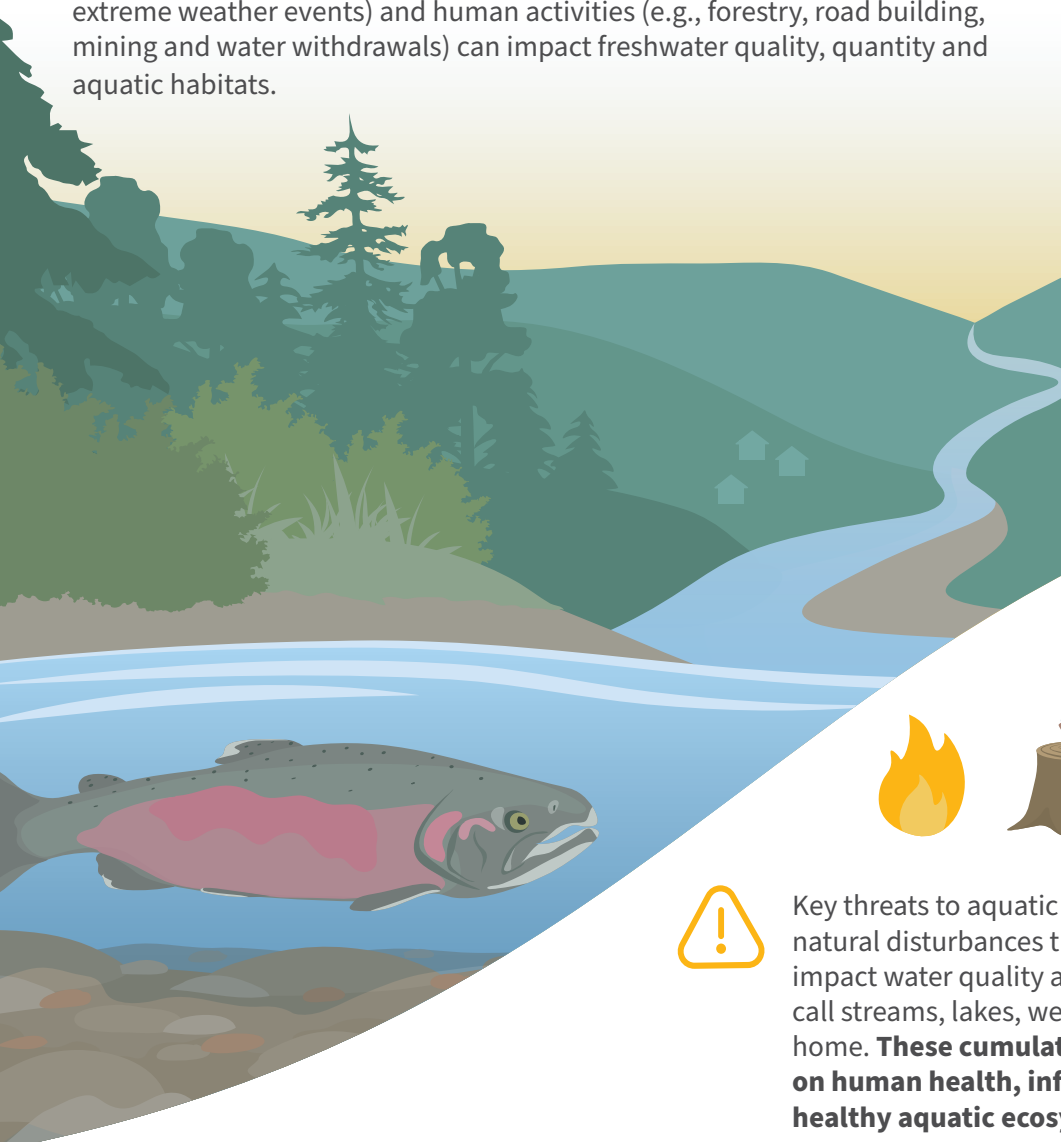


Assessing Cumulative Effects in B.C. Aquatic Ecosystems

Freshwater flows throughout British Columbia's (B.C.) streams and lakes. It is fundamental to the health and well-being of ecosystems and the people of B.C. Healthy watersheds support aquatic ecosystems where fish and other species thrive. They also provide ecosystem services such as flood mitigation and clean water for communities. Natural disturbances (e.g., wildfire and extreme weather events) and human activities (e.g., forestry, road building, mining and water withdrawals) can impact freshwater quality, quantity and aquatic habitats.

