

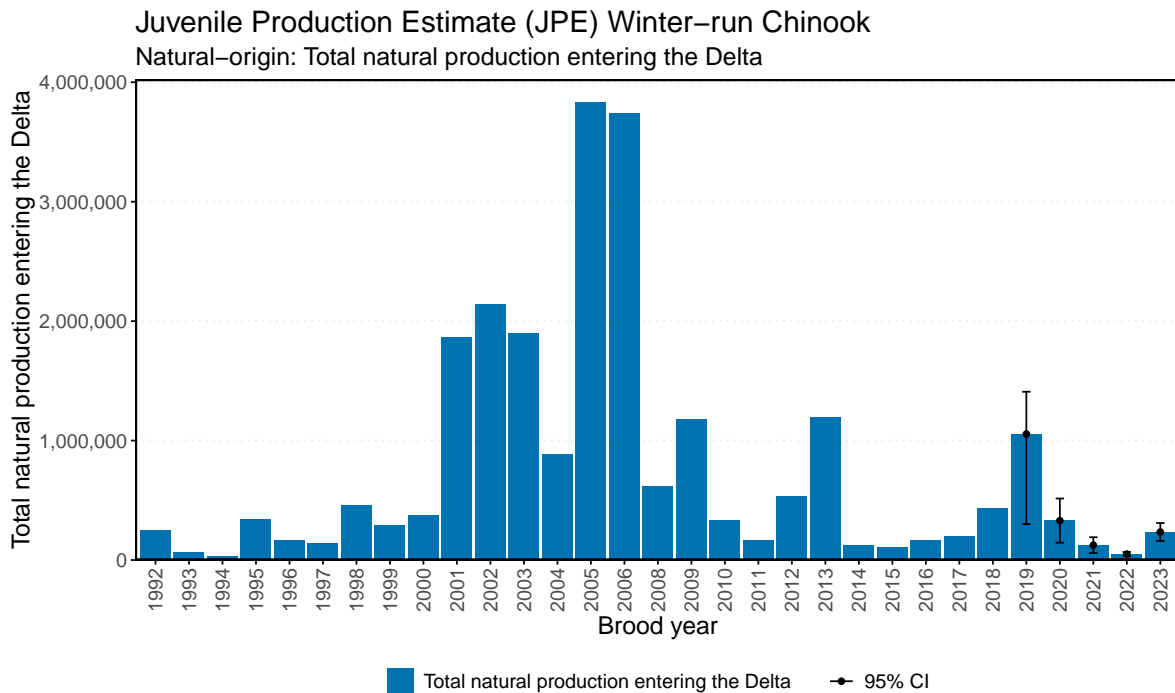
# Track-a-Cohort: Winter-run Chinook

2024-08-07

## Background

This document uses shared resources via [BDO github](#) from BOR to replicate figures requested and adjust underlying code to include dynamic data. See [Track a cohort\\_WR\\_plots.docx](#) for figures requested. Certain figures include a link to more interactive plot types using Shiny (in development) and all figures include a link to code in separate CBR developed [github repo](#).

