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Researchers say N.W.T. permafrost is thawing at a dramatic rate

Hydrologist says parts of N.W.T. losing about 1 metre of frost per year

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Northern communities will have to spend more to ensure buildings, roadways and other structures can withstand the melting of permafrost, which can cause landslides or 'slumping' as shown in this August 2009 photo from the Mackenzie River delta. (Rick Bowmer/Canadian Press)

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Researchers studying permafrost in the Northwest Territories say it's thawing at an alarming rate, with parts of the territory losing about a metre a year.

Hydrologist Dr. Bill Quinton of Wilfrid Laurier University studied an area around Fort Simpson, N.W.T. He says in the 1940s, permafrost used to cover 70 per cent of that study area, now it's around half.

That's a 28 per cent decrease in 70 years.

"The N.W.T. is one of the places in the world that is warming up at the highest rate, so the eyes of the world are upon us," says Quinton.

Quinton and fellow researcher Dr. Philip Marsh gave a talk on their findings at the legislative assembly in Yellowknife on Wednesday, Jan. 14.

Quinton has been studying how melting permafrost is changing freshwater resources. He says it



Dr. Bill Quinton, a hydrologist from Wilfrid Laurier University, says forests in the southern part of the territory will become more like wetlands. (CBC)

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became clear in the past five years just how quickly things are changing.

"This came to our attention just from very practical problem of just from having to move our tents inward from the permafrost every year. The frost was moving in a bit about a metre and a bit each year," he said.

The reduction in permafrost has already contributed to more run off into the Mackenzie River.

In the years to come, he predicts water from the melting permafrost could turn forests in the southern part of the territory into wetlands. On the tundra, shrubs will increase in size, which will push the treeline farther north.



Seas rising from global warming and land sinking as permafrost thaws are threatening the Arctic community of Tuktoyaktuk, shown here in a 1996 photograph. (Government of Northwest Territories/Associated Press)

Quinton says this can lead to changes across the region, more sedimentation in waterways, more slumps or slides, even the frequency of wildfires.

Kendall Island at risk

One area of concern is Kendall Island in the Mackenzie Delta. The migratory bird sanctuary is barely above sea level — during breakup it's flooded and once the Beaufort Sea is open, waves crash down on it.

Migratory birds nest during the short window when the island is dry.

"Any small changes, cause we're only half a metre above sea level, any small changes in water level, flooding, time will have a huge impact on bird nesting in that area," says Dr. Philip Marsh.

The researchers say more studies need to be done by other researchers with a variety of backgrounds to understand what is happening to the environment.

Quinton says governments can use this new knowledge to make informed decisions about how to respond.

"It could be bad news if we don't prepare ourselves, the reality is the landscape is changing dramatically. And that means we're sort of looking at a new Arctic, a new place in the 21st Century."

Quinton says the problem could be solved if changes are made now. He says a new approach to infrastructure is necessary.

For instance, more culverts could be required to prevent more road washouts.

"We're sort of having to react and we'd rather not operate like that, we'd rather have the knowledge base, the understanding. And once we have that that's a good foundation to make predictions about how change will occur."

Corrections

- A previous version of this story stated permafrost in the N.W.T. had decreased by about 30 per cent in 70 years. In fact, permafrost in the researcher's study area around Fort Simpson, N.W.T., decreased by about 30 per cent in 70 years.



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0:30

It was a rough start to the week for Everton Michael Lewis, who says he went for a Monday morning coffee run and came back to find his home in flames - but he was all smiles after being reunited with his puppy, which escaped the blaze.



Bowhead whales exfoliate in Cumberland Sound, Nunavut

1:04

Canadian researchers recently caught bowhead whales in an intimate act of deep exfoliation in Nunavut waters.



Louis Sebert defends record as N.W.T. cabinet minister before vote to oust him from cabinet.

8:06

N.W.T. Justice Minister Louis Sebert narrowly survived a vote to remove him from cabinet on Oct. 18, after losing a confidence vote during the legislative assembly's midterm review. Here, Sebert speaks to MLAs immediately before the vote.



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