Cumulative effects result from the combined impacts of human activities and natural processes on the land over time. Together, these impacts may affect environmental, social, and economic values. The Province of B.C. has developed a Cumulative Effects Framework (CEF) to assess the condition of values, identify emerging risks and help manage cumulative effects. To learn more about the CEF, read the **CEF Infographic**



Key threats to aquatic ecosystems include human impacts and natural disturbances that can increase the severity of flooding, impact water quality and degrade habitats for species that call streams, lakes, wetlands, and riparian (near stream) areas home. **These cumulative effects can have consequences on human health, infrastructure and species that rely on healthy aquatic ecosystems.**

Aquatic ecosystems are one of the five environmental values currently assessed by the B.C. CEF.



Aquatic Ecosystems



Grizzly Bear



Moose



Forest Biodiversity

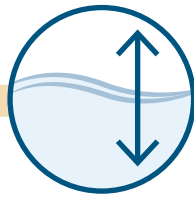


Old Growth Forest

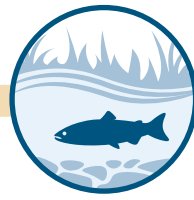
The purpose of this assessment is to summarize the combined effects of activities on the condition of aquatic ecosystems, based on the following **key components**:



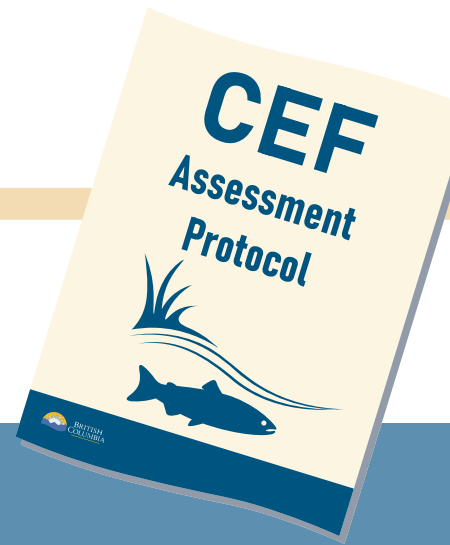
Water quality
("How clean?")



Water quantity
("How much?")

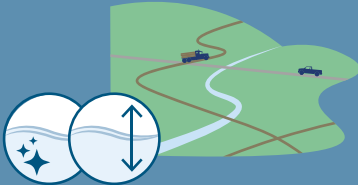


Aquatic habitat
("How livable for species?")

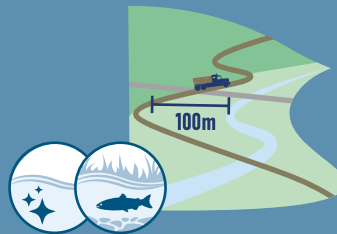


Using standardized methods and datasets, the assessment evaluates a series of indicators. These indicators help determine the **likelihood that aquatic ecosystems have been degraded by natural and human-caused impacts**.

Core indicators:



Total road density



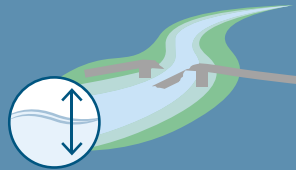
Density of roads within
100 m of a stream



Road density on
potentially unstable slopes



Riparian
disturbance



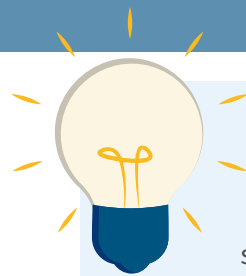
Peak flow



Stream crossing
density

The protocol contains several additional indicators that provide supplementary information and context for informing decisions including:

- Wetland Disturbance
- Total Land Disturbance
- Number of Mines per watershed
- Number of Dams per watershed



Findings from the assessment can be used to inform resource management decisions including setting objectives to better manage the value into the future. However, **they do not make decisions or set limits for development.**

All CEF assessments and data are publicly available through the CEF [website](#). While the CEF assessments are created by the Province of B.C. and use provincial datasets, the program is working towards collaborative assessments with First Nations.

Access the full Aquatic Ecosystems Protocol [here](#).

Learn more about the B.C. CEF's other priority environmental values here: [Grizzly Bear](#), [Old Growth Forest](#), [Moose](#) and [Forest Biodiversity](#).