## Juvenile Production Estimate (JPE)

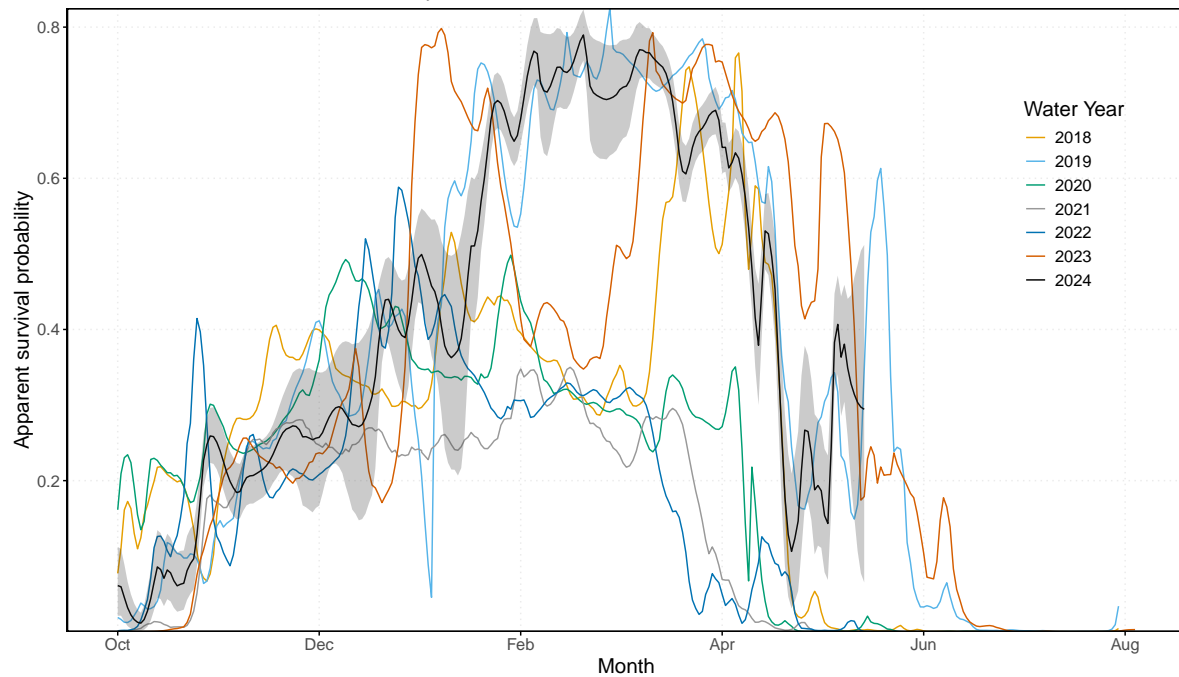


Related links: [SacPAS Query](#), [GitHub Repo Code](#)

- Issues:
  - Update genetic data as it becomes available

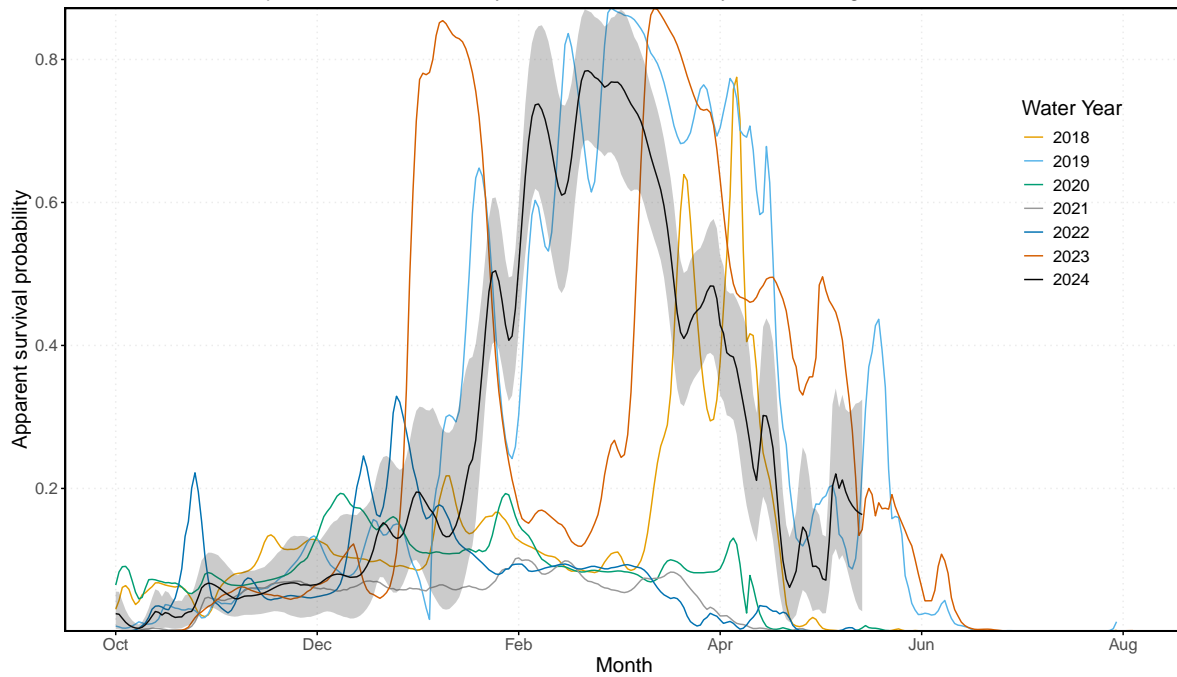
## Delta STARS Survival and Routing Probabilities

Delta STARS Model –  
 Predicted Natural Winter–run Chinook Daily Cohorts Passage, Knights Landing to Chipps Island  
 Overall Survival: Median survival of daily cohorts for all routes combined



