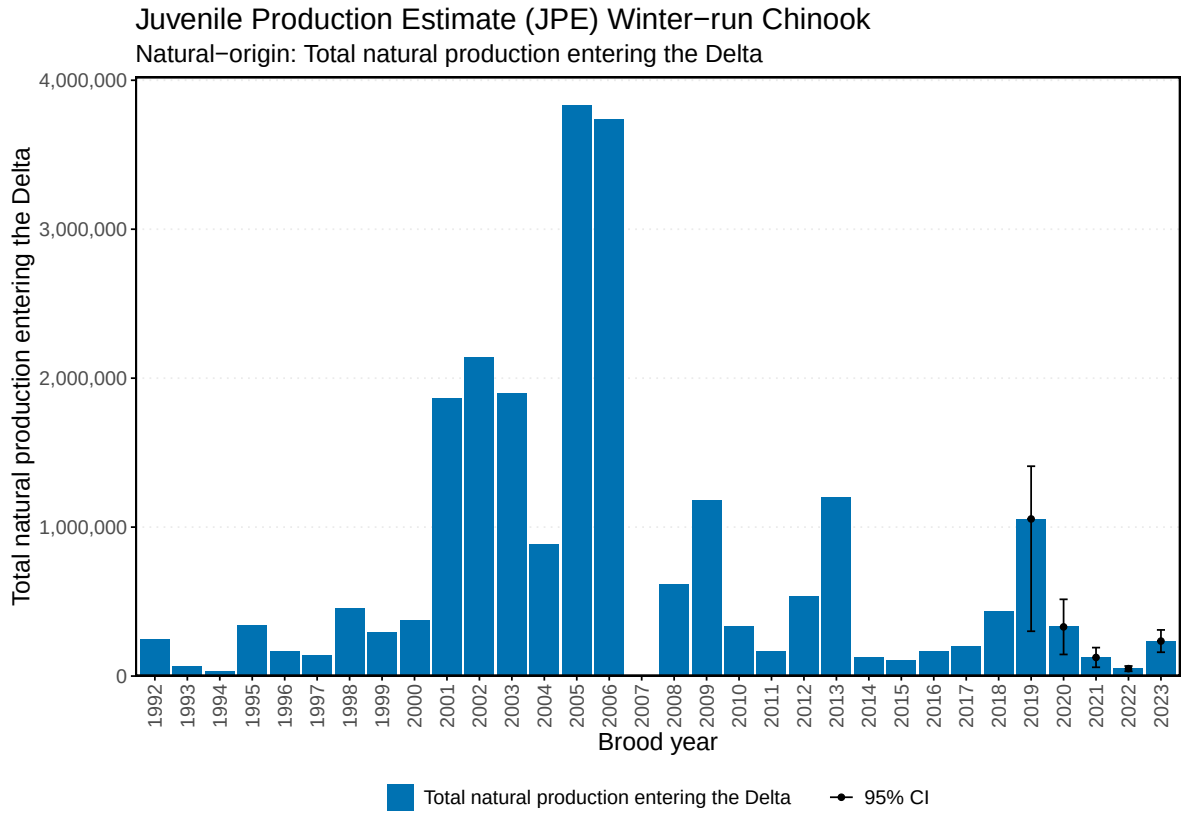
Track-a-Cohort: Winter-run Chinook

2024-08-12

Background

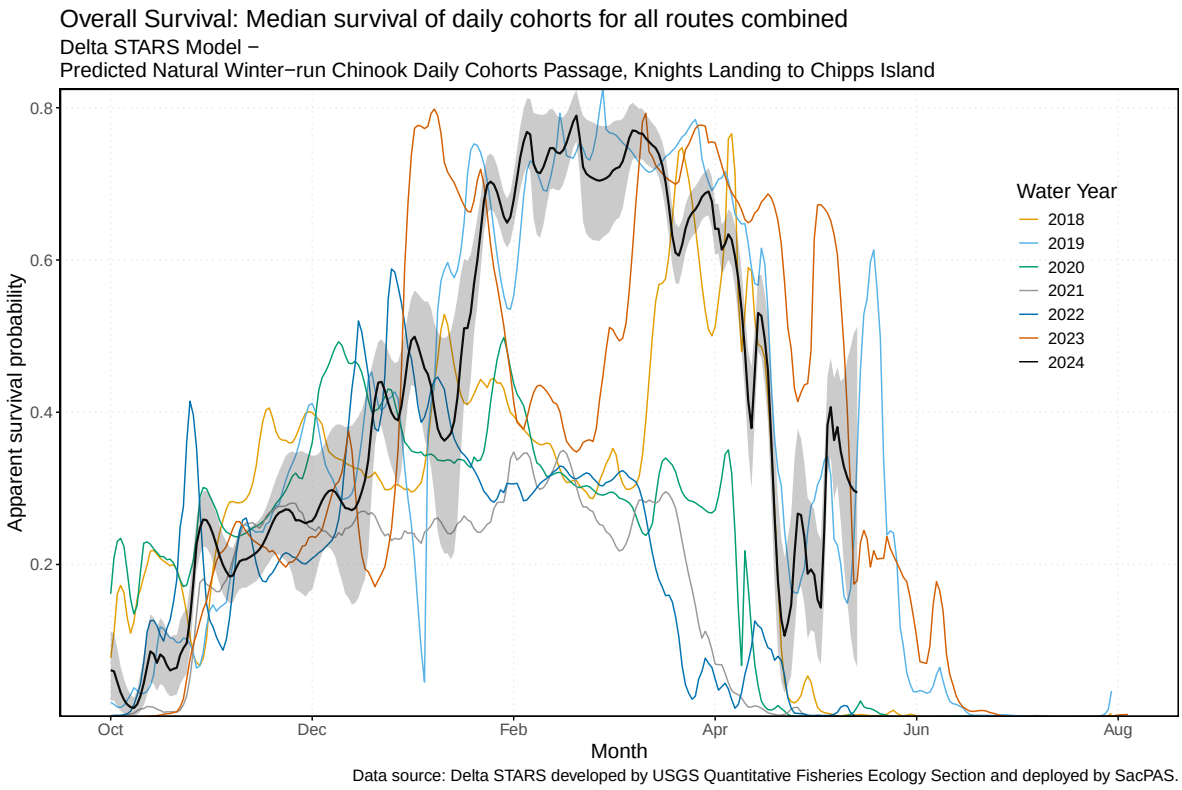
This document uses shared resources via BDO github from BOR to replicate figures requested and adjust underlying code to include dynamic data. See Track a cohort_WR_plots.docx for figures requested. Certain figures include a link to more interactive plot types using Shiny (in development) and all figures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

