Track-a-Cohort: Winter-run Chinook

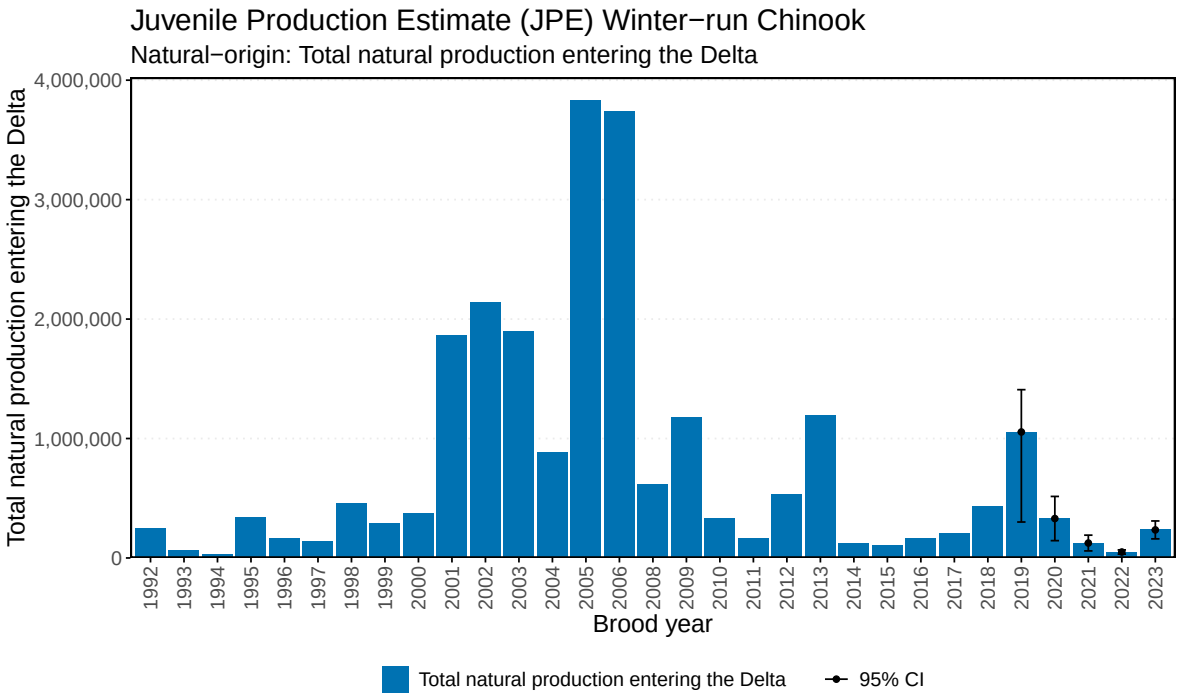
2024-08-06

Background

format: html output: html_document: toc: true toc_float: true code_folding: true cache: true editor: visual

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.

