Weekly Assessment of CVP and SWP Delta Operations on ESA-listed Species

Bureau of Reclamation

January 08, 2024

## Chinook Salmon

### TABLES

#### TABLE 2. Historic migration and salvage patterns.Last updated 01/08/2024

| **Species** | **RedBluffDiversionDam** | **TisdaleRst** | **KnightsLandingRst** | **SacTrawlSherwoodCatchIndex** | **ChippsIslandTrawlCatchIndex** | **Salvage** |
| --- | --- | --- | --- | --- | --- | --- |
| Chinook, Winter-run, Unclipped | 97.4%(95.7%,99.0%) BY: 2014 - 2022 | 73.0%(56.6%,89.3%) BY: 2014 - 2022 | 71.6%(49.3%,93.9%) BY: 2014 - 2022 | 37.4%(9.4%,65.3%) BY: 2014 - 2022 | 4.9%(-2.8%,12.6%) BY: 2014 - 2022 | 18.2%(2.6%,33.8%) WY: 2014 - 2023 |
| Chinook, Spring-run, Unclipped | 13.7%(3.9%,23.5%) BY: 2014 - 2022 | 17.2%(2.9%,31.5%) BY: 2014 - 2022 | 27.3%(5.8%,48.7%) BY: 2014 - 2022 | 4.9%(-3.3%,13.0%) BY: 2014 - 2022 | 0.0%(0.0%,0.0%) BY: 2014 - 2022 | 0.0%(0.0%,0.0%) WY: 2014 - 2023 |
| Steelhead, Unclipped (January-December) | 0.1%(0.0%,0.2%) BY: 2014 - 2023 | 0.0%(0.0%,0.0%) BY: 2014 - 2023 | 3.3%(-4.2%,10.9%) BY: 2014 - 2023 | 0.0%(0.0%,0.0%) BY: 2014 - 2023 | 1.8%(-2.3%,5.9%) BY: 2014 - 2023 |  |
| Steelhead, Unclipped (December-March) |  |  |  |  |  | 6.5%(-2.5%,15.4%) WY: 2014 - 2023 |
| Steelhead, Unclipped (April-June) |  |  |  |  |  |  |

#### TABLE 3. Mean daily flow and percent change (Wilkins Slough, Deer Creek, Mill Creek; cfs from CDEC) and temperature and percent change (Knights Landing; °F from RST)

| **Date** | **Mill Creek (MLM): mean daily flow (cfs)** | **Mill Creek (MLM): flow percent change** | **Mill Creek (MLM): Alert** | **Deer Creek (DCV): mean daily flow (cfs)** | **Deer Creek (DCV): flow percent change** | **Deer Creek (DCV): Alert** | **Wilkins Slough (WLK): mean daily flow (cfs)** | **Knights Landing RST: water temperature (f)** | **Alert Triggered** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1/7/2024 | 162.2 | -0.9% | Flow>95cfs | 164.9 | -3.4% | Flow>95cfs | 9,676.5 |  |  |
| 1/6/2024 | 163.7 | -6.5% | Flow>95cfs | 170.7 | -7.8% | Flow>95cfs | 11,097.6 |  |  |
| 1/5/2024 | 175.1 | -24.6% | Flow>95cfs | 185.0 | -15.9% | Flow>95cfs | 13,065.2 |  |  |
| 1/4/2024 | 232.3 | -41.0% | Flow>95cfs | 220.1 | -31.4% | Flow>95cfs | 10,939.9 |  |  |
| 1/3/2024 | 393.9 | 115.1% | Flow>95cfs Change>50% | 320.6 | 91.4% | Flow>95cfs Change>50% | 10,207.6 |  |  |
| 1/2/2024 | 183.1 | -1.9% | Flow>95cfs | 167.5 | -4.9% | Flow>95cfs | 12,163.8 |  |  |
| 1/1/2024 | 186.6 | -15.7% | Flow>95cfs | 176.1 | -14.5% | Flow>95cfs | 15,691.1 |  |  |

#### TABLE 4. STARS model simulations for route-specific entrainment, travel times, and survival. Travel time is calculated in days.