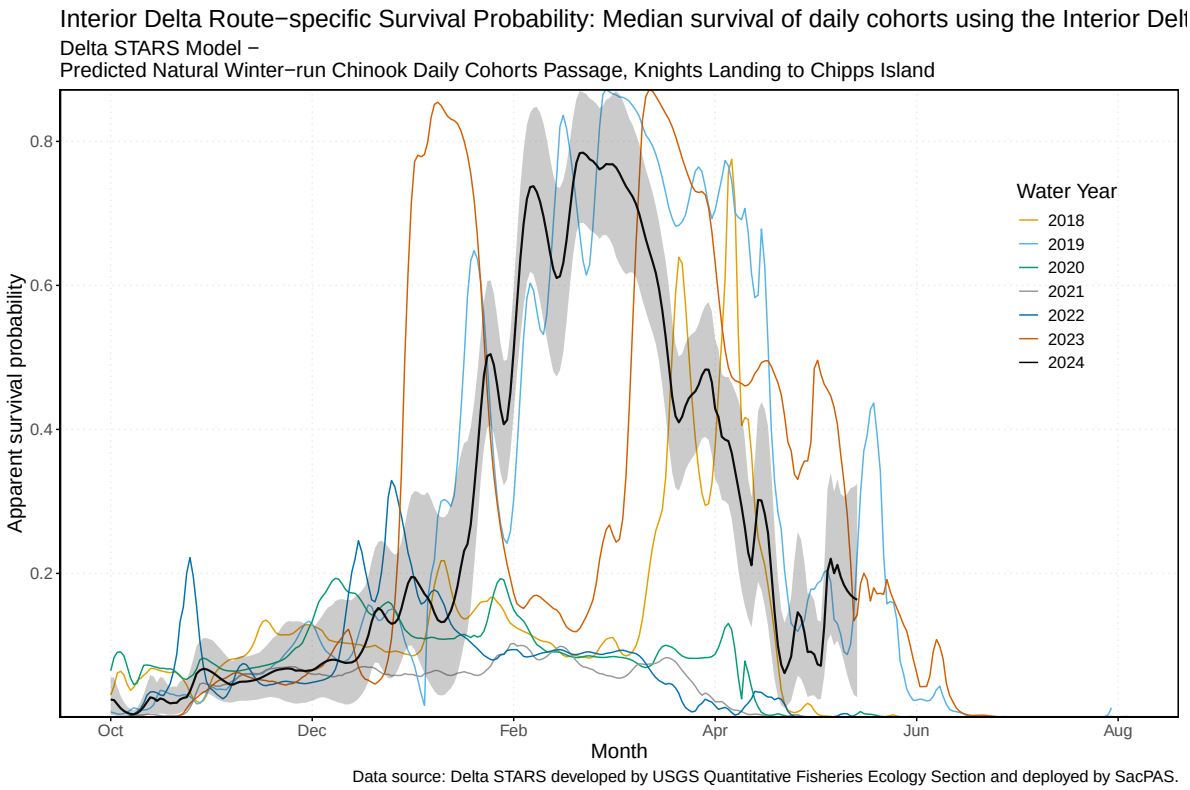
Juvenile Production Estimate (JPE)