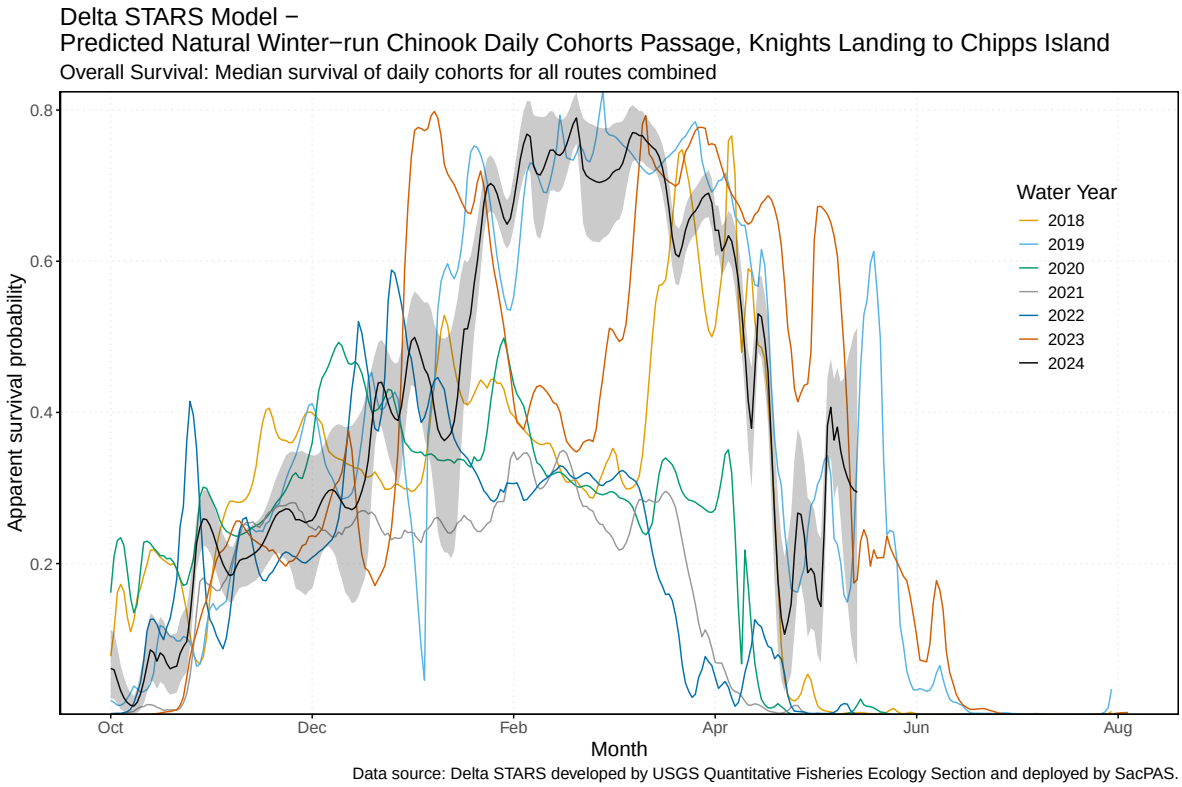
Figure 1. Juvenile Production Estimate



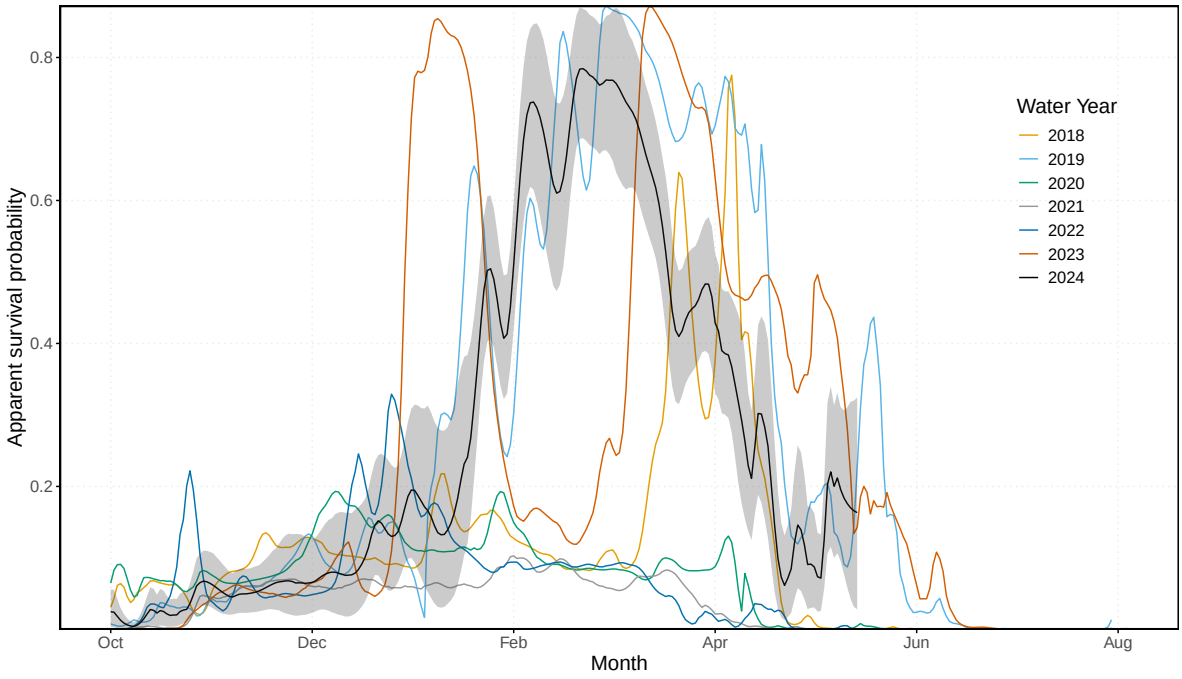
Related links: SacPAS Page, GitHub Repo Code

