

THE HEAT IS ON

Species feeling the effects of climate change



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SACRAMENTO RIVER WINTER-RUN Chinook Salmon

Oncorhynchus tshawytscha

Region:

West Coast

Area affected:

Sacramento River

Climatic change:

Warming waters

Impact:

Heat mortality

ABOUT THIS SPECIES

Chinook salmon occur in streams and rivers all along the West Coast, and their conservation status varies geographically. In the Lower 48, most populations (which are designated based on the location and time of spawning) are protected under the Endangered Species Act. One small population, the winter-spawning Chinook in California's Sacramento River, is listed as "endangered." Severely restricted by dams and harmed by water pollution, this run is at the highest risk of extinction. Like most salmon, Chinook are anadromous, meaning that they hatch and begin development in rivers, move downstream to mature in the ocean, then make a final return journey upriver to spawn and die. Juvenile Chinook salmon eat a variety of small aquatic invertebrates. Older, ocean-going adults mainly eat fish.

DESCRIPTION OF IMPACT

Chinook salmon require unimpeded flows of cold, clean water to spawn successfully. Unfortunately, California has been in the grip of one of the most severe droughts in the state's history. The reduction in mountain snowpack is depriving the state's streams of a primary source of cold water flow and the lower water flows warm more easily. Exacerbated by poor management of Shasta Reservoir, these factors have caused the Sacramento River to be much warmer than the winter-run Chinook population can tolerate. **Elevated temperatures killed an estimated 95 percent of Chinook salmon eggs and fry (newly hatched fish)** during the 2014 spawning season. In 2015, fishery managers attempted to improve conditions by releasing an unprecedented number of hatchery-raised fry in the river. However, drought conditions have persisted, and biologists counted even fewer spawning fish in 2015. The winter-run Chinook has a three-year life cycle, so the loss of the juvenile cohort two years in a row could be catastrophic.

References

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