hatchery (LSNFH) released into the Sacramento River near Redding, and for*

*LSNFH hatchery-origin CHNWR released into Battle Creek. The JPE for natural and hatchery-origin CHNWR is calculated by the JPE Subteam annually, consistent with Attachment 2, and is described in the yearly recommendation letter produced by the JPE Subteam and transmitted to NMFS and CDFW. NMFS and CDFW issues an Annual JPE Letter, with the JPE Subteam recommendation included as an enclosure to the letter, to Permittee and Reclamation. Hatchery releases of CHNWR are tracked individually, and Permittee shall sum cumulative loss, confirmed by coded wire tag (CWT), across release groups with the same JPE and annual loss threshold. Permittee shall calculate loss for the south Delta export facilities using the 2018 CDFW loss equation (Attachment 8). Permittee shall count annual loss of natural and hatchery-origin CHNWR at the SWP and CVP salvage facilities for each brood year, starting July 1 of the calendar year through June 30 of the following calendar year. If cumulative loss of either natural or hatchery-origin CHNWR in a brood year exceeds 50% of the annual loss thresholds, then Permittee shall, in coordination with Reclamation, adjust south Delta exports to achieve a 7-day average of the OMR index no more negative than -3,500 cfs for seven consecutive days. If a CHNWR is salvaged during the 7-day action, the action will be extended for another seven days. At the conclusion of the action, Permittee, in coordination with Reclamation shall revert to the weekly distributed loss threshold until the 75% threshold is reached or throughout the end of the OMR Management season (Condition of Approval 8.6).*

**COA 8.4.4 2024 Early Season Natural Winter-run Chinook Salmon Discrete Daily Loss Threshold:**
*Natural-origin Winter-run Chinook Salmon Weekly Distributed Loss Thresholds. To minimize the potential for a disproportionate impact of entrainment and loss on any single week of natural-origin juvenile CHNWR present in the Delta, Permittee shall, in coordination with Reclamation, manage the OMR index based on a natural-origin CHNWR weekly distributed loss threshold. The natural-origin CHNWR weekly loss threshold is a product of the weekly percentage of natural-origin CHNWR present in the Delta, scaled to 100% (Table 4, Column E), and 50% of the natural-origin CHNWR annual loss threshold (Condition of Approval 8.4.3). If the weekly distributed loss threshold is exceeded on any single day by the 7-day rolling sum of natural-origin CHNWR loss, then Permittee shall, in coordination with Reclamation, adjust south Delta exports to achieve a 7-day average of the OMR index no more negative than -3,500 cfs for seven consecutive days until seven days after the most recent exceedance. Permittee shall calculate loss for the south Delta export facilities using the 2018 CDFW loss equation (Attachment 8). If the natural-origin CHNWR JPE is not available at the start of OMR Management season (Condition of Approval 8.3), then the Red Bluff Diversion Dam brood year total from the most recent bi-weekly period shall be used and applied as described for early season management (Condition of Approval 8.2.1) to the annual loss threshold until the final natural-origin CHNWR JPE is available. The CHNWR JPE surrogate is calculated using the following formula:*

- *Natural-origin CHNWR JPE Surrogate = Red Bluff Diversion Dam juvenile CHNWR brood year passage total estimated from the most recent biweekly period x SurvivalFry-to-Smolt x SurvivalSmolt*

*Permittee shall, in coordination with Reclamation, adjust south Delta exports in response to meeting the below natural-origin CHNWR weekly thresholds based on the initial length-at-date identification of natural-origin older juvenile Chinook Salmon and the thresholds described below. If genetic analysis of natural-origin older juvenile Chinook Salmon observed in salvage at the SWP or CVP subsequently confirms that any given Chinook Salmon is not genetically identified as a CHNWR, that fish will not count towards the loss threshold exceedance, and continued export restrictions pursuant to the OMR index limit may not be required. While the new rapid genetic method, SHERLOCK, undergoes field testing, both it and the current GT-seq method shall be used to determine the final identification. In the event that SHERLOCK and GT-seq provide different run*

