SPECIAL FEATURES IN THE NORTHWEST TERRITORIES

WATERFALLS AND RAPIDS

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Government of
Northwest Territories

What are waterfalls and rapids?

A rapid is a fast-flowing, often turbulent, section of a body of water flowing over a gradient, usually with exposed rocks or boulders. There is no clear division between a waterfall and a rapid; at some point rapids become waterfalls, often at bedrock ledges. Waterfalls are an abrupt, substantial (usually over three metres), usually vertical and steep drop along an otherwise flat watercourse.

Waterfalls and rapids are unique ecosystems. The turbulence created incorporates air bubbles in the water, increasing oxygen content. This can be particularly important in the winter in the NWT because of the decrease in oxygen resulting from extended periods of ice cover. As a result, the areas around waterfalls and rapids are important spawning grounds for fish, such as the Artic grayling (*Thymallus arcticus*).

Rheophiles—organisms adapted to living or feeding in fast-flowing water—make their homes around waterfalls and rapids. Many insects, molluscs, fish and birds, such as American dippers (*Cinclus mexicanus*), Harlequin ducks (*Histrionicus histrionicus*) and American white pelicans (*Pelecanus erythrorhynchos*), rely on waterfalls and rapids to survive. Larger waterfalls and rapids remain open through the winter months, providing habitat for freshwater mammals (otters and muskrats) and drinking water for over-wintering birds and mammals. Larger and stronger waterfalls and rapids can also represent barriers to upstream travel of fish and freshwater invertebrates.

The climate around large waterfalls and rapids is often distinctly different from the surrounding landscape, due to constant spray, wet ledges and shade, and can be associated with rare species, including may-be-at-risk vascular plants, mosses and lichen communities.

The spray zones created by waterfalls in the surrounding landscape have been described as ‘vertical waterfalls’, regulating temperature year-round and providing more moisture than in

surrounding habitats. These highly localized habitats act as range extenders, allowing species to exist far outside their usual ranges in stable and durable populations separated from their usual distribution.

Larger waterfalls and rapids are often areas of high cultural importance. They are areas where portages are necessary for those traveling by water, leading to increased amounts of overland traffic, camping and the presence of artefacts. The power of fast-flowing water from waterfalls and rapids can also be harnessed as an energy source in hydroelectric generation.

Waterfalls and rapids in the NWT

Many waterfalls and rapids in the NWT are ecologically and culturally important. Parry Falls on the Lockhart River between Artillery and Great Slave Lakes holds spiritual significance and is home to the may-be-at-risk vascular plant white mountain saxifrage (*Saxifraga paniculata*). In the vicinity of Sambaa Deh Falls near Fort Simpson, rock outcrops support may-be-at-risk mosses, including the blunt candlesnuffer (*Encalypta mutica*).

The Slave River Rapids near Fort Smith create a barrier preventing southward movement of Arctic lamprey, inconnu and chum salmon. The rapids are home to the northernmost breeding colony of American white pelicans in Canada, a species that has a limited range and is may-be-at-risk in the NWT. Moderately rapid, turbulent and gravelly reaches of tundra streams near Lac de Gras are the preferred choice for spawning Arctic grayling. After spawning, these grayling spend several days feeding in pools below riffles and rapids.

How can we protect waterfalls and rapids?

To minimize impacts on waterfalls and rapids and associated conservation features, developers are asked to observe the following best practices:

- If you are conducting land use activities, make sure you obtain current information and surveys for waterfalls and rapids in your area of interest. As well, identify any impacts of your proposed activities, and determine appropriate mitigation measures to minimize impacts on waterfalls and rapids.
- When activities could result in the waterfall or rapid no longer being available as aquatic habitat, make sure to conduct a cumulative effects assessment on a wider landscape to determine impacts on the larger watershed.
- Monitor and adapt your land use activities and mitigation efforts to make sure there are minimal impacts on waterfalls and rapids.
- If you are conducting land use activities within the vicinity of known waterfalls and rapids, conduct a general biophysical survey, including a rare plant survey.

Where can I get more information?

Visit the Conservation Network Planning **webpage** for other information sheets, reports and most recent maps.

Email Conservation Network Planning at **conservationplanning@gov.nt.ca**