| **Stock** | **Date** | **Route** | **Median Travel Time** | **Survival** | **Routing Probability** |
| --- | --- | --- | --- | --- | --- |
| Winter Chinook | 2024-01-07 | Overall | 6.33 | 0.41 |  |
| Winter Chinook | 2024-01-07 | Sacramento River | 5.92 | 0.45 | 0.60 |
| Winter Chinook | 2024-01-07 | Yolo Bypass | 10.06 | 0.56 | 0.00 |
| Winter Chinook | 2024-01-07 | Sutter Slough | 5.96 | 0.38 | 0.14 |
| Winter Chinook | 2024-01-07 | Steamboat Slough | 5.63 | 0.51 | 0.13 |
| Winter Chinook | 2024-01-07 | Interior Delta | 9.31 | 0.15 | 0.13 |
| Late-fall Chinook | 2024-01-07 | Overall | 9.84 | 0.48 |  |
| Late-fall Chinook | 2024-01-07 | Delta Cross Channel | NA | NA | 0.00 |
| Late-fall Chinook | 2024-01-07 | Georgiana Slough | 14.51 | 0.23 | 0.24 |
| Late-fall Chinook | 2024-01-07 | Sacramento River | 8.59 | 0.60 | 0.47 |
| Late-fall Chinook | 2024-01-07 | Sutter and Steamboat Slough | 9.04 | 0.49 | 0.29 |

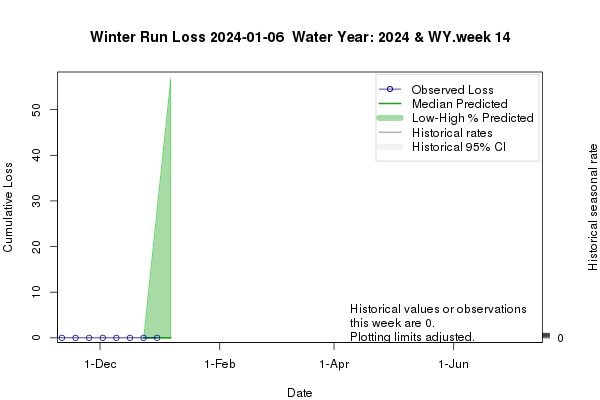
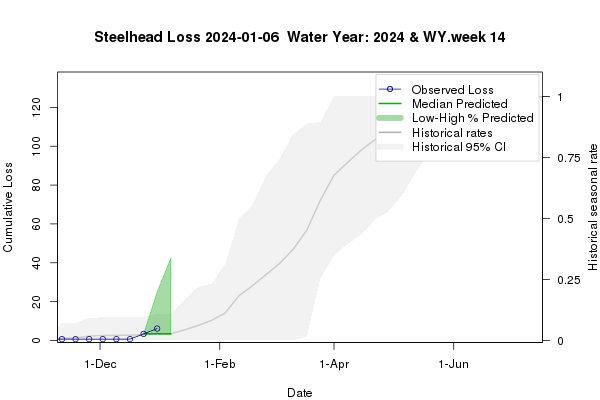
#### TABLE 5. a) WY 2022 loss and salvage predictor data: Predicted weekly loss of winter-run Chinook salmon and steelhead at CVP and SWP facilities.

| **Parameter** | **Modeled Current Week** | **Modeled Next Week** |
| --- | --- | --- |
| Predicted Steelhead, Median % | 0 | 0 |
| Predicted Steelhead, High % | 22 | 17 |
| Predicted Chinook Winter Run, Median % | 0 | 0 |
| Predicted Chinook Winter Run, High % | 29 | 29 |