- Issues:
  - Update genetic data as it becomes available
  - Update method naming conventions as needed

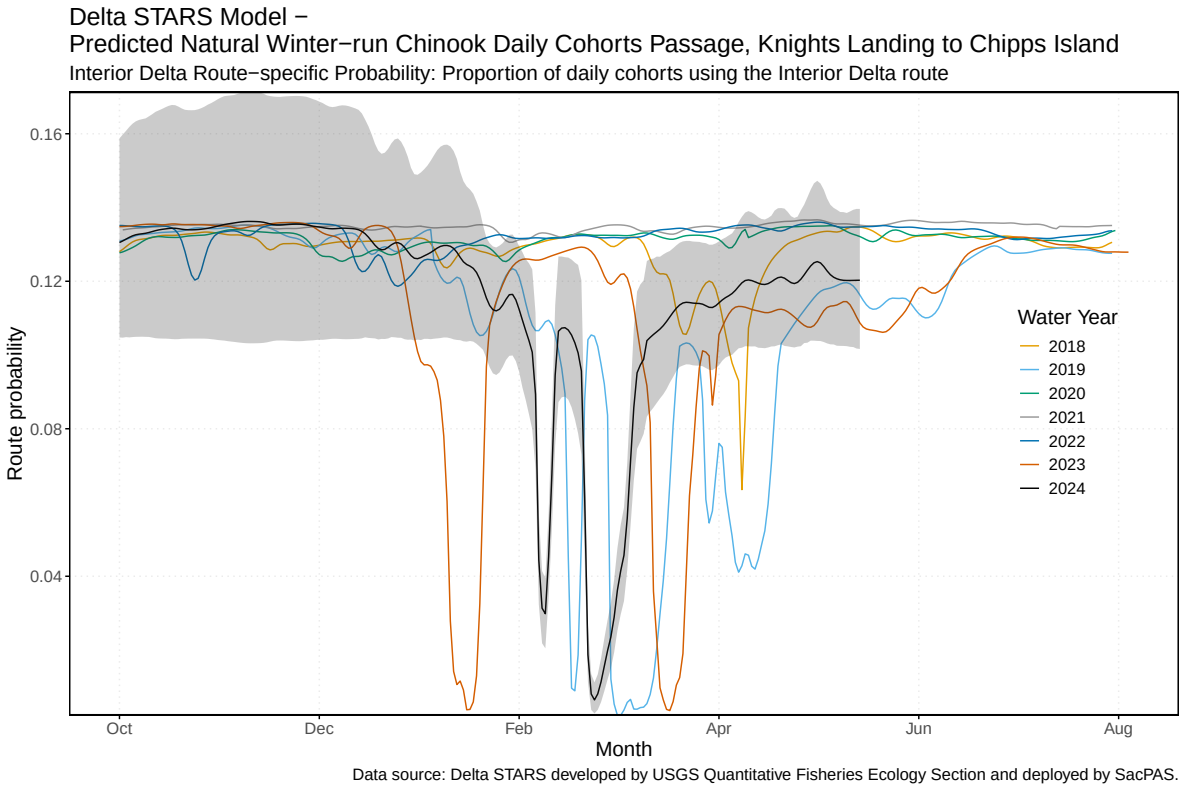
Figure 2. Survival and Routing Probabilites



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.

