

From Tar Sands to Ring of Fire—forewarning changes to Canada's watersheds

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The Tar Sands in Alberta, potential development in the Ring of Fire in northern Ontario, declining timber harvest and farming - human activity is transforming Canada's landscape, yet many of the country's aquatic resources remain unprotected, according to research by ecologists at the University of Toronto.

"The conservation and management of [aquatic ecosystems](#) in Canada needs to keep pace with the country's changing landscape," said Cindy Chu, a former postdoctoral researcher at U of T and lead author of a study published in the January issue of the *Canadian Journal of Fisheries and Aquatic Sciences*.

Chu and a team of U of T researchers examined environmental, human census and business pattern data from across Canada. Their analysis showed climate warming and northward expansion of human activities over a 10-year period from 1996 to 2006, threatening the quality and quantity of freshwater resources, especially in areas with the most [human activity](#). They employed a variety of different scenarios that rank watersheds based on the importance of freshwater fish biodiversity, the presence of fish species at risk, and intensity of human activities.

"By combining the data we were able to identify regions that need attention," said Chu, now an aquatic research biologist with the Ontario Ministry of Natural Resources and Forestry. "Attention has typically

been given to watersheds in British Columbia, southern Ontario, southern Quebec and the Maritimes. Our research shows that Canada's changing landscape means that attention is needed elsewhere, too."

The researchers recommend watersheds along the southern border of Canada, and northern regions of some provinces be prioritized for conservation through more intensive monitoring, research or management.

The study is the first national, chronological review of changing human activities and environmental patterns in Canada. The researchers hope it will be used to guide strategies for managing [freshwater resources](#) by highlighting the regions where humans are now having the greatest impact.

The research appears in a study titled "An updated assessment of human activities, the environment and freshwater fish biodiversity in Canada", published in the *Canadian Journal of Fisheries and Aquatic Sciences*.

Provided by University of Toronto

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