Road Density BC-CEF IAP

Species Information

Common Name: Aquatic Ecosystems

Stressor Details

Stressor Name: Road Density
Units: km/km²
Metric: Total length of roads divided by the total watershed area (km/km2)
Scale: linear
Function Type: continuous

Life Stage & Context

Geography: British Columbia

Descriptions

Overview

Road Density from WSEP Tier 1 and BC Interim Protocol for Aquatic Ecosystem.

See documentation for core indicators. Road density is a coarse-scale GIS proxy that may exacerbate peak flows and sedimentation. Large body of literature describing the use of Road Density as a proxy for various cumulative effects to watersheds. Many relationships are context dependent.

Conversion from qualitative (low to high) to quantitative (Mean System Capacity Response: 0% - 100%) rankings for Joe Model: Very Low = 100%; Low = 80%; Moderate = 60%; High = 40%; Very High = 20%.
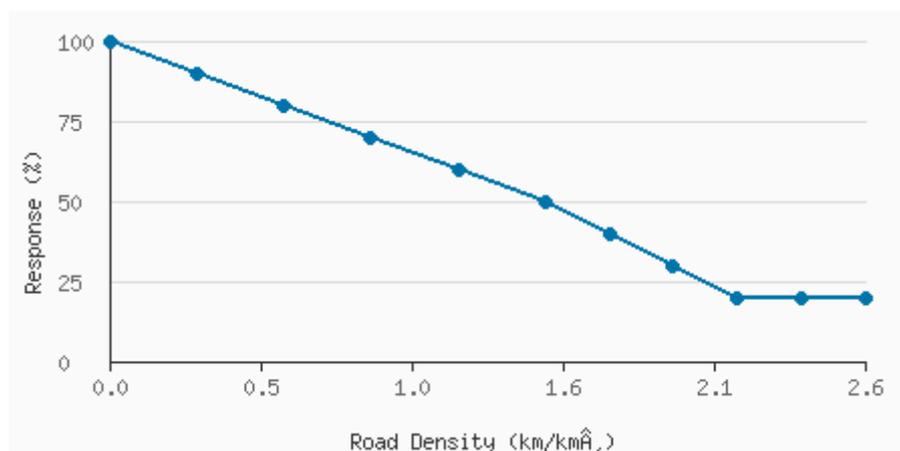
Stressor Magnitude Data

GIS: B.C. Cumulative Effects (BCCE) Consolidated Roads layer.

Pathways of Effect

Forestry, Road Development, Flow Conveyance, Runoff, Peak Flows, Sedimentation

Stressor Response Data

Road Density	Mean System Capacity (%)	SD	low.limit	up.limit

2.6	20	0	0	100
2.38	20	0	0	100
2.16	20	0	0	100
1.94	30	0	0	100
1.72	40	0	0	100
1.5	50	0	0	100
1.2	60	0	0	100
0.9	70	0	0	100
0.6	80	0	0	100
0.3	90	0	0	100
0	100	0	0	100

Citations

Interim Assessment Protocol for Aquatic Ecosystems in British Columbia – Standards for Assessing the Condition of Aquatic Ecosystems under British Columbia's Cumulative Effects Framework. Version 1.3 (December 2020). Prepared by the Provincial Aquatic Ecosystems Technical Working Group – Ministry of Environment and Climate Change Strategy and Ministry of Forests, Lands and Natural Resource Operations and Rural Development. 51 pp.

References

BC Interim Protocol Aquatic Ecosystems 2020 - https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/cumulative-effects/protocols/cef-aquatic-ecosystems-protocol-dec2020.pdf