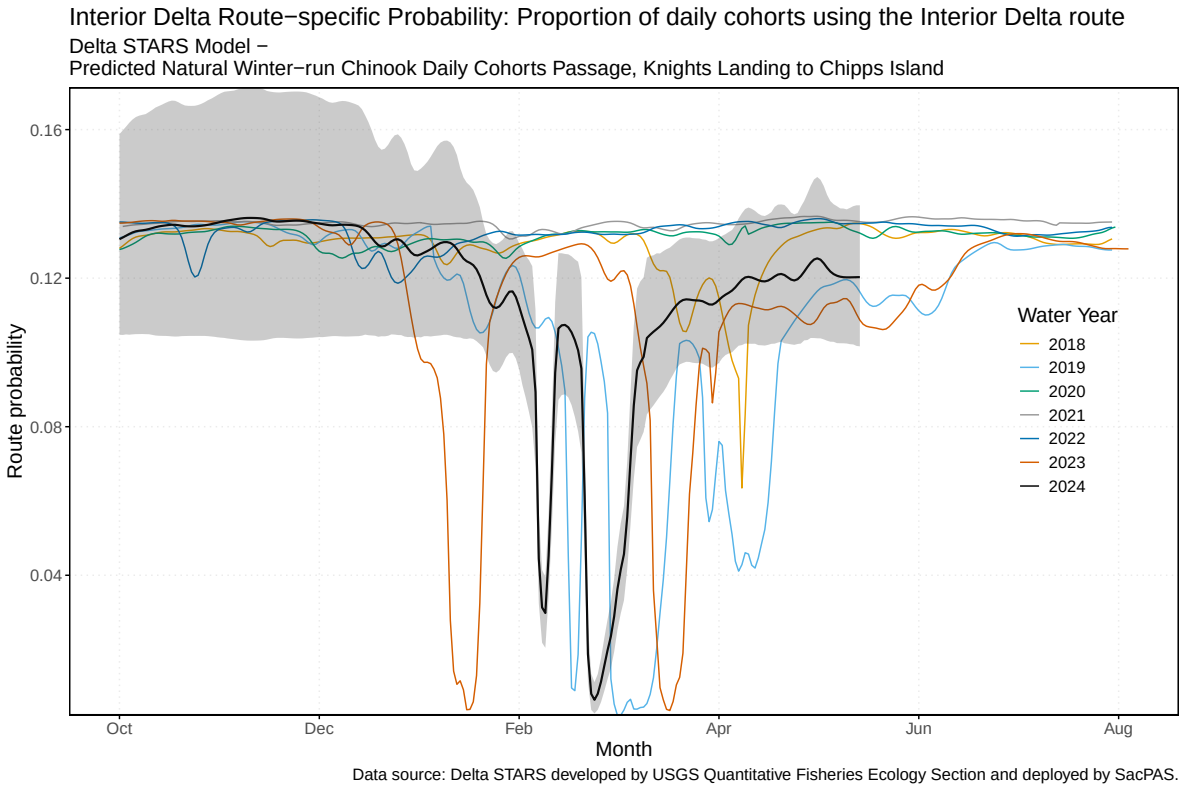


Related links: SacPAS Query, GitHub Repo Code

Delta STARS Survival and Routing Probabilites



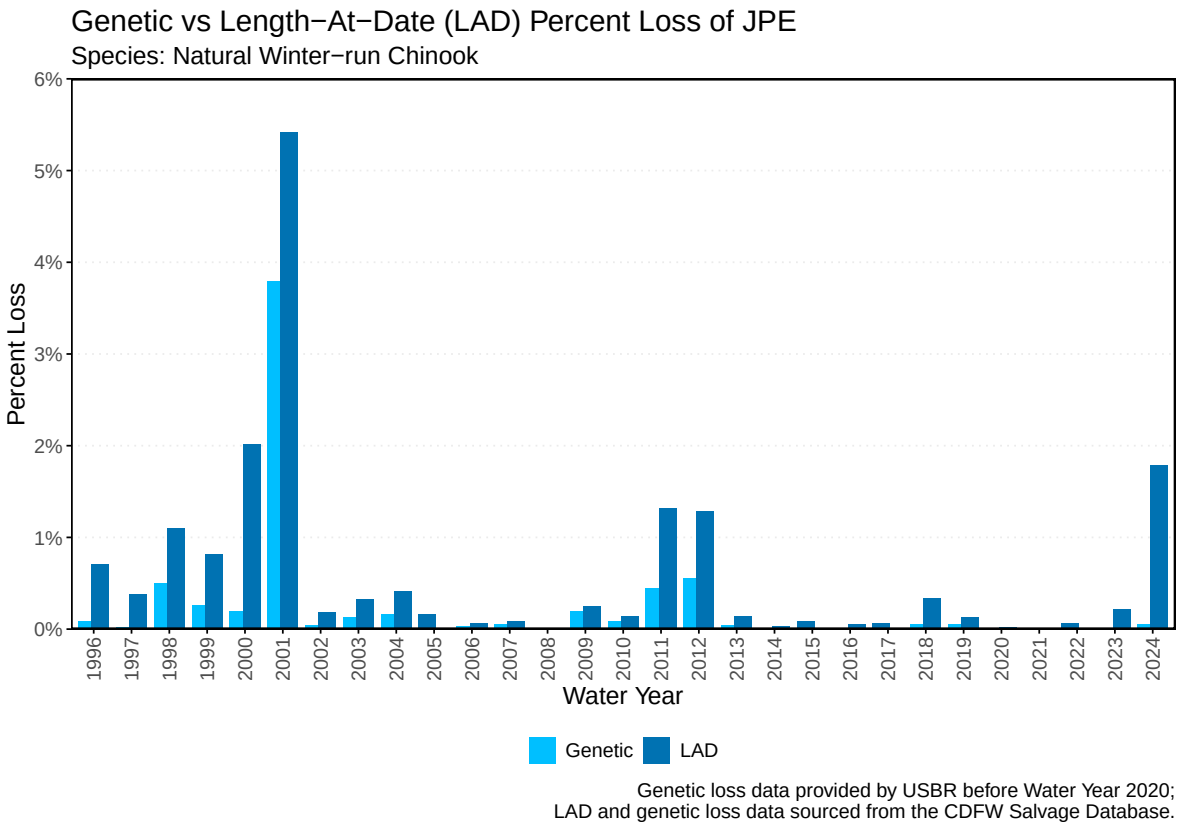

Interior Delta Route−specific Survival Probability: Median survival of daily cohorts using the Interior Delt
Delta STARS Model −
Predicted Natural Winter−run Chinook Daily Cohorts Passage, Knights Landing to Chipps Island
Apparent survival probability
0.8
0.6
0.4
0.2
Oct
Dec
Feb
Apr
Jun
Aug
Month
Water Year
2018
2019
2020
2021
2022
2023
2024
Data source: Delta STARS developed by USGS Quantitative Fisheries Ecology Section and deployed by SacPAS.



