abundance (RBDD production plot)

On SacPAS – Red Bluff Juvenile Passage Estimates (Red Bluff Daily Graphy with Biweekly)

survival (STARS plots) - Chase (this is a surrogate for steelhead)

* Same as the plots for winter run (Figure 2)
* Diagram

  Description automatically generated

minimization ((1) bar plots of totals (wild and hatchery), (2) annual cumulative loss by period and water year type)

(1)

Chart

Description automatically generated

Chart, bar chart, histogram

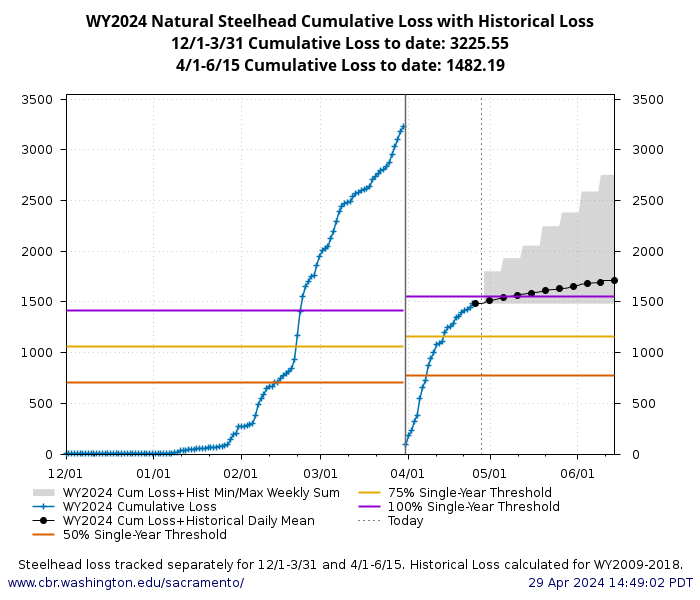
Description automatically generated

(2)

Chart

Description automatically generated

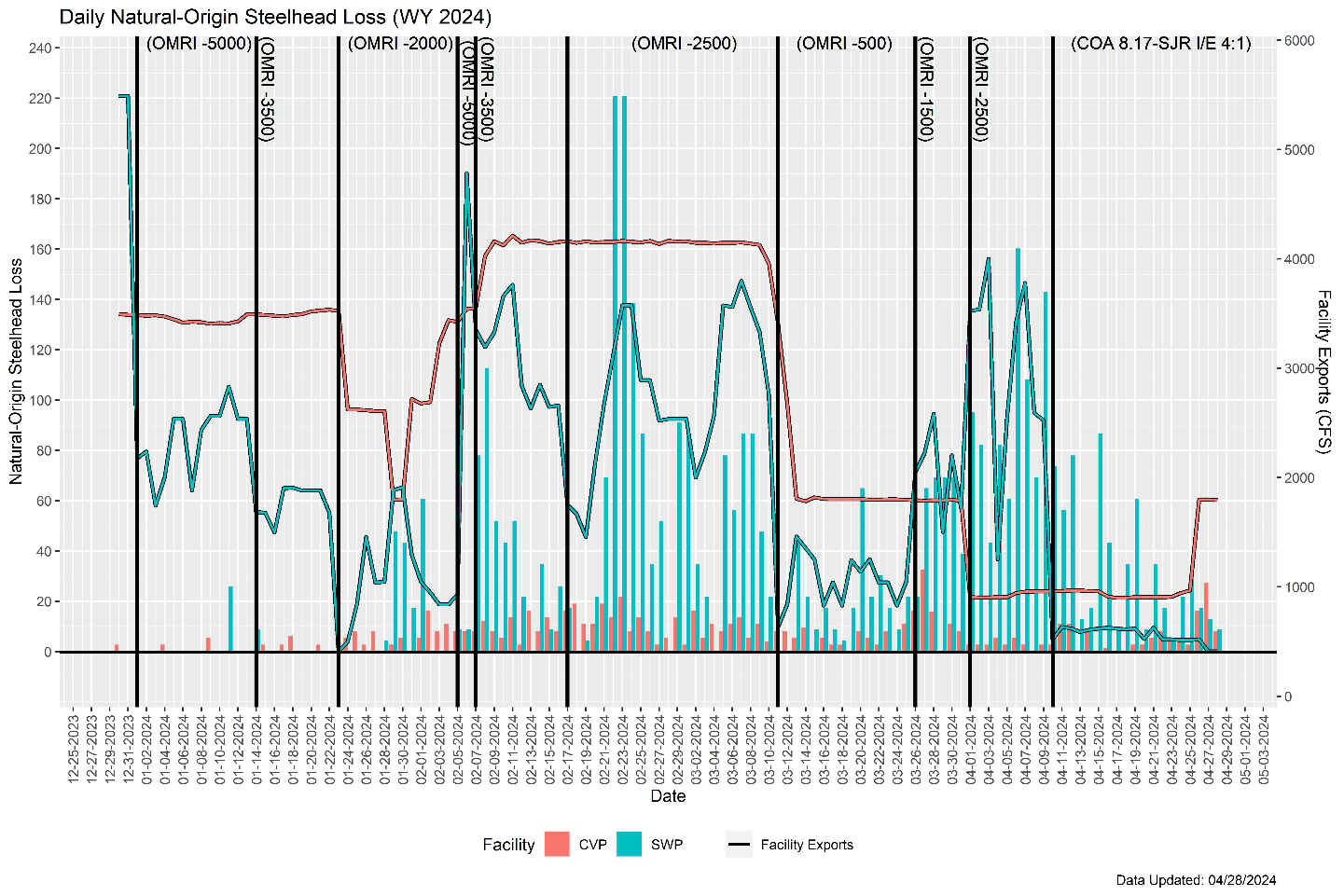
minimization (loss)