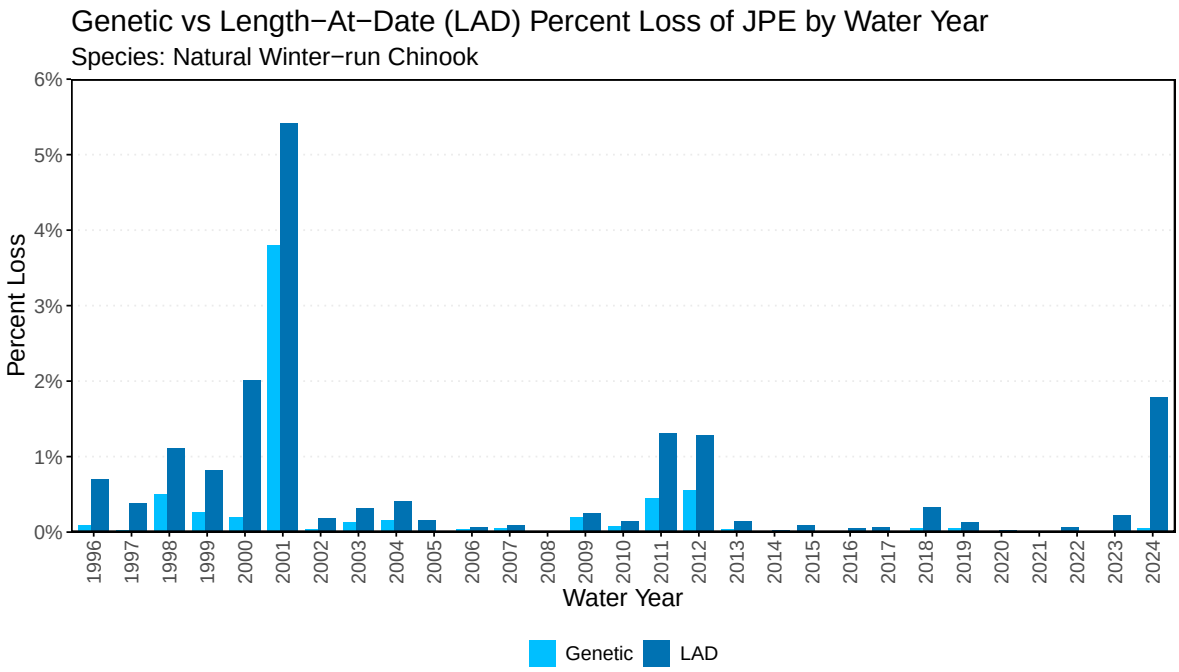


Related links: SacPAS Page, Interactive Plot - ShinyApp, GitHub Repo Code, STARS ShinyApp

- Issues:
  - Update interactive plot to reflect choice of non faceted years

Figure 3. Juvenile Production Estimate (JPE) – Percent Loss

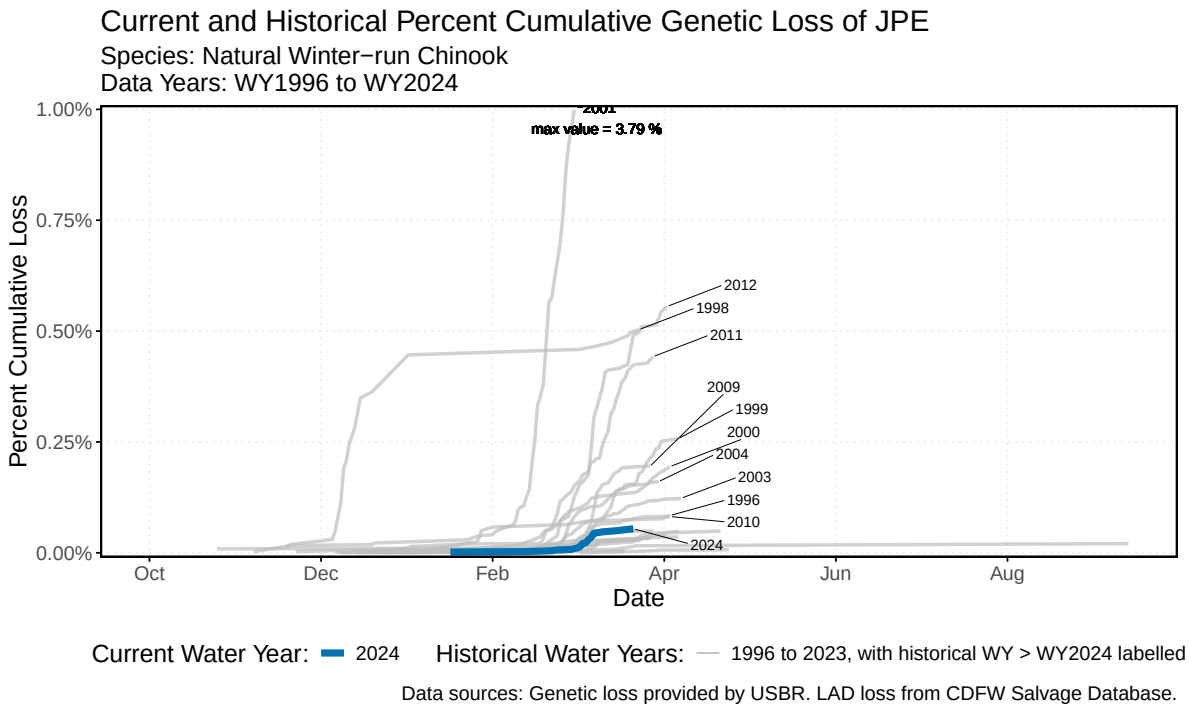
Figure 3a. Genetic vs Length-At-Date (LAD) Historical Percent Loss of JPE