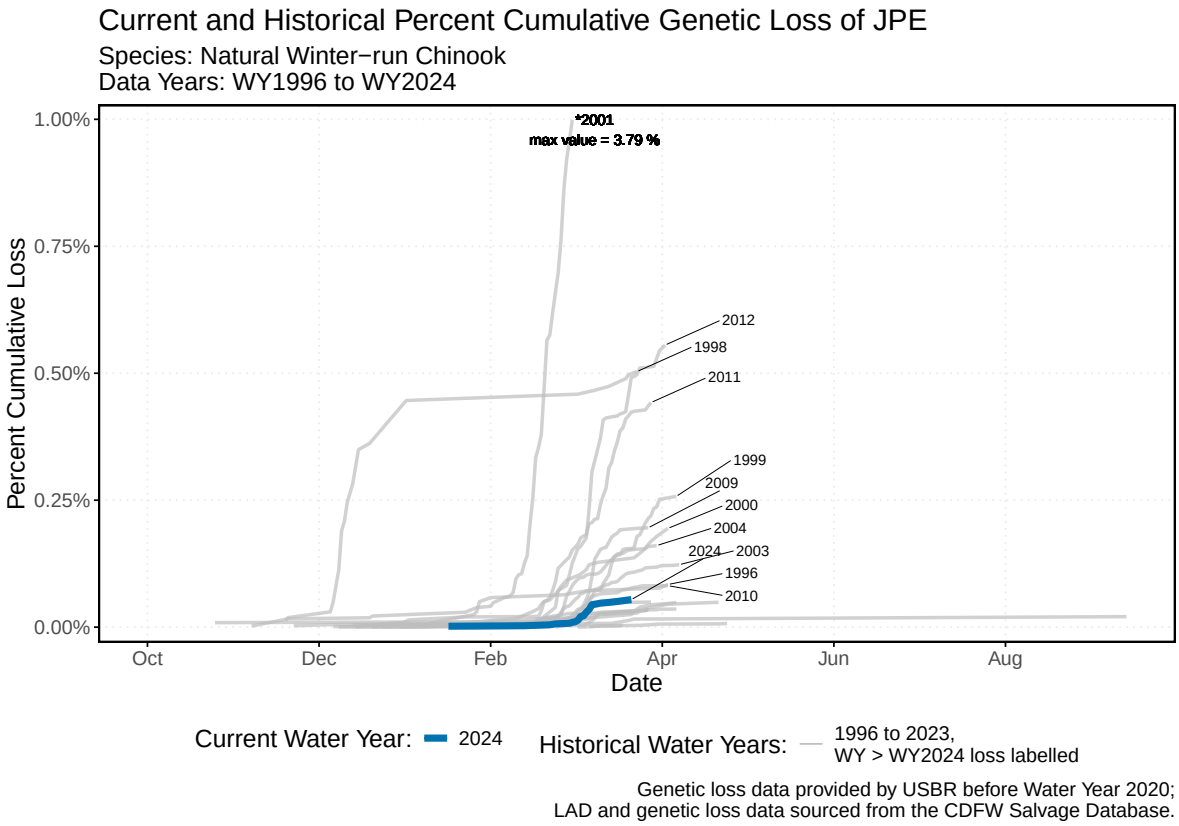
Related links: Interactive Plot - ShinyApp, GitHub Repo Code, STARS ShinyApp

- Issues:
  - Update interactive plot - Shiny App

Percent loss of Juvenile Production Estimate (JPE)



