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

Bureau of Reclamation

June 10, 2024

## Chinook Salmon

### TABLES

#### TABLE 2. Historic migration and salvage patterns.Last updated 06/10/2024

| **Species** | **RedBluffDiversionDam** | **TisdaleRst** | **KnightsLandingRst** | **SacTrawlSherwoodCatchIndex** | **ChippsIslandTrawlCatchIndex** | **Salvage** |
| --- | --- | --- | --- | --- | --- | --- |
| Chinook, Winter-run, Unclipped | 100.0%(100.0%,100.0%) BY: 2014 - 2022 | 100.0%(100.0%,100.0%) BY: 2014 - 2022 | 100.0%(100.0%,100.0%) BY: 2014 - 2022 | 100.0%(100.0%,100.0%) BY: 2014 - 2022 | 100.0%(100.0%,100.0%) BY: 2014 - 2022 | 100.0%(100.0%,100.0%) WY: 2014 - 2023 |
| Chinook, Spring-run, Unclipped | 100.0%(99.9%,100.0%) BY: 2014 - 2022 | 100.0%(100.0%,100.0%) BY: 2014 - 2022 | 100.0%(100.0%,100.0%) BY: 2014 - 2022 | 100.0%(100.0%,100.0%) BY: 2014 - 2022 | 100.0%(100.0%,100.0%) BY: 2014 - 2022 | 99.5%(98.8%,100.3%) WY: 2014 - 2023 |
| Steelhead, Unclipped (January-December) | 39.3%(20.8%,57.8%) BY: 2014 - 2023 | 86.7%(65.8%,107.5%) BY: 2014 - 2023 | 81.1%(64.1%,98.1%) BY: 2014 - 2023 | 100.0%(100.0%,100.0%) BY: 2014 - 2023 | 96.0%(91.2%,100.7%) BY: 2014 - 2023 |  |
| Steelhead, Unclipped (December-March) |  |  |  |  |  | 100.0%(100.0%,100.0%) WY: 2015 - 2024 |
| Steelhead, Unclipped (April-June) |  |  |  |  |  | 98.0%(95.4%,100.6%) WY: 2014 - 2023 |

#### 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** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6/9/2024 | 407.7 | -3.6% | Flow>95cfs | 241.4 | -3.7% | Flow>95cfs | 5,780.2 |  |  |
| 6/8/2024 | 422.8 | -2.6% | Flow>95cfs | 250.5 | -4.8% | Flow>95cfs | 5,826.4 |  |  |
| 6/7/2024 | 434.0 | -1.2% | Flow>95cfs | 263.0 | -5.5% | Flow>95cfs | 6,041.8 |  |  |
| 6/6/2024 | 439.2 | 2.1% | Flow>95cfs | 278.2 | -4.8% | Flow>95cfs | 6,191.4 |  |  |
| 6/5/2024 | 430.2 | 4.0% | Flow>95cfs | 292.2 | -5.5% | Flow>95cfs | 6,390.5 |  |  |
| 6/4/2024 | 413.8 | -4.9% | Flow>95cfs | 309.3 | -0.2% | Flow>95cfs | 6,441.0 |  |  |
| 6/3/2024 | 435.2 | 1.8% | Flow>95cfs | 309.9 | -1.7% | Flow>95cfs | 6,553.5 |  |  |

#### 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 | 2024-06-09 | Overall | 6.73 | 0.00 |  |
| Winter Chinook | 2024-06-09 | Sacramento River | 6.29 | 0.00 | 0.60 |
| Winter Chinook | 2024-06-09 | Yolo Bypass | 10.13 | 0.30 | 0.00 |
| Winter Chinook | 2024-06-09 | Sutter Slough | 6.40 | 0.00 | 0.14 |
| Winter Chinook | 2024-06-09 | Steamboat Slough | 6.14 | 0.00 | 0.14 |
| Winter Chinook | 2024-06-09 | Interior Delta | 9.75 | 0.00 | 0.13 |
| Late-fall Chinook | 2024-06-09 | Overall | 10.74 | 0.45 |  |
| Late-fall Chinook | 2024-06-09 | Delta Cross Channel | NA | NA | 0.00 |
| Late-fall Chinook | 2024-06-09 | Georgiana Slough | 15.40 | 0.21 | 0.25 |
| Late-fall Chinook | 2024-06-09 | Sacramento River | 9.25 | 0.58 | 0.47 |
| Late-fall Chinook | 2024-06-09 | Sutter and Steamboat Slough | 9.66 | 0.46 | 0.28 |

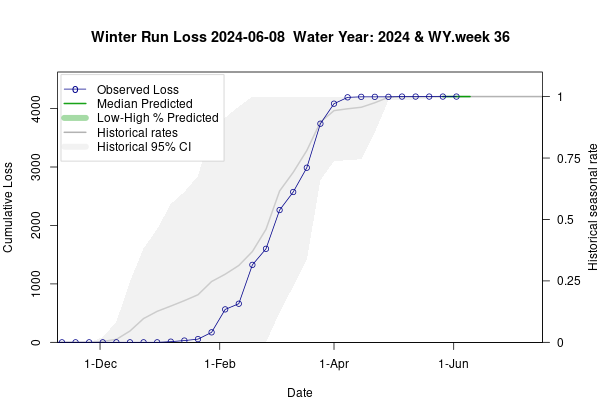
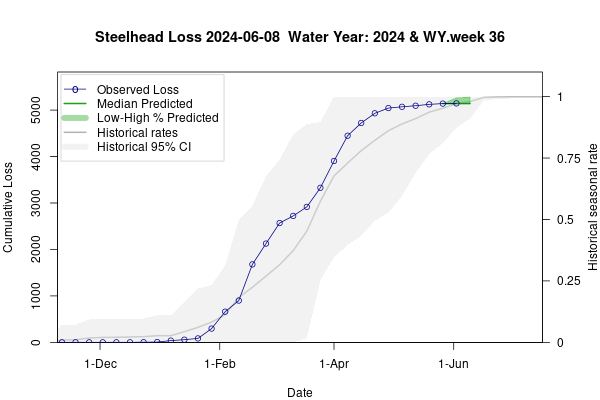
#### TABLE 5. a) WY 2022 loss and salvage predictor data: Predicted weekly loss of winter-run Chinook salmon and steelhead at CVP and SWP facilities.

