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

Bureau of Reclamation

November 21, 2022

## Chinook Salmon

### TABLES

#### TABLE 2. Historic migration and salvage patterns.Last updated 11/21/2022

| **Species** | **RedBluffDiversionDam** | **TisdaleRst** | **KnightsLandingRst** | **SacTrawlSherwoodCatchIndex** | **ChippsIslandTrawlCatchIndex** | **Salvage** |
| --- | --- | --- | --- | --- | --- | --- |
| Chinook, Winter-run, Unclipped | 87.0%(80.9%,93.1%) BY: 2012 - 2021 | 24.2%(5.6%,42.8%) BY: 2012 - 2021 | 27.7%(3.9%,51.4%) BY: 2013 - 2021 | 9.9%(-9.4%,29.1%) BY: 2012 - 2021 | 1.4%(-1.8%,4.7%) BY: 2012 - 2021 | 0.0%(0.0%,0.0%) WY: 2013 - 2022 |
| Chinook, Spring-run, Unclipped | 5.8%(-1.8%,13.3%) BY: 2012 - 2021 | 0.5%(0.1%,0.9%) BY: 2012 - 2021 | 2.2%(-1.9%,6.4%) BY: 2013 - 2021 | 0.0%(0.0%,0.0%) BY: 2012 - 2021 | 0.0%(0.0%,0.0%) BY: 2012 - 2021 | 0.0%(0.0%,0.0%) WY: 2013 - 2022 |
| Steelhead, Unclipped (January-December) |  |  |  |  |  |  |
| Steelhead, Unclipped (December-March) |  |  |  |  |  | 0.0%(0.0%,0.0%) WY: 2013 - 2022 |
| Steelhead, Unclipped (April-June) |  |  |  |  |  | 0.0%(0.0%,0.0%) WY: 2013 - 2022 |

#### TABLE 3. Knight’s Landing (KLCI) and Sacramento Seine and Trawl (SCI).

| **Date** | **Knights Landing RST: Winter Chinook: Catch Index** | **Knights Landing RST: Older Chinook: Catch Index** | **Sacramento Trawls: Older Chinook: Catch Index** | **Sacramento Beach Seines: Older Chinook: Catch Index** | **Alert: Catch Index > 5** | **Alert: Catch Index 3 < X ≤ 5** |
| --- | --- | --- | --- | --- | --- | --- |
| 2022-11-20 | 0 | 0 |  |  |  |  |
| 2022-11-19 | 0 | 0 |  |  |  |  |
| 2022-11-18 | 0 | 0 |  |  |  |  |
| 2022-11-17 | 0 | 0 |  |  |  |  |
| 2022-11-16 | 0 | 0 |  |  |  |  |
| 2022-11-15 |  |  |  |  |  |  |
| 2022-11-14 |  |  |  |  |  |  |
| 2022-11-13 |  |  |  |  |  |  |
| 2022-11-12 |  |  |  |  |  |  |

#### TABLE 4. 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** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11/20/2022 | 96.8 | -1.2% | Flow>95cfs | 82.9 | -0.7% |  | 3,188.9 | 42.2 |  |
| 11/19/2022 | 98.0 | -1.3% | Flow>95cfs | 83.5 | -1.1% |  | 3,259.0 | 42.2 |  |
| 11/18/2022 | 99.3 | 0.5% | Flow>95cfs | 84.5 | 0.8% |  | 3,328.9 | 42.8 |  |
| 11/17/2022 | 98.8 | 0.1% | Flow>95cfs | 83.8 | -0.5% |  | 3,375.0 | 42.6 |  |
| 11/16/2022 | 98.7 | -5.9% | Flow>95cfs | 84.2 | -1.6% |  | 3,402.7 | 42.4 |  |
| 11/15/2022 | 104.9 | -5.8% | Flow>95cfs | 85.5 | -1.1% |  | 3,410.5 |  |  |
| 11/14/2022 | 111.4 | -3.3% | Flow>95cfs | 86.5 | -4.1% |  | 3,445.2 |  |  |

