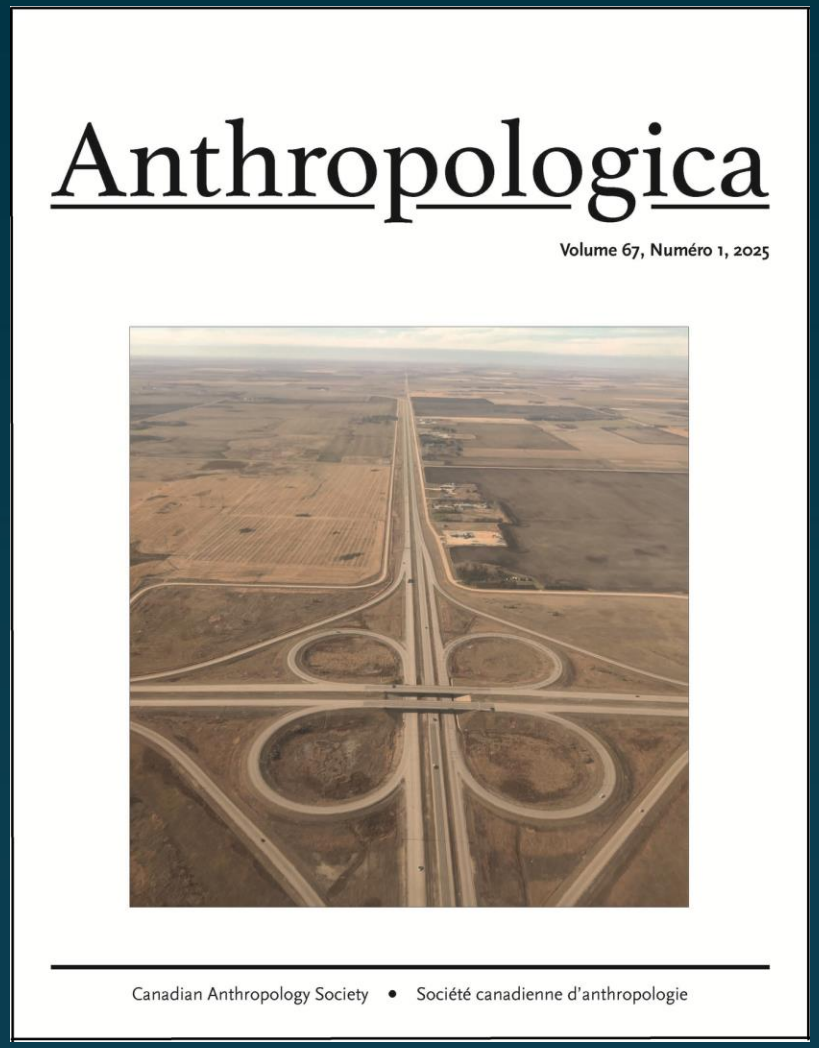

"What does Permafrost mean to you?" Inuvialuit and Gwich'in knowledge holders' perceptions of a thawing relation

Susanna Gartler, University of Vienna, Austrian Polar Research Institute

Susan A. Crate, George Mason University

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APECS Association of Polar Early Career Scientists

