Adult Upstream

Objective: Estimate spring-run spawning population

Type: VAKI Riverwatcher

Location: Daguerre Dam

Times of operation: Year-round

In the Yuba River, a VAKI Riverwatcher™ video monitoring system is operated within the two fish ladders (North and South) at Daguerre Point Dam. This dataset is considered to be a census for spring run chinook because mostly all spawn upstream of Daguerre Point Dam. Passage estimates using the adult upstream data have been modeled for 2004 – 2023. The modeling approach involves determining the run and interpolating for missing data.

Data is available in tables following sequential QA/QC processes and modeling:

Instantaneous passage records: data in this file form the base dataset for analyses and methodologies identified in Poxon and Bratovich (2020). These data are provided for transparency and are not intended to be used for modeling purposes.

Uncorrected daily passage: data in this file represent the aggregation of the instantaneous records in instantaneous passage records to net upstream daily passage counts. These data undergo the count correction and run differentiation analyses presented in Poxon & Bratovich (2020). These data are provided for transparency and are not intended to be used for modeling purposes.

Corrected and run-differentiated daily passage: data in this file are corrected for VAKI operational outages and contain run differentiated daily net Chinook salmon passage estimates. Data in this file represent the output (results) from the count correction and run differentiation analyses presented in Poxon and Bratovich (2020). Please see below for important notes regarding biological years 2016, 2017, and 2019.

Interpolation of missing data (i.e., when the video system was not working) is performed by application of a Generalized Additive Model (GAM). Run differentiation is performed by splitting the dataset into three temporal components (an early component of early migrating spring run, a middle component comprised of late migrating spring run and fall run, and a late component of fall run) and conducting an iterative analysis to find the best-supported ratio of spring run to fall run in the middle component, as outlined in Poxon and Bratovich (2020).

The 2016 and 2017 annual time series were deemed inappropriate for count correction and run separation analyses due to long periods of VAKI Riverwatcher™ system outages that resulted in incomplete datasets for both years. No estimates (run-differentiated or overall) are possible for these years. The total number of Chinook salmon for these years represent raw counts as affected by VAKI Riverwatcher™ system outages, and do not represent estimated annual abundances.

Additionally, run-type differentiation was not possible for biological year 2019 due to an extended closure (February 13, 2019 through September 10, 2019) of the DPD North Ladder, which fundamentally altered the temporal patterns of passage at DPD on which the run differentiation analysis is based. As a result, the only possible annual abundance estimate for the 2019 annual time series is Total Chinook Salmon. Table 1 in Poxon and Bratovich (2020), which did not acknowledge the limitations of 2019 data precluding run differentiation, has been superseded by Table 1 in Poxon and Bratovich (2023). Table 1 in Poxon and Bratovich (2023) is also expanded to include results of count correction and run differentiation analyses for biological years 2020 through 2022.

Resources

Poxon, B. and Bratovich, P. 2020. Lower Yuba River VAKI Riverwatcher™ Chinook Salmon Passage and Run Differentiation Analyses – 2020 Update. Prepared by HDR for Yuba Water Agency.

Poxon, B. and Bratovich, P. 2023. Summary Table of Results for Lower Yuba River VAKI Riverwatcher™ Chinook Salmon Passage and Run Differentiation Analyses for Biological Years 2004-2022. Prepared by HDR for Yuba Water Agency.