

THREAT LEVEL

IDAHO FISH & GAME

Vulnerable - Moderate Risk



WASHINGTON DEPARTMENT OF FISH & WILDLIFE (PRIORITY HABITAT & SPECIES PROGRAM)

Priority Species



CALL TO ACTION

- ▶ Support fisheries that specialize in repopulation efforts
- ▶ Protect and restore kokanee habitat



Kokanee Salmon

Oncorhynchus nerka

Photo Credit: Tom Koerner/USFWS

OVERVIEW

Kokanee salmon are a non-migrating, freshwater form of sockeye salmon. Many populations of kokanee salmon are declining and at risk. Habitat modification and dam construction is one of the largest threats salmon face. Climate change is causing warmer water temperatures, leading to waterways that once supported kokanee to be uninhabitable. Stream and river ecosystems need to be protected to maintain healthy habitats that promote fish recruitment. Monitoring and research of kokanee and other salmonids should prioritize natal streams and migration routes critical to their survival.

CONSERVATION CONSIDERATIONS

VULNERABILITY RANKING

CLIMATE

High

NON-CLIMATE

High

CONFIDENCE

High

Physiological, phenological, or ecological factors to consider when planning conservation projects:

- ▶ Salmon require long stretches of healthy river for migration
- ▶ Mature kokanee depend on cold-water lakes
- ▶ Some kokanee populations are small and reproductively isolated which limits genetic variation

Vulnerability Rankings Methodology

These priority species have been assessed for climate and non-climate vulnerability using a process adapted from the Washington Department of Fish & Wildlife's Methodology for ranking the Climate Change Vulnerability of Species. WDFW's approach includes rating each species' climate sensitivity and exposure. These two rankings are then averaged for a climate vulnerability ranking. The Tribe developed a non-climate vulnerability ranking to capture species' relative risk and adaptability to factors such as human-caused development, predator/prey relationships, or low population numbers. Confidence rankings were assessed based on the availability of scientific research.

KEY THREATS

Habitat Degradation & Loss

Kokanee are threatened by pollution from logging and development, and human-caused modifications to habitat.

Climate Change

- ▶ Kokanee are highly sensitive to changing water temperatures. Stream temperatures will rise as ambient, outdoor temperatures become warmer. Warming stream temperatures may reduce spawning success and increase mortality.
- ▶ Shifting temperature and precipitation patterns lead to altered streamflow throughout the year and during key stages of kokanee development. Increasing heavy precipitation can cause flooding and erode or alter habitat.



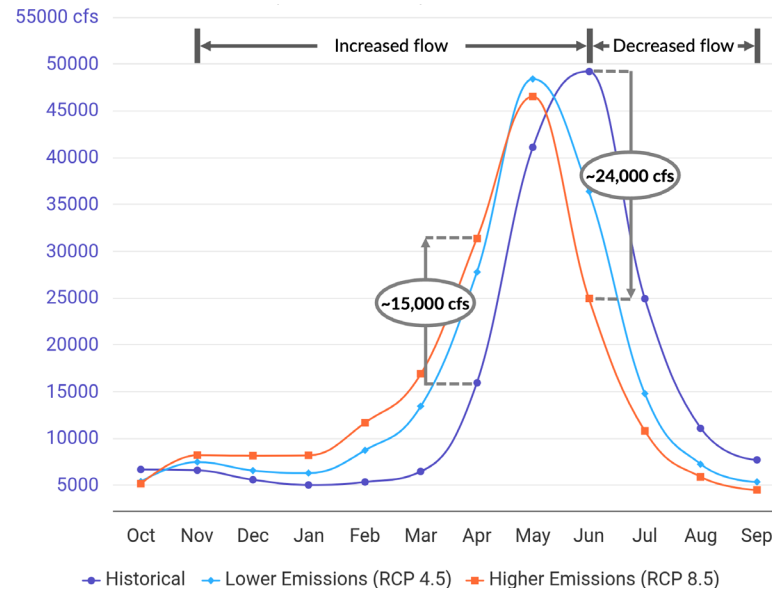
Photo Credit: Pexels

PROJECTED AVG AUGUST STREAM TEMPERATURE (°C)

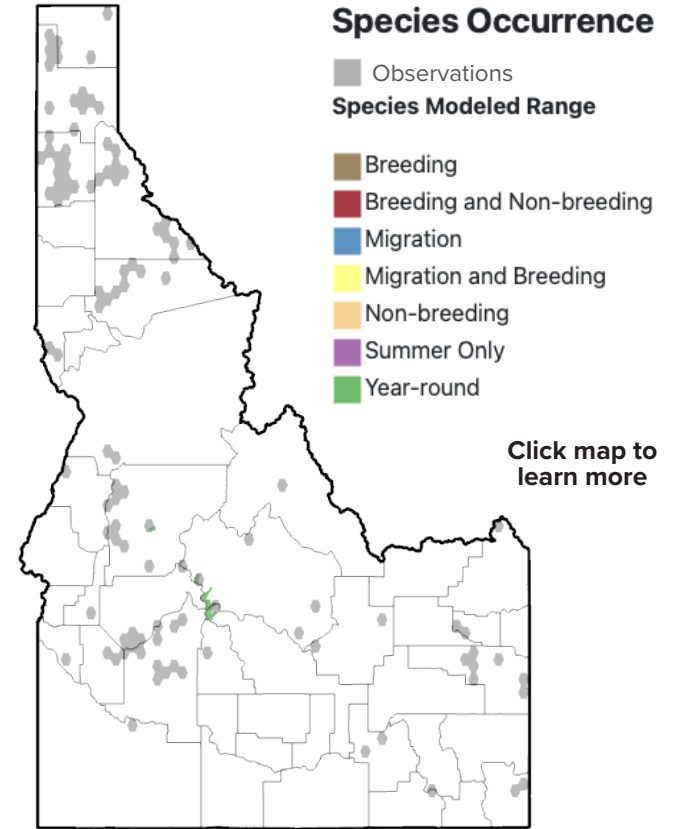
Stream location	Historical	Mid century (2040)	Late century (2080)
Boundary Creek, at Saddle creek	10.6	12.3	13.2
"Lower" Smith Creek	14.1	15.5	16.5
"Upper" Smith Creek	11.0	12.2	13.2
Kootenai River, Copeland Rd. crossing	16.2	17.7	18.7
Kootenai River, Nimz ranch	16.0	17.4	18.5
"Upper" Myrtle creek	10.3	11.5	12.4
"Lower" Myrtle creek	13.5	14.8	15.7
Deep Creek, where Pine Island Rd ends	15.2	16.7	17.7
Kootenai River, Leonia	17.0	18.5	19.6
Deep Creek, at Ruby creek	14.5	15.9	16.9

Source: US Forest Service

PROJECTED NON-REGULATED STREAMFLOW (2070-2099) KOOTENAY RIVER AT BONNERS FERRY, ID



Source: Climate Toolbox, Accessed on December 14, 2024



Source: Idaho Fish & Game

REFERENCES

- Idaho Fish & Game. *Oncorhynchus nerka* (Kokanee). <https://idfg.idaho.gov/species/taxa/16015>.
- U.S. Fish & Wildlife Service. (2023). *Kokanee Salmon, Non-Anadromous Form of Sockeye Salmon in the Pacific Northwest*. <https://www.fws.gov/media/kokanee-salmon-non-anadromous-form-sockeye-salmon-pacific-northwest>.
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PRIORITY AT-RISK SPECIES
KOOTENAI TRIBE OF IDAHO