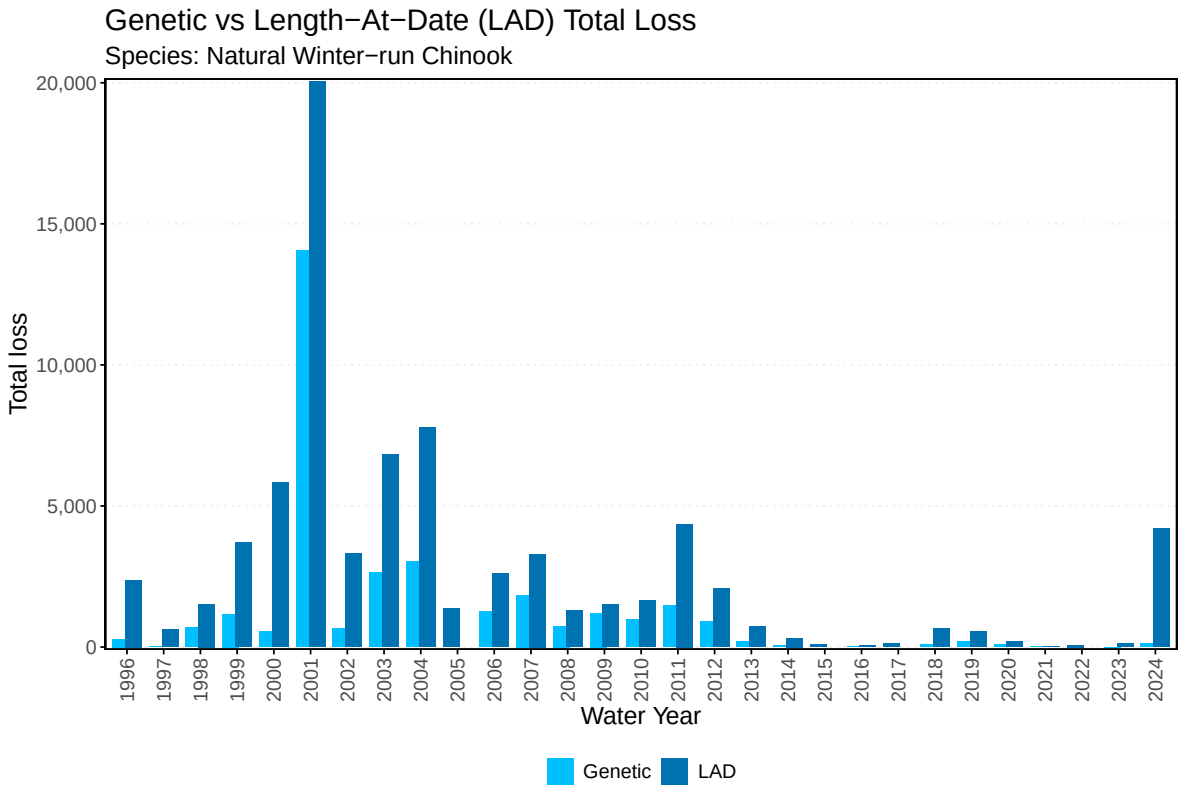
Related links: GitHub Repo Code



Related links: GitHub Repo Code, Interactive Plot - ShinyApp

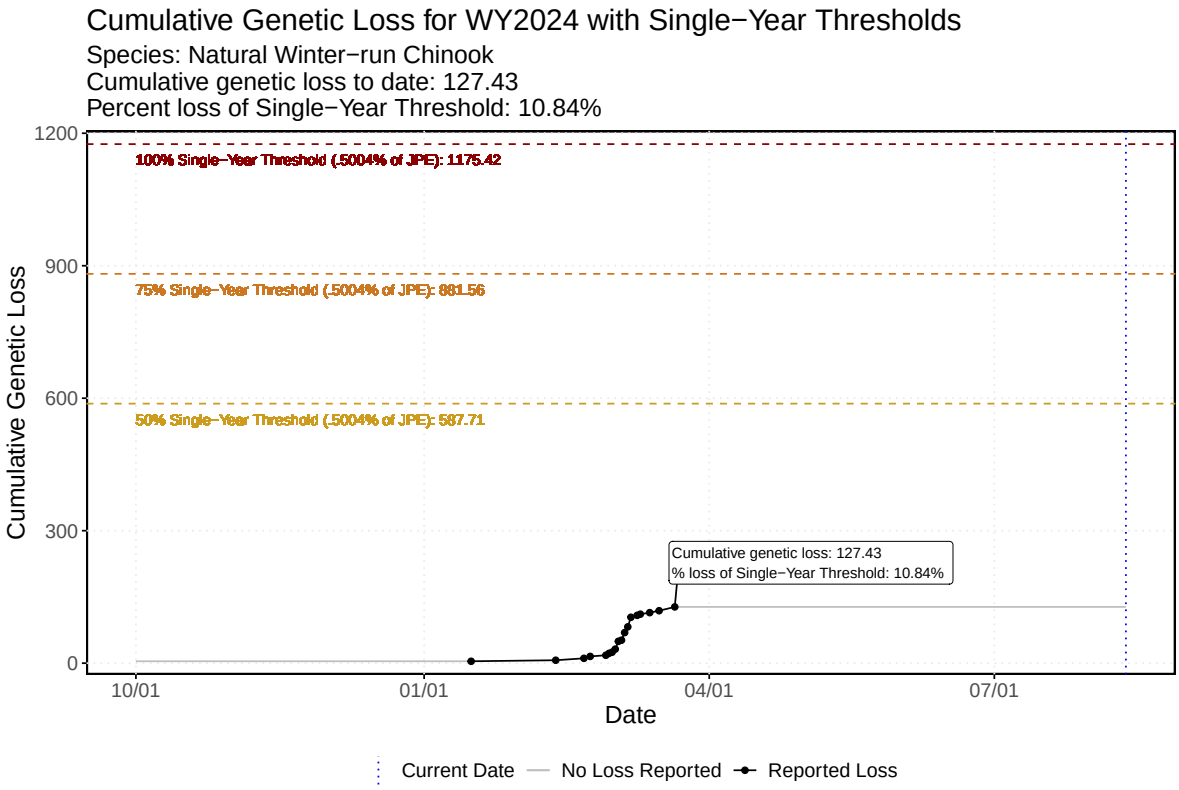
- Issues:
  - Update Shiny App

Total Loss

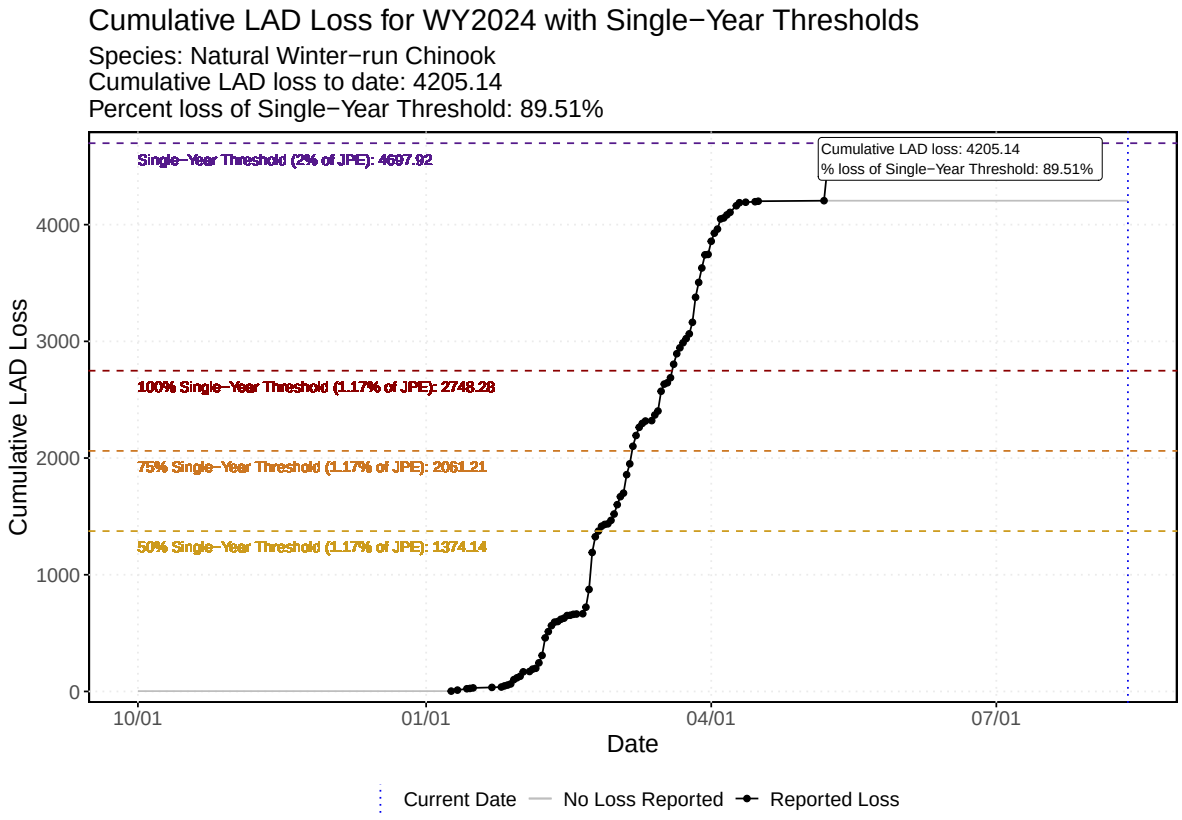


Related links: GitHub Repo Code

Cumulative Loss with Single-Year Thresholds



Genetic loss data provided by USBR before Water Year 2020 otherwise sourced from the CDFW Salvage Database.



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 ShinyApp

Cumulative Loss by BiOp Status and Hydrological Classification Index (HCI)