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

Related links: SacPAS Page, GitHub Repo Code

Figure 3b. Cumulative Genetic Percent Loss of JPE

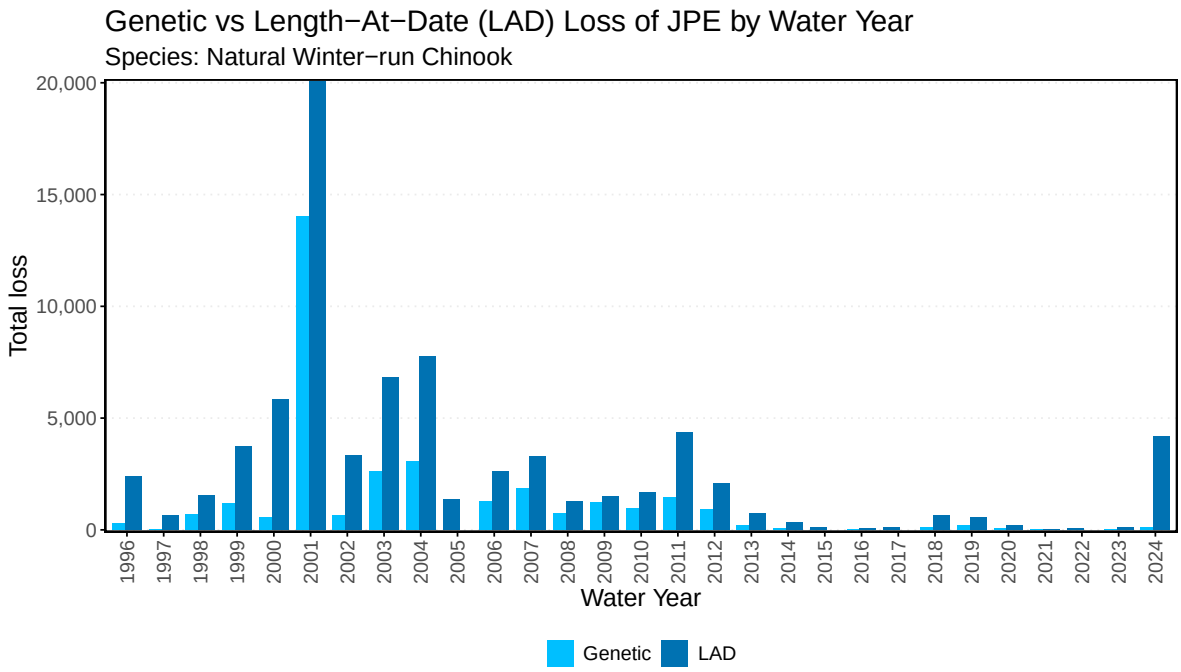


Related links: SacPAS Page,GitHub Repo Code, Interactive Plot - ShinyApp

- Issues:
  - Confirm use of Water Year over Brood Year in Fig 3a- both were used in word doc shared
  - Update genetic data as it becomes available
  - Confirm missing 2008 data
  - Update method naming conventions as needed
  - Confirm loss URL sourced from SacPAS, no age restriction added url