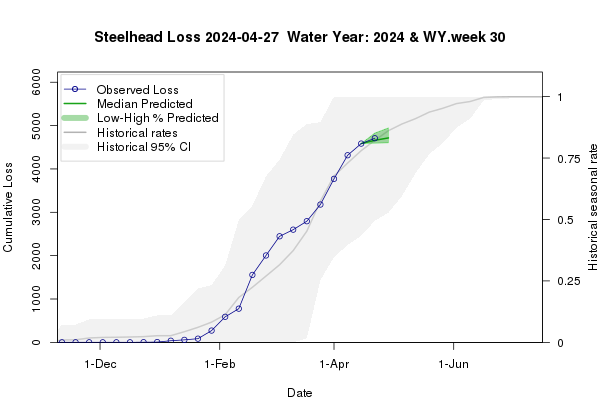
minimization (% of hatchery fish loss)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| BroodYear | Total Hatchery Steelhead Release Number (BY) | Loss of clipped steelhead at the facilities (WY) | % Total Hatchery Release Number Lost to the Facilities | WaterYear |
| 2016 | 1,019,501 | 164.29 | 0.016 | 2017 |
| 2017 | 811,379 | 2,462.90 | 0.304 | 2018 |
| 2018 | 1,264,939 | 5,777.70 | 0.457 | 2019 |
| 2019 | 1,084,899 | 659.44 | 0.061 | 2020 |
| 2020 | 1,853,751 | 341.69 | 0.018 | 2021 |
| 2021 | 1,676,701 | 639.79 | 0.038 | 2022 |
| 2022 | 1,623,483 | 3,650.30 | 0.225 | 2023 |
| 2023 | 1,592,998 | 2,576.29 | 0.162 | 2024 |

minimization (daily loss and daily pumping rates)



minimization (Tillotson output- predicted loss)- Chase



|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Natural Origin Steelhead** | | | | | | | |
| **OMR** | **Exports** | **San Joaquin Flow** | **Sacramento Flow** | **25th Percentile Weekly Loss** | **Median Weekly Loss** | **75th Percentile Weekly Loss** | **Median Daily Loss** |
| 481 | 1570 | 4938 | 24037 | 25.98 | 57.40 | 116.95 | 8.20 |
| 0 | 2100 | 4938 | 24037 | 25.98 | 73.61 | 130.21 | 10.52 |
| -500 | 2650 | 4938 | 24037 | 45.27 | 112.08 | 171.27 | 16.01 |
| -1000 | 3200 | 4938 | 24037 | 77.44 | 163.98 | 198.18 | 23.43 |
| -1500 | 3750 | 4938 | 24037 | 81.95 | 144.72 | 198.18 | 20.67 |
| -2000 | 4300 | 4938 | 24037 | 49.63 | 129.90 | 198.18 | 18.56 |
| -2500 | 4850 | 4938 | 24037 | 54.17 | 129.90 | 198.18 | 18.56 |
| -3000 | 5400 | 4938 | 24037 | 34.14 | 129.90 | 198.18 | 18.56 |
| -3500 | 5950 | 4938 | 24037 | 34.52 | 129.90 | 198.18 | 18.56 |
| -4000 | 6500 | 4938 | 24037 | 28.70 | 132.55 | 198.68 | 18.94 |
| -4500 | 7000 | 4938 | 24037 | 22.76 | 122.50 | 198.18 | 17.50 |
| -5000 | 7600 | 4938 | 24037 | 19.36 | 134.56 | 216.00 | 19.22 |
| -5500 | 8100 | 4938 | 24037 | 14.11 | 133.23 | 216.00 | 19.03 |
| -6000 | 8700 | 4938 | 24037 | 9.34 | 132.62 | 216.00 | 18.95 |
| -6500 | 9200 | 4938 | 24037 | 9.34 | 134.45 | 216.00 | 19.21 |

Weekly OMR, exports, flow, predictions for loss from Tillotson, actual loss – check in with Chase