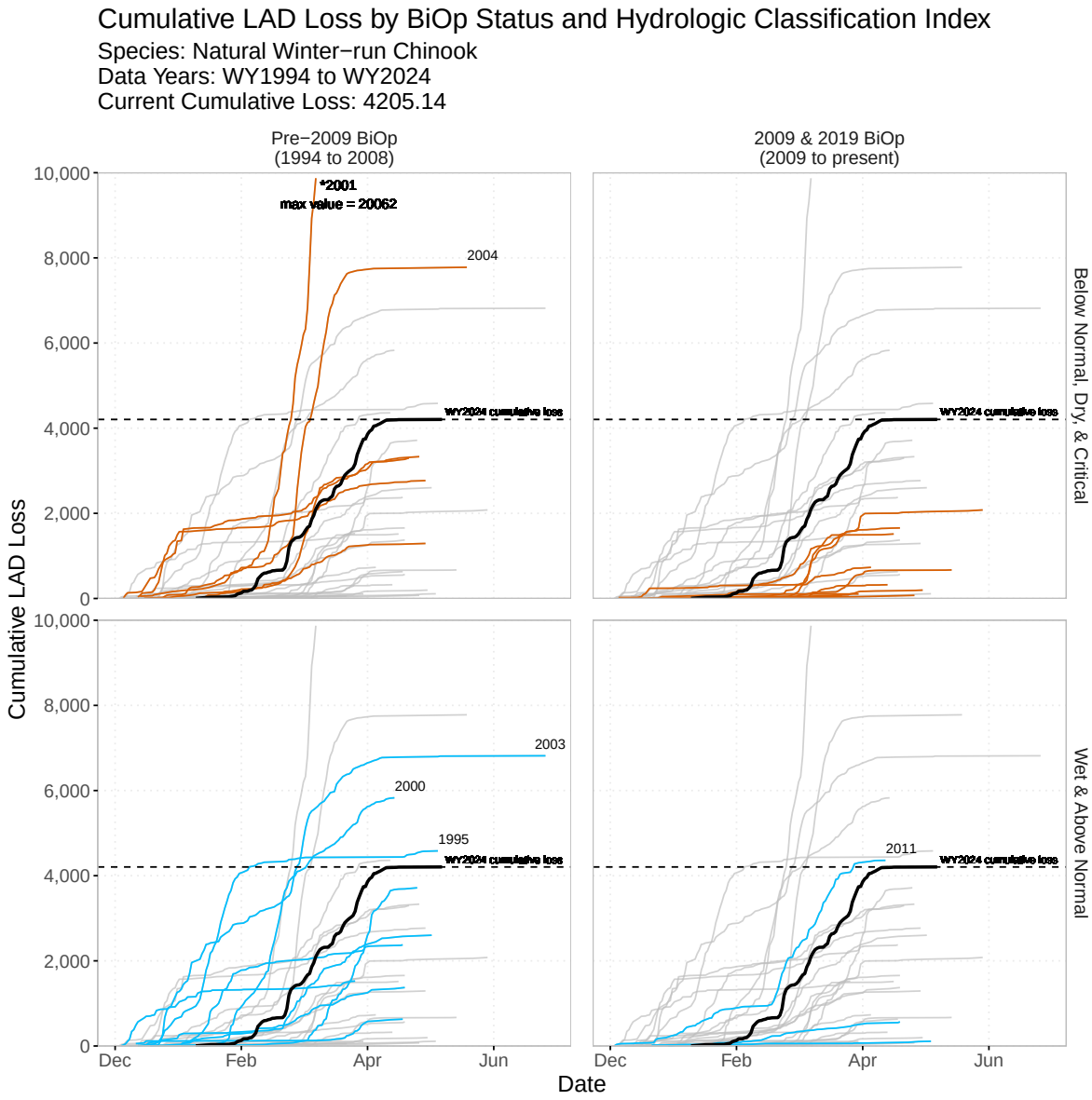
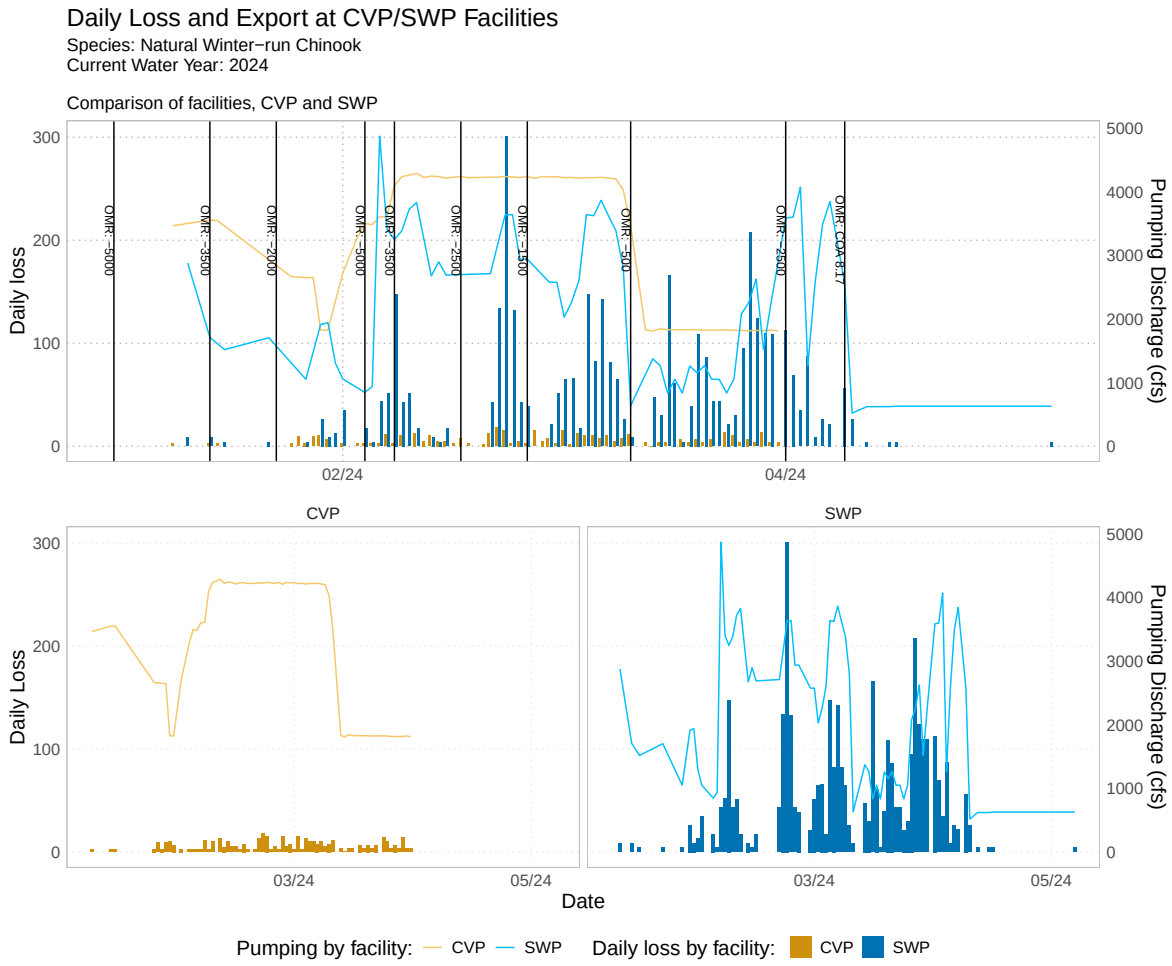