#### TABLE 5. 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 | 2022-11-20 | Overall | 6.99 | 0.21 |  |
| Winter Chinook | 2022-11-20 | Sacramento River | 6.58 | 0.22 | 0.57 |
| Winter Chinook | 2022-11-20 | Yolo Bypass | 9.81 | 0.50 | 0.00 |
| Winter Chinook | 2022-11-20 | Sutter Slough | 6.66 | 0.25 | 0.14 |
| Winter Chinook | 2022-11-20 | Steamboat Slough | 6.27 | 0.30 | 0.15 |
| Winter Chinook | 2022-11-20 | Interior Delta | 9.82 | 0.05 | 0.14 |
| Late-fall Chinook | 2022-11-20 | Overall | 14.42 | 0.23 |  |
| Late-fall Chinook | 2022-11-20 | Delta Cross Channel | 22.29 | 0.10 | 0.23 |
| Late-fall Chinook | 2022-11-20 | Georgiana Slough | 20.99 | 0.14 | 0.20 |
| Late-fall Chinook | 2022-11-20 | Sacramento River | 10.46 | 0.32 | 0.33 |
| Late-fall Chinook | 2022-11-20 | Sutter and Steamboat Slough | 10.48 | 0.29 | 0.24 |

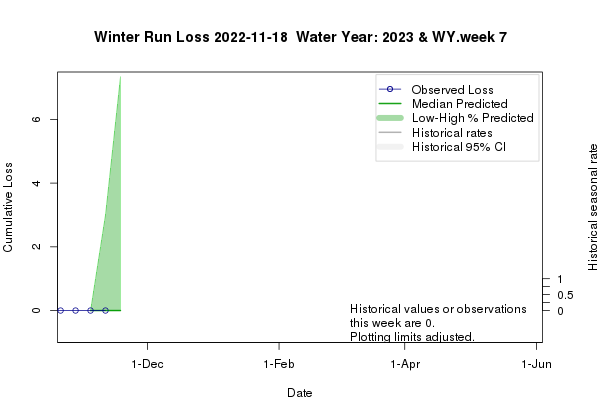
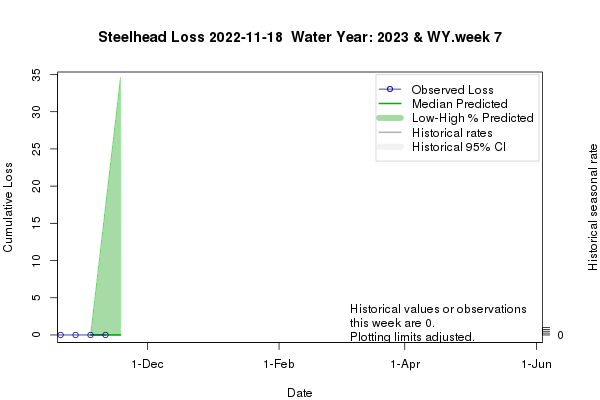
#### TABLE 6. a) WY 2022 loss and salvage predictor data: Predicted weekly loss of winter-run Chinook salmon and steelhead at CVP and SWP facilities.

| **Parameter** | **Modeled Current Week** | **Modeled Next Week** |
| --- | --- | --- |
| Predicted Steelhead, Median % | 0 | 0 |
| Predicted Steelhead, High % | 17 | 17 |
| Predicted Chinook Winter Run, Median % | 0 | 0 |
| Predicted Chinook Winter Run, High % | 3 | 4 |

#### TABLE 6. b) Environmental details, current and forecast.

| **Parameter** | **Data** | **Forecast** |
| --- | --- | --- |
| Temperature (Mallard Island, C) | 13.4 | 20 |
| Precipitation (5-d running sum, inches) | 0.09 | 0 |
| Old and Middle River Flows (cfs) | -2584 | -3039 |
| Sacramento River Flow (Freeport, cfs) | 7671 | 6993 |
| DCC Gates | closed | closed |
| San Joaquin River Flow (Vernalis, cfs) | 638 | 262 |
| Export | 2523 | 1887 |

### FIGURES

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