| **Parameter** | **Modeled Current Week** | **Modeled Next Week** |
| --- | --- | --- |
| Predicted Steelhead, Median % | 0 | 0 |
| Predicted Steelhead, High % | 123 | 17 |
| Predicted Chinook Winter Run, Median % | 0 | 0 |
| Predicted Chinook Winter Run, High % | 0 | 0 |

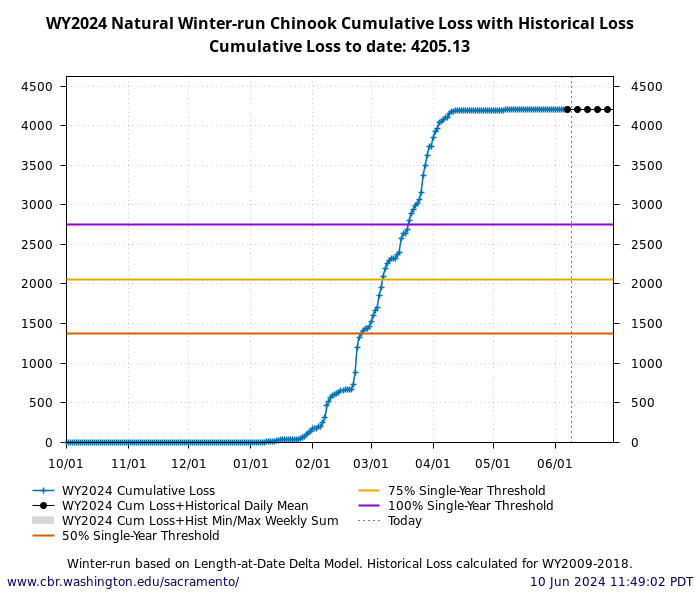
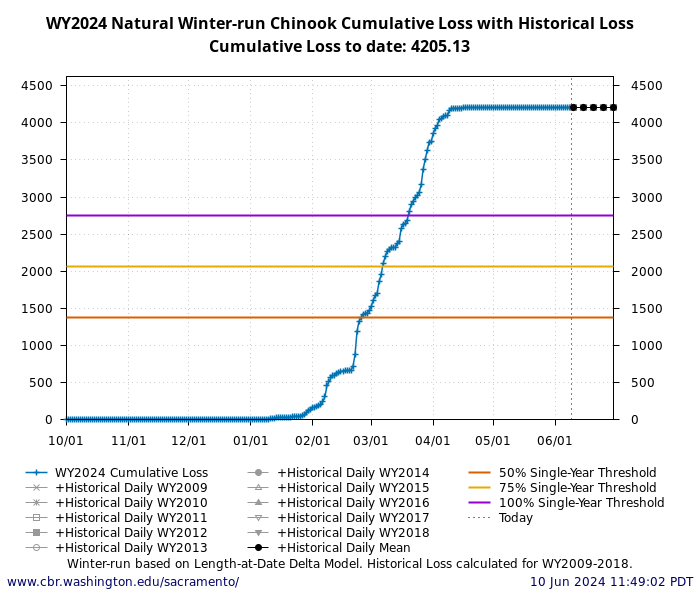
#### TABLE 5. b) Environmental details, current and forecast.

| **Parameter** | **Data** | **Forecast** |
| --- | --- | --- |
| Temperature (Mallard Island, C) | 21.1 | 21.1 |
| Precipitation (5-d running sum, inches) | 0 | 0 |
| Old and Middle River Flows (cfs) | -5654 | -5654 |
| Sacramento River Flow (Freeport, cfs) | 16064 | 16064 |
| DCC Gates | closed | closed |
| San Joaquin River Flow (Vernalis, cfs) | 3416 | 3416 |
| Export | 5421 | 5421 |

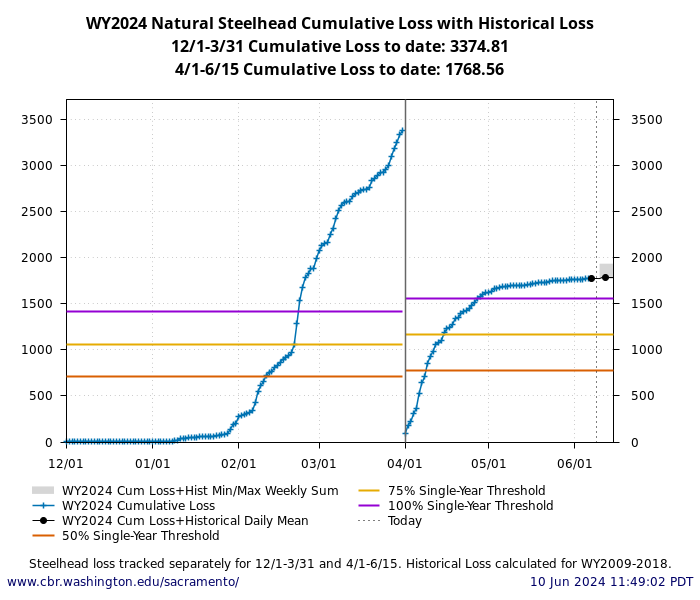
### FIGURES

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

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#### 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.