*assignments, the results from the GT-seq method shall be used to determine the final run assignment for purposes of implementing Condition of Approval 8.4.4. If a fish is not genetically identifiable or if genetic identification is pending, then the length-at-date identification shall be used to classify the race of the juvenile Chinook Salmon in salvage for the purposes of implementing Condition of Approval 8.4.4. Weekly thresholds shall be based on historical distribution (Table 4, Column E) of genetically identified CHNWR from water years 2017 through 2021 and will change every week (e.g., January 1-7, January 8-15). After the conclusion of the OMR Management season each summer, Permittee and Reclamation, through SaMT, shall compare weekly Delta entry and exit information to determine if the presence data were distributed similarly to the historical distribution data. The results of this review will be utilized as a part of the AMP to implement the Winter-run Old and Middle River Flows Management Adaptive Management Action (Attachment 4 and Condition of Approval 7.9.2).*

**COA 8.4.5 Spring-run Chinook Salmon Protection Action and Surrogate Annual Loss Thresholds**

*To minimize entrainment and loss of juvenile CHNSR, Permittee shall, in coordination with Reclamation, restrict exports based on the presence of hatchery-origin CHNSR and associated yearling late fall-run and young-of-year fall-run Chinook Salmon surrogate groups at the SWP and CVP salvage facilities. Permittee shall, in coordination with CDFW, Reclamation, USFWS, and NMFS through the SaMT, select CHNSR yearling and young-of-year surrogate groups. Yearling CHNSR surrogates shall be selected from late fall Chinook Salmon in-river release groups from the Coleman National Fish Hatchery. Young-of-year CHNSR and associated surrogate groups shall be selected from fall- and spring-run Chinook Salmon in-river release groups from the Feather River Fish Hatchery and Coleman National Fish Hatchery.*

*From November 1 through the end of OMR Management (Condition of Approval 8.6) each water year:*

*(1) If a cumulative loss threshold for a surrogate release group is exceeded in November or December, Permittee shall, in coordination with Reclamation, adjust south Delta exports to achieve a 7-day average of the OMR index no more negative than -5,000 cfs for seven consecutive days; and*

*(2) If a cumulative loss threshold for a surrogate release group is exceeded after the onset of OMR Management (Condition of Approval 8.3), or on or after January 1 through the end of OMR Management or June 30, whichever comes first, Permittee shall, in coordination with Reclamation, adjust south Delta exports to achieve a 7- day average of the OMR index no more negative than -3,500 cfs for seven consecutive days.*

*The cumulative loss threshold for CWT CHNSR surrogate groups at the SWP and CVP salvage facilities is greater than 0.25% for each release group:*

- *Yearling CHNSR surrogates: WOMT, with input from SaMT, shall select three inriver releases of late fall-run Chinook Salmon from Coleman National Fish Hatchery from November through February to use as yearling CHNSR surrogates. Input from SaMT may include a proposal with several alternatives. If three in-river releases appropriately distributed from November through February are not achievable in a given year because of hatchery limitations, then an alternative plan shall be developed to ensure the adequate characterization and minimization of natural-origin yearling CHNSR can still be achieved that year. This plan shall be subject to CDFW approval.*
- *Young-of-year CHNSR surrogates: WOMT, with input from SaMT, shall select six in-river releases comprised of CHNSR and fall-run Chinook Salmon from the Feather River Fish Hatchery and fall-run Chinook Salmon from the Coleman National Fish Hatchery from March through May to use*

*as young-of-year CHNSR surrogates. Input from SaMT may include a proposal with several alternatives. If six in-river releases appropriately distributed from March through May are not achievable in a given year because of hatchery limitations, then an alternative plan shall be developed to ensure the adequate characterization and minimization of natural-origin young-of-year CHNSR can still be achieved that year. This plan shall be subject to CDFW approval.*

*Permittee shall, in coordination with Reclamation and SaMT, use real-time monitoring data, relevant tools, and new science gained through ongoing efforts to develop a CHNSR JPE and LCM to inform weekly risk assessments (October through June) for natural-origin juvenile CHNSR. If the risk assessment or WOMT representatives identifies a more positive OMR flow may be needed to minimize take of natural-origin juvenile CHNSR, WOMT may consider a more positive OMR flow requirement.*