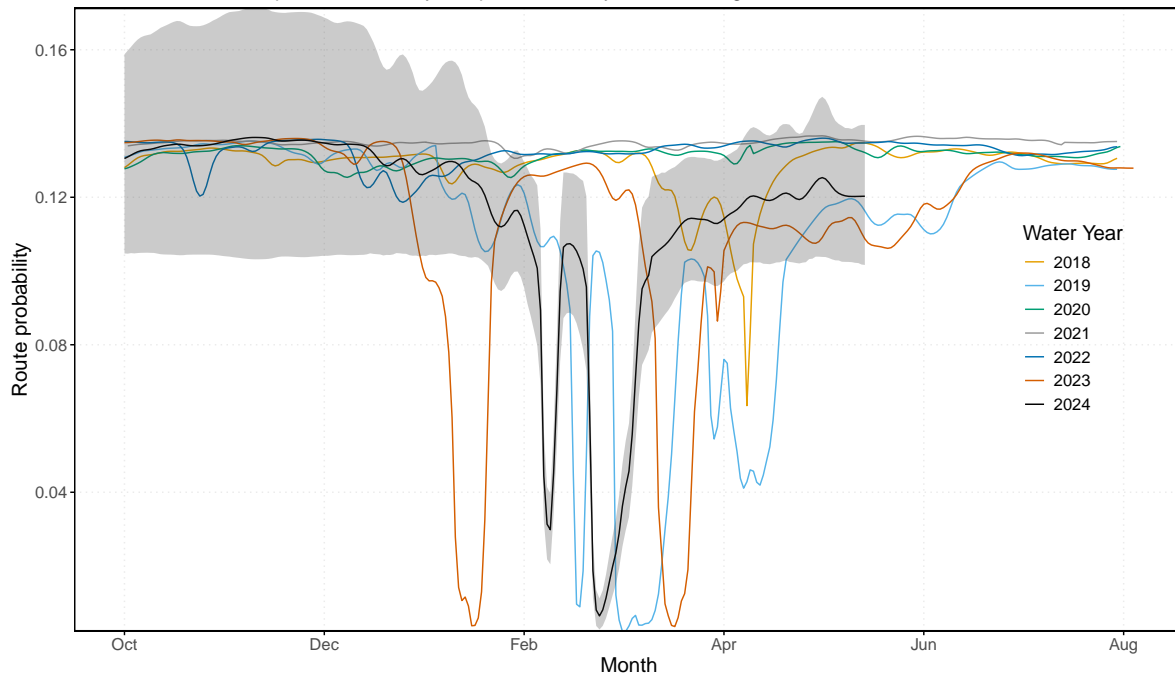
Data source: Delta STARS developed by USGS Quantitative Fisheries Ecology Section and deployed by SacPAS.

Delta STARS Model –  
 Predicted Natural Winter–run Chinook Daily Cohorts Passage, Knights Landing to Chipps Island  
 Interior Delta Route–specific Survival Probability: Median survival of daily cohorts using the Interior Delta route



Data source: Delta STARS developed by USGS Quantitative Fisheries Ecology Section and deployed by SacPAS.

Delta STARS Model –  
 Predicted Natural Winter–run Chinook Daily Cohorts Passage, Knights Landing to Chipps Island  
 Interior Delta Route–specific Probability: Proportion of daily cohorts using the Interior Delta route