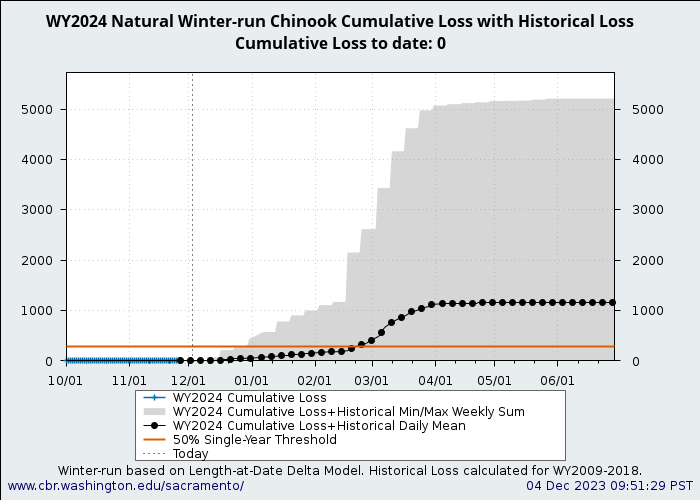
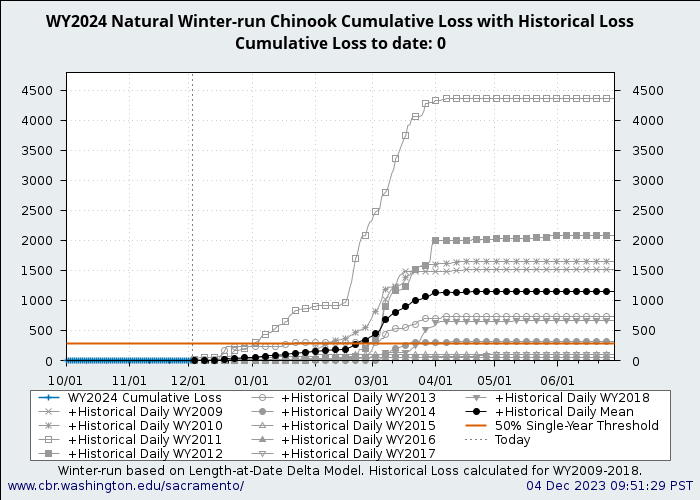
#### TABLE 5. b) Environmental details, current and forecast.

| **Parameter** | **Data** | **Forecast** |
| --- | --- | --- |
| Temperature (Mallard Island, C) | 11.5 | 11.5 |
| Precipitation (5-d running sum, inches) | 0.79 | 0.79 |
| Old and Middle River Flows (cfs) | -5589 | -5589 |
| Sacramento River Flow (Freeport, cfs) | 21650 | 21650 |
| DCC Gates | closed | closed |
| San Joaquin River Flow (Vernalis, cfs) | 1395 | 1395 |
| Export | 6247 | 6247 |

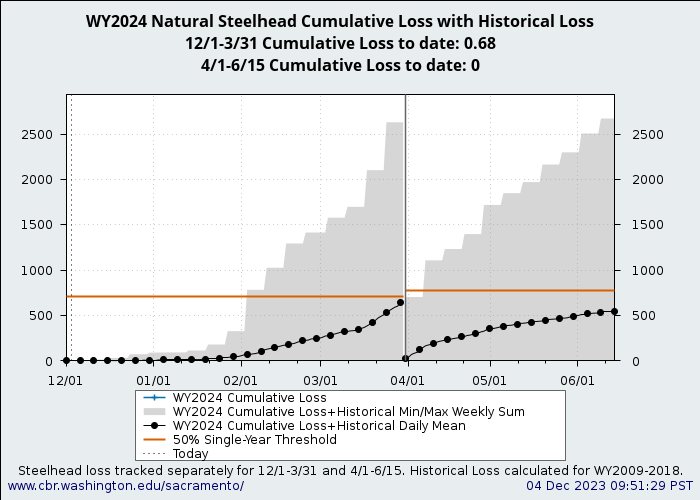
### FIGURES

#### Figure 1. Predicted weekly loss of steelhead and winter-run Chinook salmon at the CVP and SWP facilities

#### Figure 2. Cumulative natural winter-run Chinook salmon loss for the year (blue) and 2009 – 2018 historic cumulative loss (gray, different symbols). Historic daily mean plotted in black circles



“Steelhead Cumulative Loss”

#### Figure 3. Cumulative natural steelhead loss for the year (blue) and 2009 – 2018 historic cumulative loss (gray). Historic daily mean plotted in black circles.