Beechie et al. 2021: Stream Temperature and Coho Salmon Summer Rearing

Function Updated by mbayly on Tue, 02/17/2026 - 22:43.

Species Information

Common Name: Coho Salmon
Genus: Oncorhynchus kisutch

Stressor Details

Stressor Name: Stream Temperature
Units: °C
Metric: 7-Day Maximum Weekly Average
Scale: linear
Function Type: continuous
Vital Rate/Process: Survivorship

Life Stage & Context

Life Stages: Juvenile, Parr
Activity: Rearing
Season: Summer

Descriptions

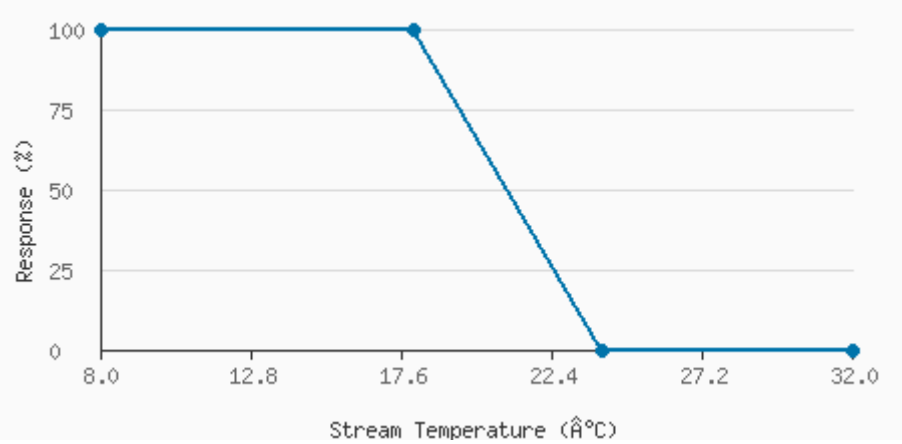
Overview

> The functional relationship between the summer rearing capacity and the 7-day average daily maximum stream temperature for coho salmon.
>
> Increasing stream temperature decreases coho salmon abundance and productivity via changes in summer rearing capacity and productivity. We estimate the productivity multiplier based on 7-day average daily maximum (7-DADM) stream temperature which decreases summer rearing productivity from its base value:
> T < 18°C, 1
> 18°C ? T < 24°C, 1 - 0.17*(T - 18)
> T ? 24°C, 0
>
> That is, at temperatures

Function Derivation

> expert opinion

Stressor Response Data



Stressor (X)	Mean System Capacity (%)	SD	low.limit	up.limit
8	100	0	0	0
18	100	0	0	0
24	0	0	0	0
32	0	0	0	0

Citations

Beechie, T. J., C. Nicol, C. Fogel, J. Jorgensen, J. Thompson, G. Seixas, J. Chamberlin, J. Hall, B. Timpane-Padgham, P. Kiffney, S. Kubo, and J. Keaton. 2021. Modeling Effects of Habitat Change and Restoration Alternatives on Salmon in the Chehalis River Basin Using a Salmonid Life-Cycle Model. U.S. Department of Commerce, NOAA Contract Report NMFS-NWFSC-CR-2021-01.

References

https://repository.library.noaa.gov/view/noaa/29486 - https://repository.library.noaa.gov/view/noaa/29486