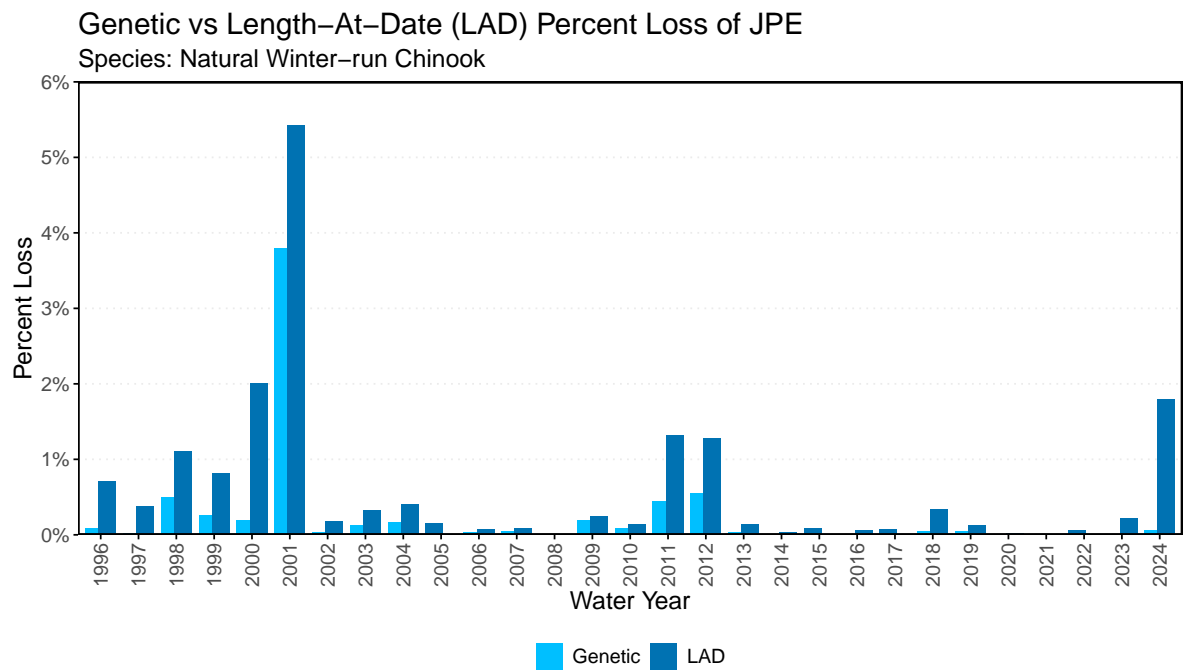


Data source: Delta STARS developed by USGS Quantitative Fisheries Ecology Section and deployed by SacPAS.

Related links: [Interactive Plot - ShinyApp](#), [GitHub Repo Code](#), [STARS ShinyApp](#)

- Issues:
  - Update interactive plot - Shiny App

## Percent loss of Juvenile Production Estimate (JPE)



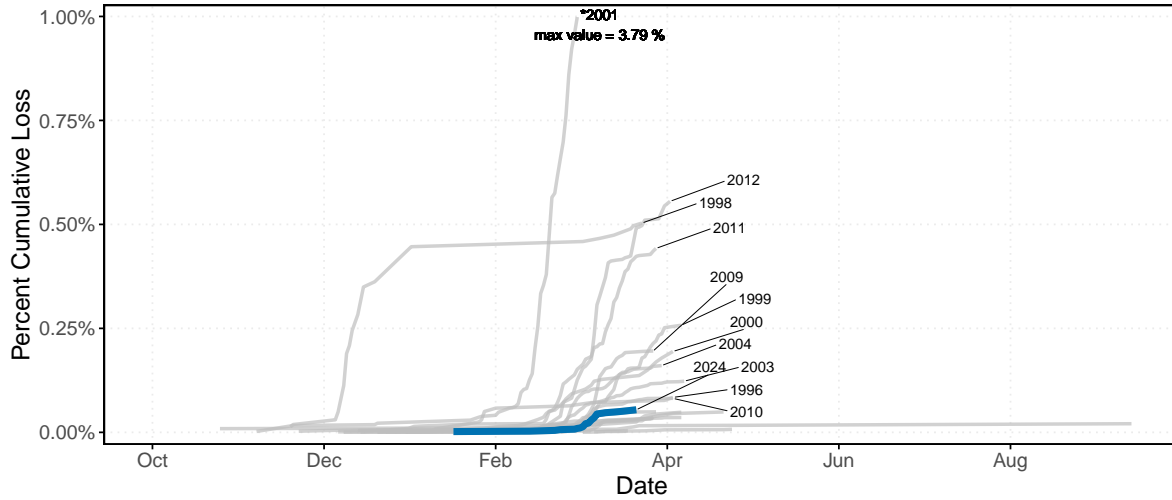
Data sources: Genetic loss provided by USBR. LAD loss from CDFW Salvage Database.

