WDFW & Ecology 2004: HSI Coho Spawning Velocity

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Species Information

Common Name: Coho Salmon
Genus: Oncorhynchus kisutch

Stressor Details

Stressor Name: Velocity
Units: m/s
Metric: Water Velocity (mean column velocity at redd)
Scale: linear
Function Type: continuous
Vital Rate/Process: Habitat Suitability Index

Life Stage & Context

Life Stages: Spawners
Geography: Quinault River tributary, Washington
Activity: spawning
Season: Fall-early winter (spawning season)

Descriptions

Overview

> Recommended spawning velocity preference curve for Coho Salmon used in Washington PHABSIM/IFIM instream flow studies. Suitability is 0.40 in still to slow water (?0.08 m/s), peaks at ~0.32 m/s, and declines to 0 at ~1.19 m/s. Plotted velocities converted from ft/s to m/s; the 99 ft/s terminal value (0) is omitted.
>
> Stressor-response relationship data sourced from: FIGURE 4b. Coho Salmon Spawning Velocity Preference — Recommended velocity preference curve (p. 44).

Function Derivation

> Recommended (smoothed, expert-adjusted) curve derived from observed redd velocity use relative to availability.

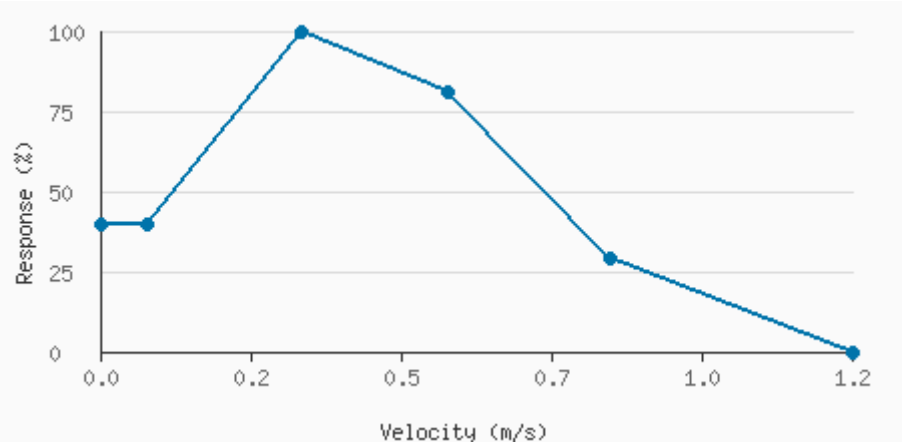
Transferability of Function

> Developed for western Washington coastal streams; consult WDFW/Ecology before local application.

Source of Stressor Data

> Redd microhabitat measurements (2 studies, 30 redds) compared with available habitat, following WDFW–Ecology instream flow study guidelines.

Stressor Response Data



Raw Stressor Values	Scaled Response Values 0 to 100	SD	low.limit	up.limit
0	40	0	0	100
0.076	40	0	0	100
0.32	100	0	0	100
0.549	81	0	0	100
0.808	29	0	0	100
1.189	0	0	0	100

Citations

Washington Department of Fish and Wildlife & Washington Department of Ecology. (2008). Instream flow study guidelines: Technical and habitat suitability issues including fish preference curves (Publication No. 04-11-007; updated April 5, 2004; error correction update February 12, 2008). Washington Department of Fish and Wildlife.

References

Beecher et al., 2002 - https://wdfw.wa.gov/sites/default/files/publications/00574/wdfw00574.pdf