Figure 1: The figure shows cumulative loss by BiOp Status and Hydrological Classification Index (HCI). Each quadrant of the faceted plot includes grey lines for historical years, colored lines (blue for wet years, red for dry years) for years within the BiOp status and HCI type, a black line for the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

Related links: GitHub Repo Code, Interactive Plot - ShinyApp

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

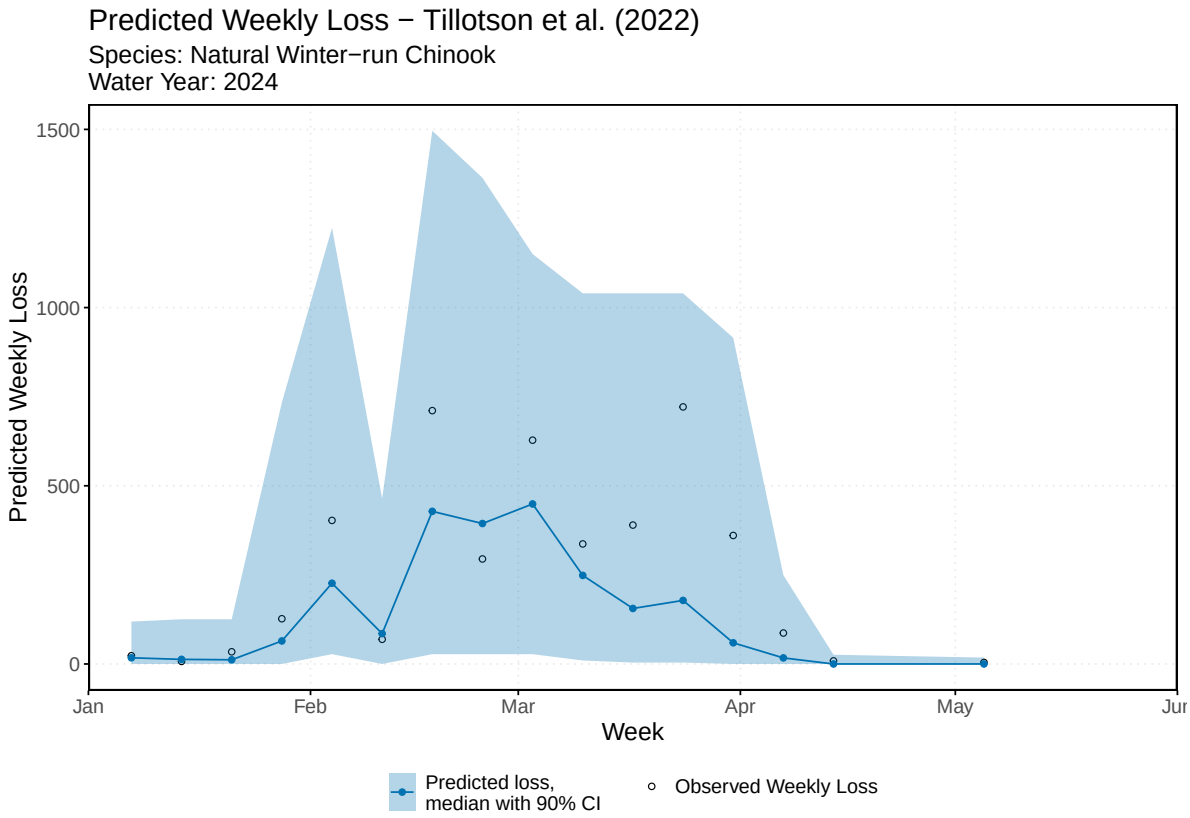
Daily Loss and Export by Pumping Facility



Related links: Interactive Plot - ShinyApp, GitHub Repo Code,

- Issues:
  - Update Shiny App

Predicted Weekly Loss - Tillotson Model



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
origin W
Old and
from CV
and wate

Water year week	Date	Observed loss	OMR USGS tidally filtered	Export, SWP & CVP (CFS)
15	2024-01-07	23.08	-5512.86	5986.71
16	2024-01-14	7.21	-5300.00	5388.57
17	2024-01-21	34.18	-2805.71	3931.57
18	2024-01-28	126.88	-3189.57	3938.71
19	2024-02-04	402.82	-4537.14	7296.14
20	2024-02-11	69.26	-4202.86	6703.14
21	2024-02-18	710.88	-3310.00	7049.71
22	2024-02-25	294.65	-3432.86	6731.71
23	2024-03-03	627.96	-3248.57	7551.43
24	2024-03-10	336.82	-1377.86	3261.86
25	2024-03-17	389.74	-2051.71	2893.57
26	2024-03-24	721.31	-3552.14	3750.86
27	2024-03-31	360.55	-2424.86	4132.71
28	2024-04-07	86.81	-1043.00	2141.29
29	2024-04-14	8.66	154.14	1532.43
32	2024-05-05	4.33	-939.71	1469.00

Related links: SacPAS Tillotson Tool, GitHub Repo Code: Tillotson model, data wrangling and prediction output, Table configuration

- Issues:
  - See predicted losses figure issues