Related links: [GitHub Repo Code](#)

## Current and Historical Percent Cumulative Genetic Loss of JPE

Species: Natural Winter-run Chinook

Data Years: WY1996 to WY2024



Current Water Year: — 2024

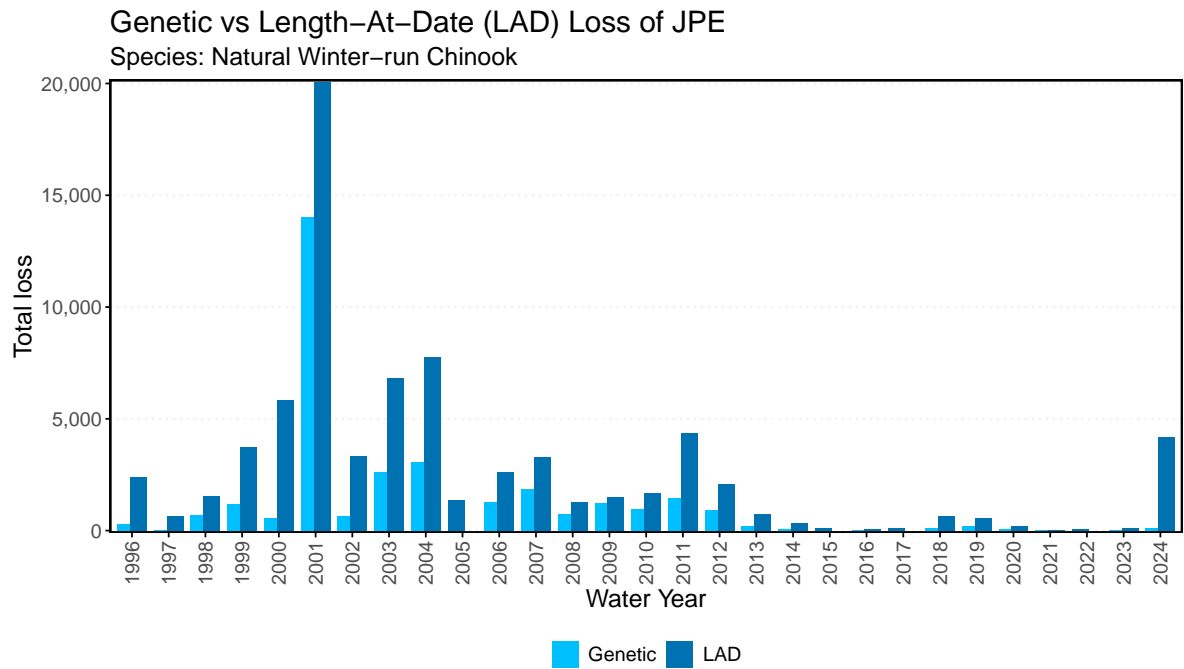
Historical Water Years: — 1996 to 2023,  
WY > WY2024 loss labelled

Data sources: Genetic loss provided by USBR. LAD loss from CDFW Salvage Database.

Related links: [GitHub Repo Code](#), [Interactive Plot - ShinyApp](#)

- Issues:
  - Update genetic data as it becomes available
  - Update Shiny App

## Total Loss of Juvenile Production Estimate (JPE)



Data sources: Genetic loss provided by USBR. LAD loss from CDFW Salvage Database.

Related links: [GitHub Repo Code](#)

