Custom (Lewis and Ganshorn 2007): HSI Overwinter Coho & Depth

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Species Information

Common Name: Coho Salmon
Genus: Oncorhynchus kisutch

Stressor Details

Stressor Name: Depth
Units: m
Metric: Water Depth
Scale: linear
Function Type: continuous
Vital Rate/Process: Habitat Suitability Index

Life Stage & Context

Life Stages: Parr, Smolt
Geography: British Columbia (composite)
Activity: winter rearing
Season: Overwintering

Descriptions

Overview

> Generalized relationship from criteria in Lewis and Ganshorn (2007):
>
> During winter, shallow riffles are abandoned in favour of deep structural pools that provide protection from predators and anchor ice:
> - Unsuitable (HSI = 0.0): Water depths below 0.15 metres are highly unsuitable, providing zero cover.
> - Marginal (HSI = 0.2 to 0.5): Depths from 0.15 to 0.40 metres offer marginal protection and are mostly used if heavy large woody debris (LWD) or complex overhead cover is present.
> - Optimal (HSI = 1.0): Any water depths greater than 0.60 metres (up to about 1.5 metres or more) are fully optimal. Unlike velocity, which drops off tightly, depth suitability plateaus at 1.0 and stays open-ended; deeper water is inherently safer for overwintering pools.

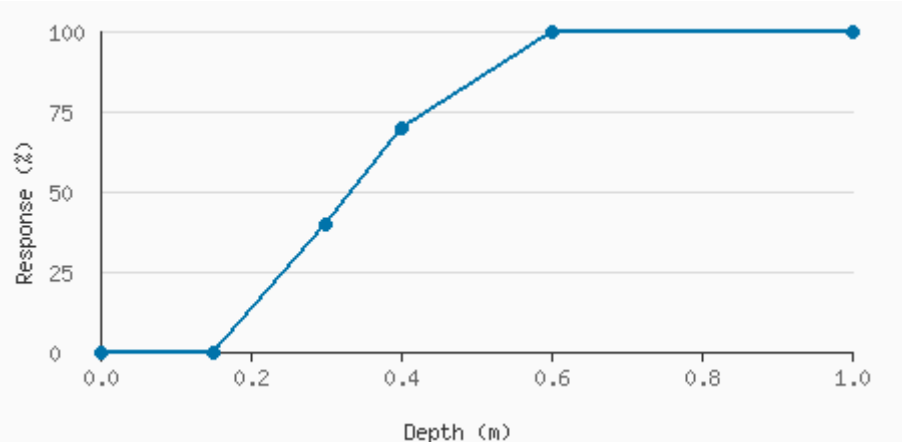
Function Derivation

> Custom rule-based and expert opinion

Transferability of Function

> Generalized assumptions

Stressor Response Data



Stressor (X)	Mean System Capacity (%)	SD	low.limit	up.limit
0	0	0	0	100
0.15	0	0	0	100
0.3	40	0	0	100
0.4	70	0	0	100
0.6	100	0	0	100
1	100	0	0	100

Citations

Lewis, A. and K. Ganshorn. 2007. Literature Review of Habitat Productivity Models for Pacific Salmon Species. Consultant's report prepared for the Department of Fisheries and Oceans, Habitat Management Division, Vancouver, B.C.

References

Lewis and Ganshorn 2007 - https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/335931.pdf