



Pedro Morais

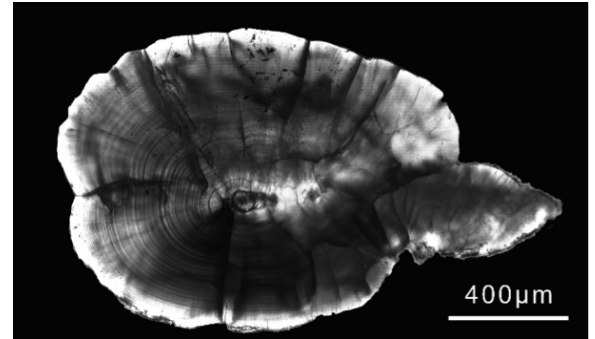
Postdoctoral Fellow

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WHY THIS RESEARCH MATTERS

The endangered Sacramento River winter-run Chinook salmon represent a critical component of the Central Valley Chinook stock complex. Historically, the fish spawn during summer and the survival of their offspring is heavily dependent on cool summer water releases downstream from the Shasta Reservoir and Keswick Dam. Yet these reservoirs also provide critical water supplies for irrigation, municipal and industrial needs, as well as providing flood control and hydropower generation. Understanding how winter run Chinook salmon respond to different flow regimes, including drought, is essential to meet the coequal goals of improving water reliability and ecosystem health.

Monitoring Sacramento River winter-run Chinook salmon life history diversity, growth, and habitat use among varying hydroclimatic regimes



(Left) Juvenile salmon, shown, use different rearing habitats on the freshwater landscape prior to seaward migration. *Image by Rachel Johnson, NOAA Fisheries;* (Right) Photograph of a sectioned otolith from a juvenile Chinook salmon showing the daily increments that provide information on fish age and growth (much like tree rings). The chemical composition of the otolith is used to reconstruct fish growth and movement into different habitats as the salmon migrate from where they were born to the ocean. *Image by George Whitman, UC Davis*

STATUS

Started February 1, 2017

PROJECT COST

\$259,288

RESEARCH MENTOR

Stephanie Carlson, University of California, Berkeley

COMMUNITY MENTOR

Rachel Johnson, NOAA Fisheries and University of California, Davis

For the endangered Sacramento River winter-run Chinook salmon, this project will:

1. Characterize juvenile migratory behaviors and thermal histories of adult survivors of the drought.
2. Determine habitat-specific growth rates.
3. Examine the influence of hydrology on growth and juvenile life history diversity.

The results will provide state and federal agencies and the Delta Conservancy with valuable information for securing a healthy ecosystem that supports winter-run Chinook salmon and a reliable water supply.