# Cumulative LAD Loss by BiOp Status and Hydrologic Classification Index

Species: Natural Winter-run Chinook

Data Years: WY1994 to WY2024

Current Cumulative Loss: 4205.14

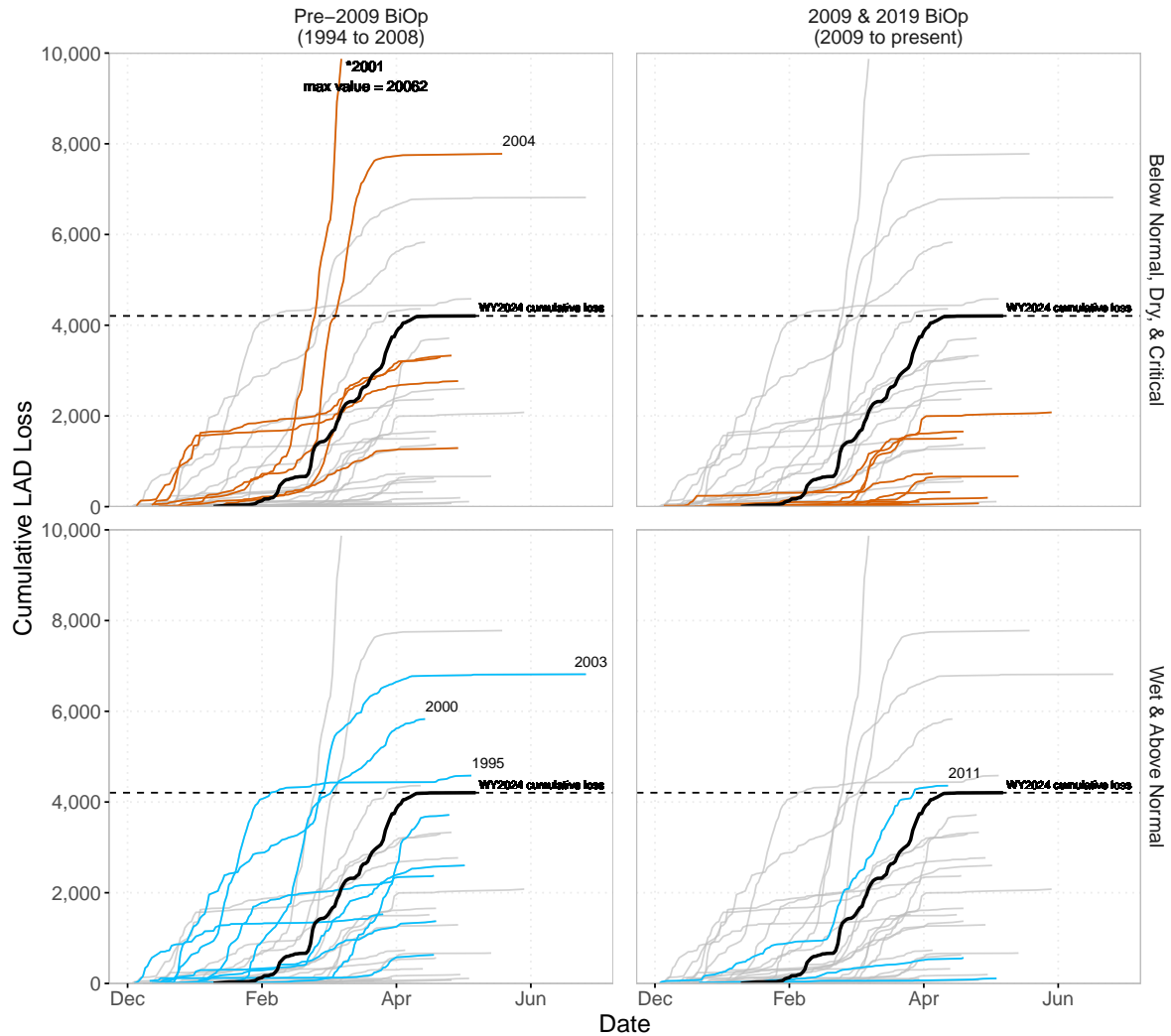


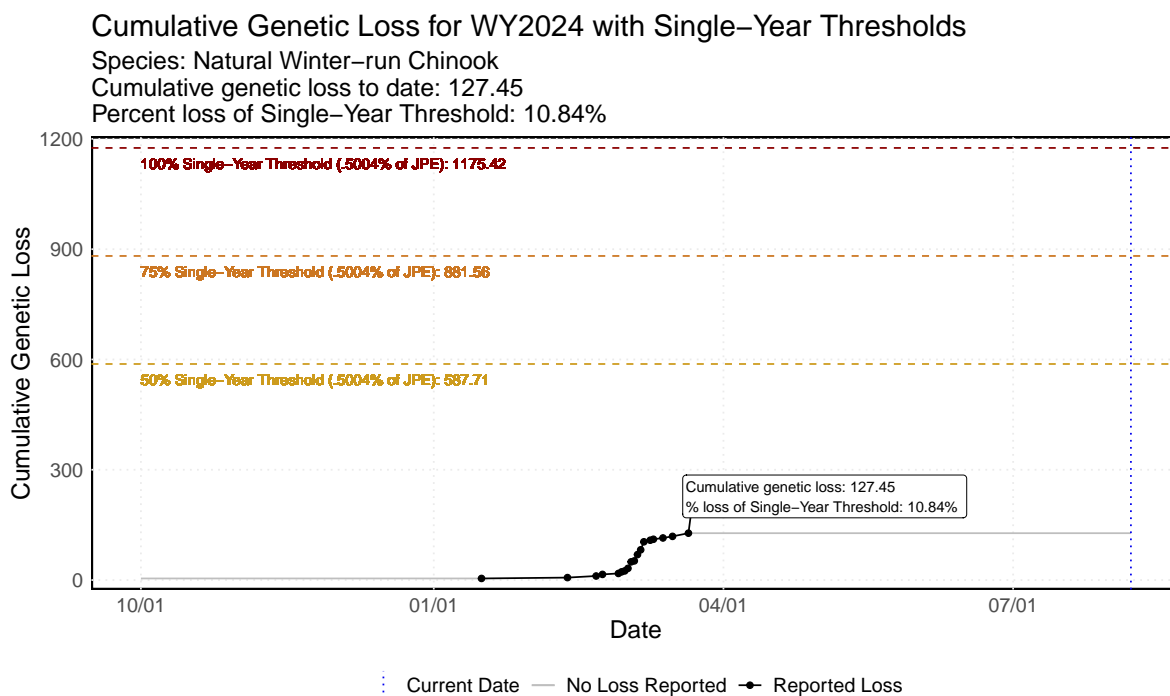
Figure 1: The figure shows cumulative loss by BiOp Status and Hydrologic Classification Index (HCI). Each quadrant of the faceted plot includes grey lines for historical years, colored lines (blue for wet years, red for dry years) for years within the BiOp status and HCI type, a black line for the current year, and a dashed horizontal line indicating the current cumulative loss maximum.