Figure 4. Juvenile Production Estimate (JPE) – Number Loss

Figure 4a. Genetic vs Length-At-Date (LAD) Historical Loss of the JPE



Related links: SacPAS Page, GitHub Repo Code

Figure 4b. Cumulative Length-At-Date (LAD) loss of the JPE

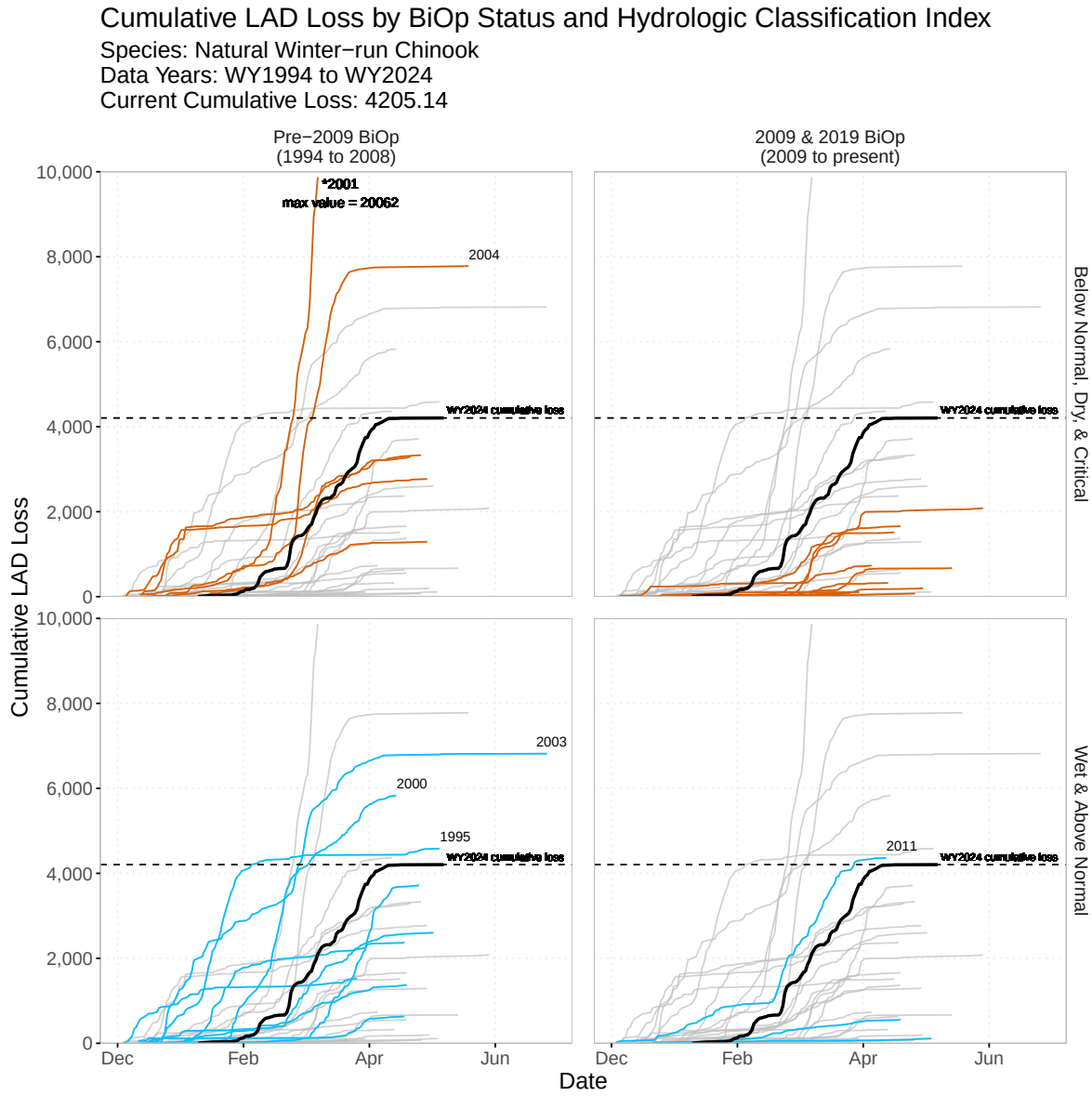


Figure 1: The figure shows cumulative loss by BiOp Status and Hydrological Classification Index (HCI). Each quadrant of the faceted plot includes grey lines for historical years, colored lines (blue for wet years, red for dry years) for years within the BiOp status and HCI type, a black line for the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

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

- Issues:
  - Update genetic data as it becomes available
  - Update method naming conventions as needed
  - Confirm loss URL sourced from SacPAS, no age restriction added url

