Jensen et al 2009: Fine Sediment and Incubation Survival

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Species Information

Common Name: Pacific salmon (generalized)

Stressor Details

Stressor Name: Sedimentation
Units: % fines (0.85mm)
Metric: Fine Sediment
Scale: linear
Function Type: continuous
Vital Rate/Process: Survivorship

Life Stage & Context

Life Stages: Egg
Geography: Pacific Northwest
Activity: Incubation

Descriptions

Overview

> Reach-averaged percentage of fine sediment (

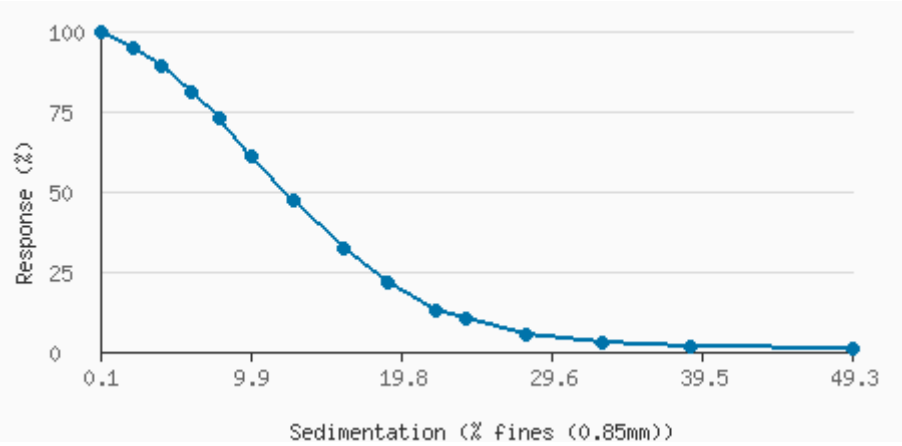
Stressor Magnitude Data

> Empirical model that estimates fine sediment from road density, slope and bankfull width

Pathways of Effect

> Upland development, road building, fine sediment, smothering of eggs, egg to fry surviorship

Stressor Response Data



Stressor (X)	Mean System Capacity (%)	SD	low.limit	up.limit
0.1	100	20	45	100
2.33	94.6	25	45	100

4.07	88.85	25	30	100
6.1	80.93	30	30	100
7.85	72.66	30	30	100
9.98	61.15	25	15	100
12.79	47.12	25	15	100
15.99	32.01	20	2.5	85
18.99	21.58	20	0	85
22.09	12.95	10	0	35
24.03	10.43	7.5	0	35
28	5.4	5	0	10
33.04	2.88	2.5	0	10
38.76	1.8	1	0	10
49.32	1.08	0	0	10

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.

Jensen, D. W., E. A. Steel, A. H. Fullerton, and G. R. Pess. 2009. Impact of fine sediment on incubation survival of Pacific salmon: a meta-analysis of published studies. Reviews in Fisheries Science 17(3):348-359.

References

Beechie et al 2021 - https://repository.library.noaa.gov/view/noaa/29486