Related links: [GitHub Repo Code](#), [Interactive Plot - ShinyApp](#)

- Issues:
  - Update genetic data as it becomes available
  - Add legend key (pending) currently have figure caption to support.
  - SI to provide query string to HCL – update code when available
  - Update ShinyApp

## Cumulative Loss Single Year Thresholds

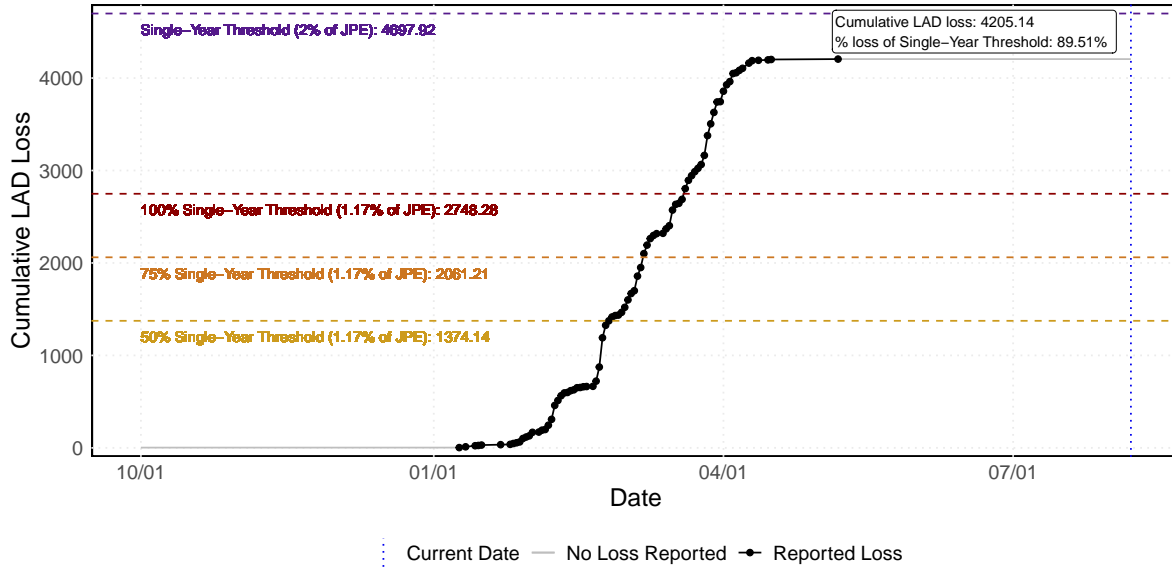


### Cumulative LAD Loss for WY2024 with Single-Year Thresholds

Species: Natural Winter-run Chinook

Cumulative LAD loss to date: 4205.14

Percent loss of Single-Year Threshold: 89.51%



Related links: [SacPAS Query](#), [ShinyApp](#), [GitHub Repo Code: cumul\\_genetic\\_loss](#), [GitHub Repo Code: cumul\\_lad\\_loss](#), [Interactive Plot - ShinyApp](#)