Figure 5. Single Year Thresholds

Figure 5a. Cumulative Genetic Loss for Current Water Year

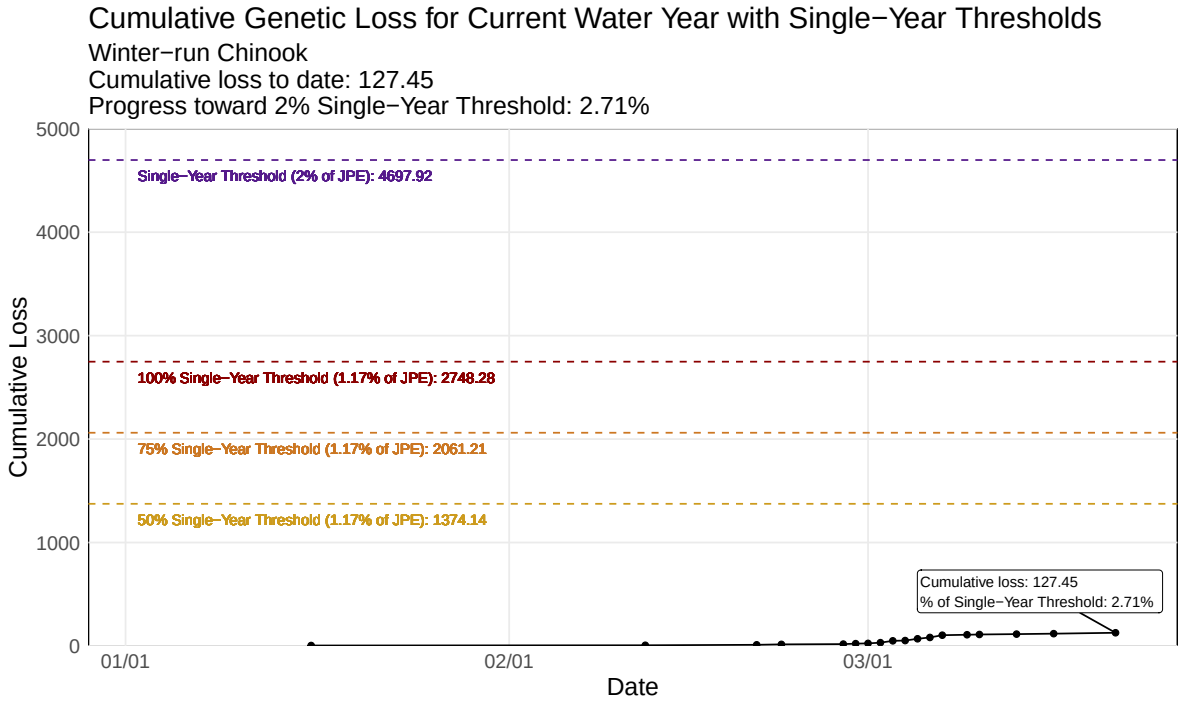
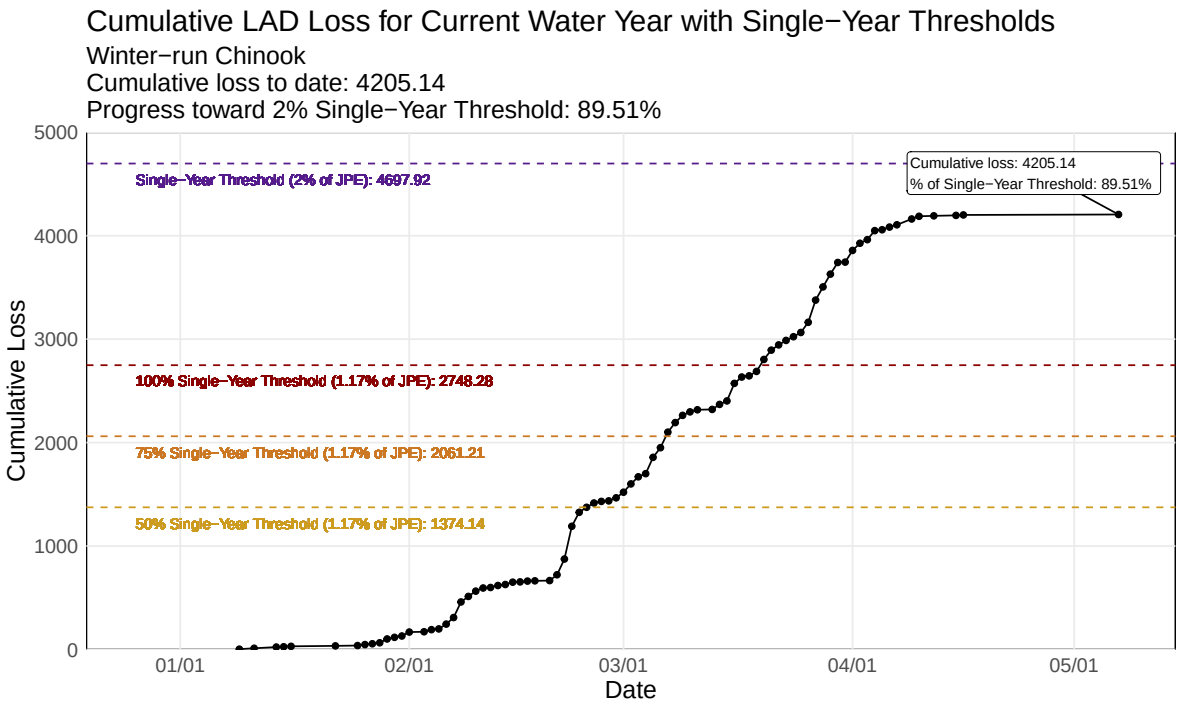