austrian polar research institute

APRI Research Groups

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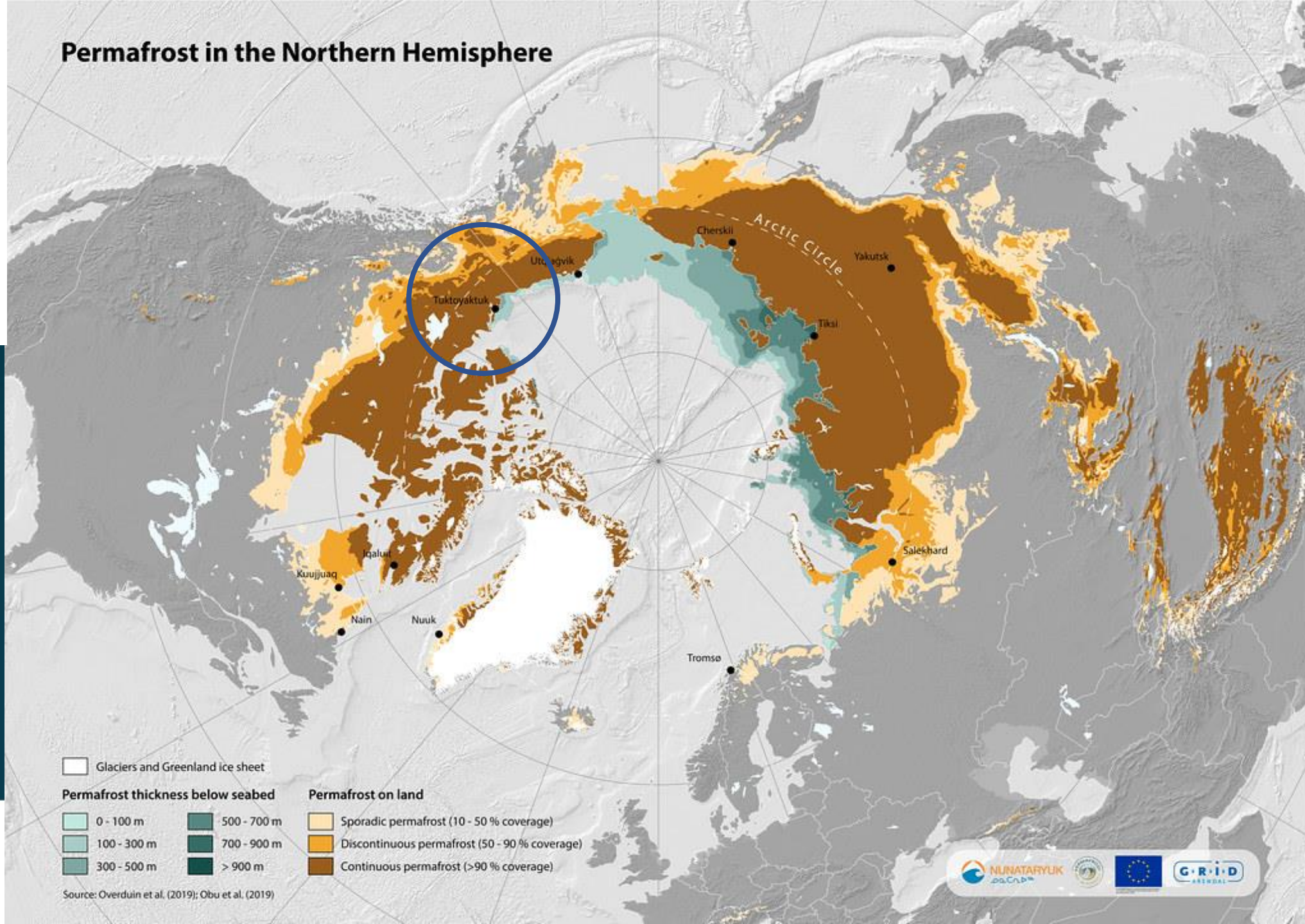

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communications earth & environment Article

https://doi.org/10.1038/s43247-024-01883-w

A transdisciplinary, comparative analysis reveals key risks from Arctic permafrost thaw

Check for updates

Susanna Gartler, Johanna Scheer, Alexandra Meyer, Khaled Abass, Annett Bartsch, Natalia Doloisio, Jade Falardeau, Gustaf Hugelius, Anna Irrgang, Jón Haukur Ingimundarson, Leneisja Jungsberg, Hugues Lantuit, Joan Nymand Larsen, Rachele Lodi, Victoria Sophie Martin, Louise Mercer, David Nielsen, Paul Overduin, Olga Povoroznyuk, Arja Rautio, Peter Schweitzer, Niek Jesse Speetjens, Soňa Tomaškovičová, Ulla Timlin, Jean-Paul Vanderlinden, Jorien Vonk, Levi Westerveld & Thomas Ingeman-Nielsen