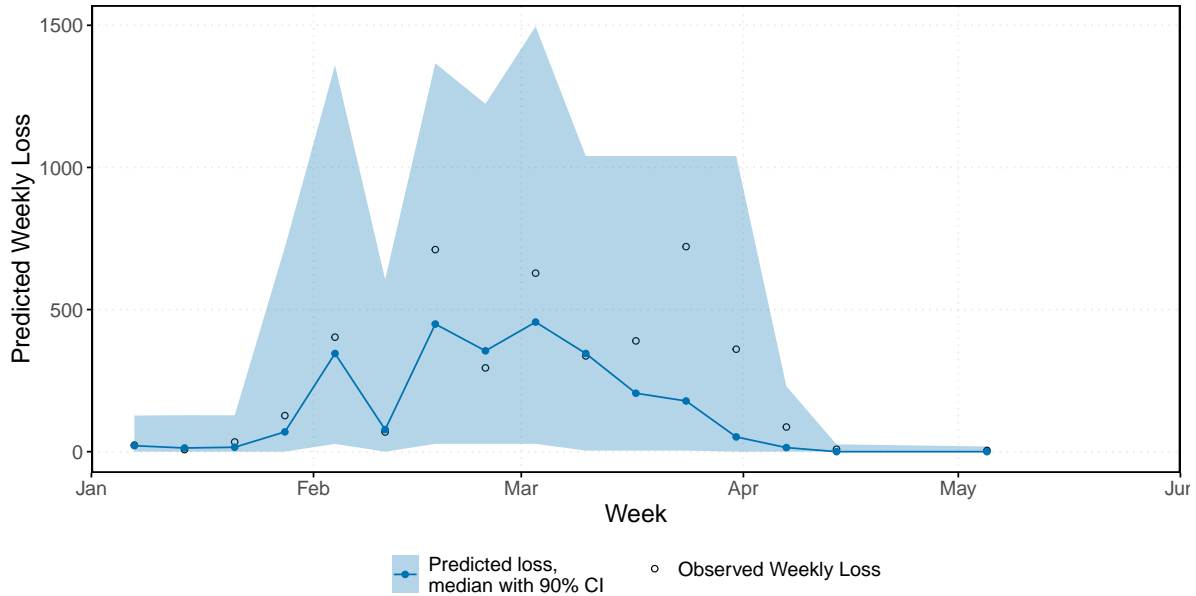
- Issues:
  - Confirm addition of “no data reported”, start at 10-01, and continue limits to today’s date.
  - Update with genetic data as it becomes available for genetic plot
  - Update ShinyApp

## Predicted Weekly Loss - Tillotson Model

### Predicted Weekly Loss – Tillotson et al. (2022)

Species: Natural Winter–run Chinook

Water Year: 2024



Related links: [SacPAS Tillotson Tool](#), GitHub Repo Code: [Tillotson model](#), [data wrangling and prediction output](#), [plot output](#)

- Issues:
  - Currently using BOR supplied code to run model, confirm same output with NB code.
    - \* Update: NB believes this is updated code and will look into comparing and update Loss and Salvage Predictor Tool as needed when time allows (Estimates time in August).
  - Confirm shared code is duplicate of the most up-to-date Tillotson code. If this is Tillotson code confirm with authors on use and confirm permissions to include model code in public facing repo. Alternatively, pull results from Loss and Salvage Predictor Tool.
    - \* JG or NB to reach out?
  - Confirm change in plot design
  - Update glb package with newer version and confirm no errors

Table 1: Table of T  
origin Win  
Old and M  
from CVP  
and water

Water year week	Date	Observed loss	OMR USGS tidally filtered	Export, SWP & CVP (CFS)	Av
15	01-07-24	23.08	-5512.86	5986.71	16
16	01-14-24	7.21	-5300.00	5388.57	23
17	01-21-24	34.18	-2805.71	3931.57	40
18	01-28-24	126.88	-3189.57	3938.71	39
19	02-04-24	402.82	-4537.14	7296.14	61
20	02-11-24	69.26	-4202.86	6703.14	52
21	02-18-24	710.88	-3310.00	7049.71	65
22	02-25-24	294.65	-3432.86	6731.71	66
23	03-03-24	627.96	-3248.57	7551.43	62
24	03-10-24	336.82	-1377.86	3261.86	54
25	03-17-24	389.74	-2051.71	2893.57	42
26	03-24-24	721.31	-3552.14	3750.86	40
27	03-31-24	360.55	-2424.86	4132.71	39
28	04-07-24	86.81	-1043.00	2141.29	30
29	04-14-24	8.66	154.14	1532.43	31
32	05-05-24	4.33	-939.71	1469.00	29

Related links: [SacPAS Tillotson Tool](#), GitHub Repo Code: [Tillotson model](#), [data wrangling and prediction output](#), [Table configuration](#)

- Issues:
  - See predicted losses figure issues