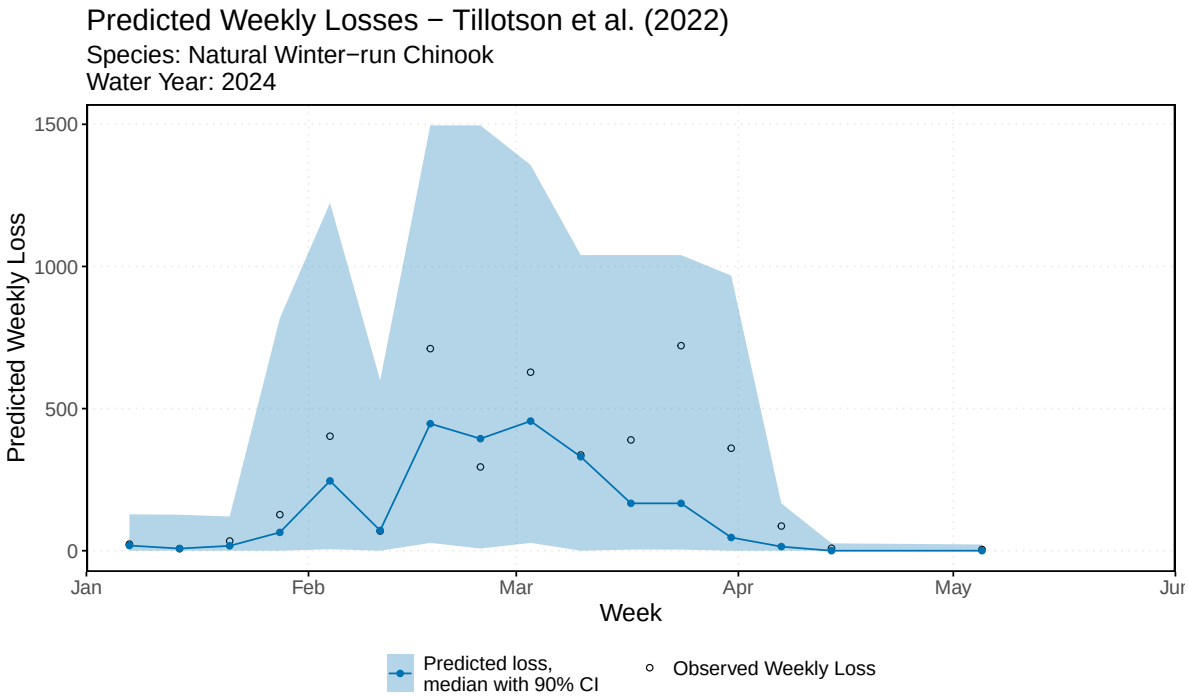
Figure 5b. Cumulative LAD Loss for Current Water Year



Related links: SacPAS Page, ShinyApp, GitHub Repo Code: cumul_genetic_loss , GitHub Repo Code: cumul_lad_loss, Interactive Plot - ShinyApp

- Issues:
  - Confirm loss URL sourced from SacPAS, no age restriction added url
  - Confirm single year threshold and naming conventions

Figure 6. Predicted and Observed Weekly Loss - Tillotson Model



Related links: SacPAS Page, 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

Table 1. Model inputs and predictions - Tillotson Model

Table 1: Tillotson
Winter-ru
and Middl
CVP and
water tem

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

- Issues:
  - See Figure 6 issues