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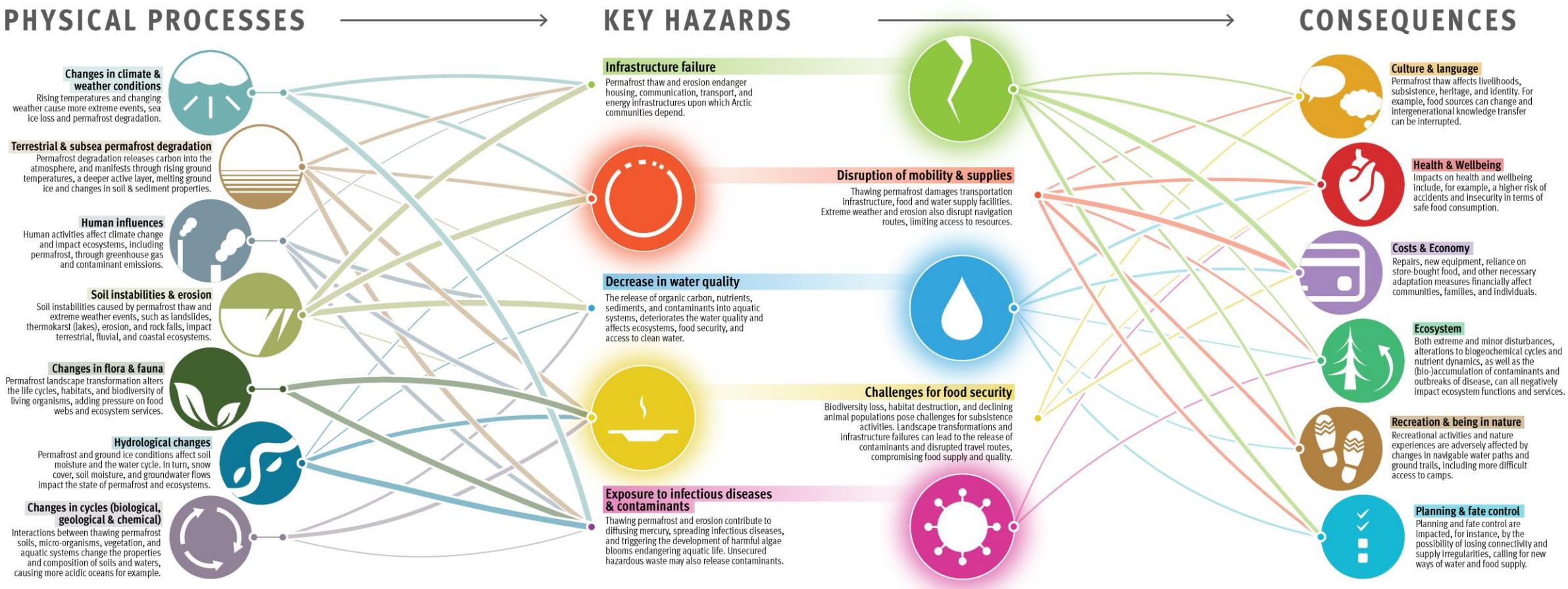
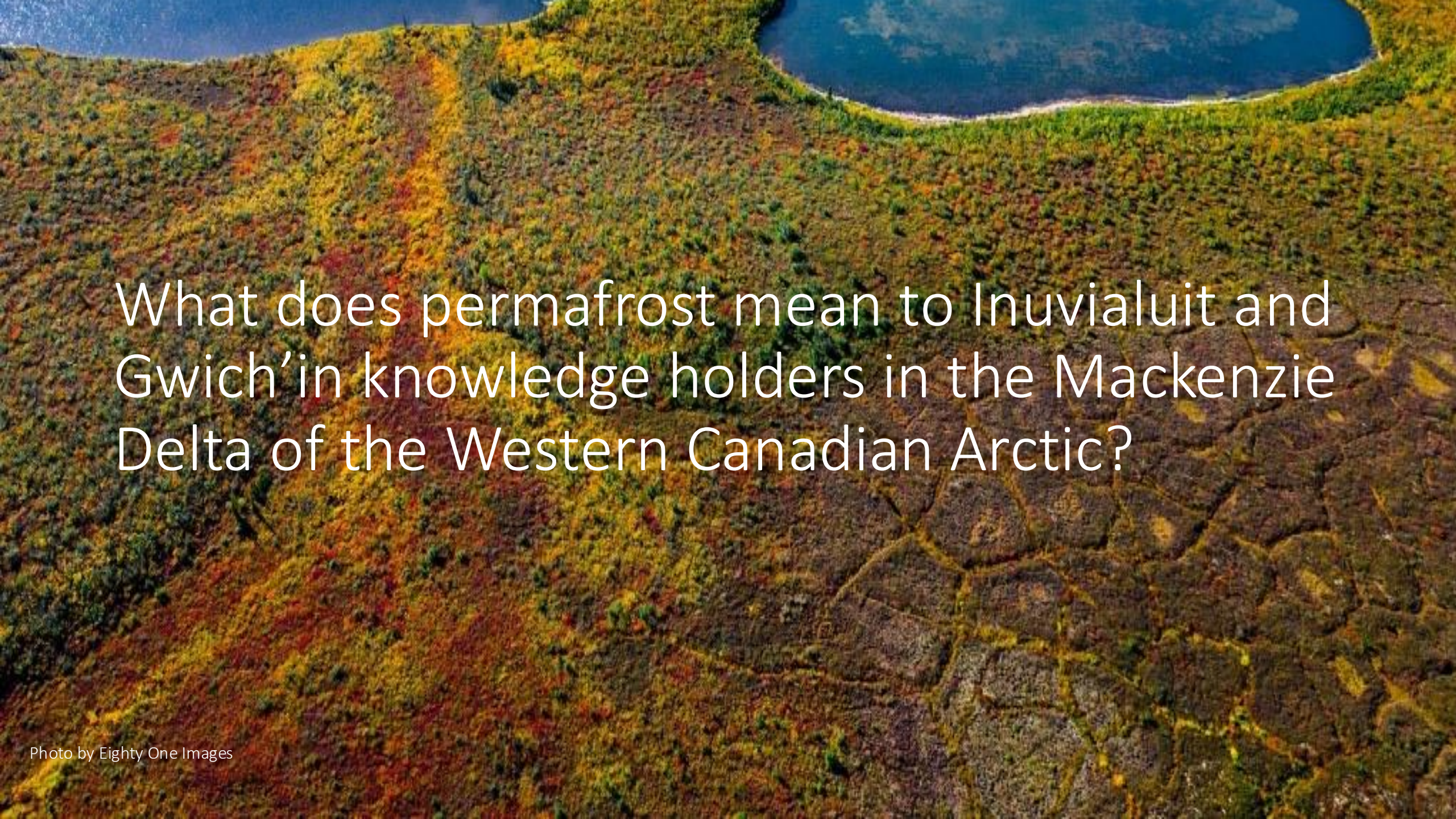
Gartler, S., Scheer, J., Meyer, A., et al. (2025). **A transdisciplinary, comparative analysis reveals key risks from Arctic permafrost thaw.** Communications Earth & Environment, 6(1), 21–20. https://doi.org/10.1038/s43247-024-01883-w





What does permafrost mean to Inuvialuit and Gwich’in knowledge holders in the Mackenzie Delta of the Western Canadian Arctic?

Photo by Eighty One Images

Permafrost is PERCEIVED through

Enskilment:

Labour/Occupation (for example, construction work, home repairs)

Indigenous Knowledge (Using permafrost and permafrost features, e.g. for building ice cellars etc.)

It's our lifeline here

The ice on top of the land gives us good berries. It feeds the berries

It is preserving the ground from crumbling

It's a big block of ice

I think it's really important, I know where to find it. I have used it many times. I learned from my dad where to look for permafrost

Permafrost, it means stability for our land, our animals, our food, our water, everything

Permafrost is thus seen as the literal foundation of life: In the continuous permafrost zone, everything, including homes, roads, and airstrips, is dependent upon it, which makes its stability crucial for infrastructure and life overall.

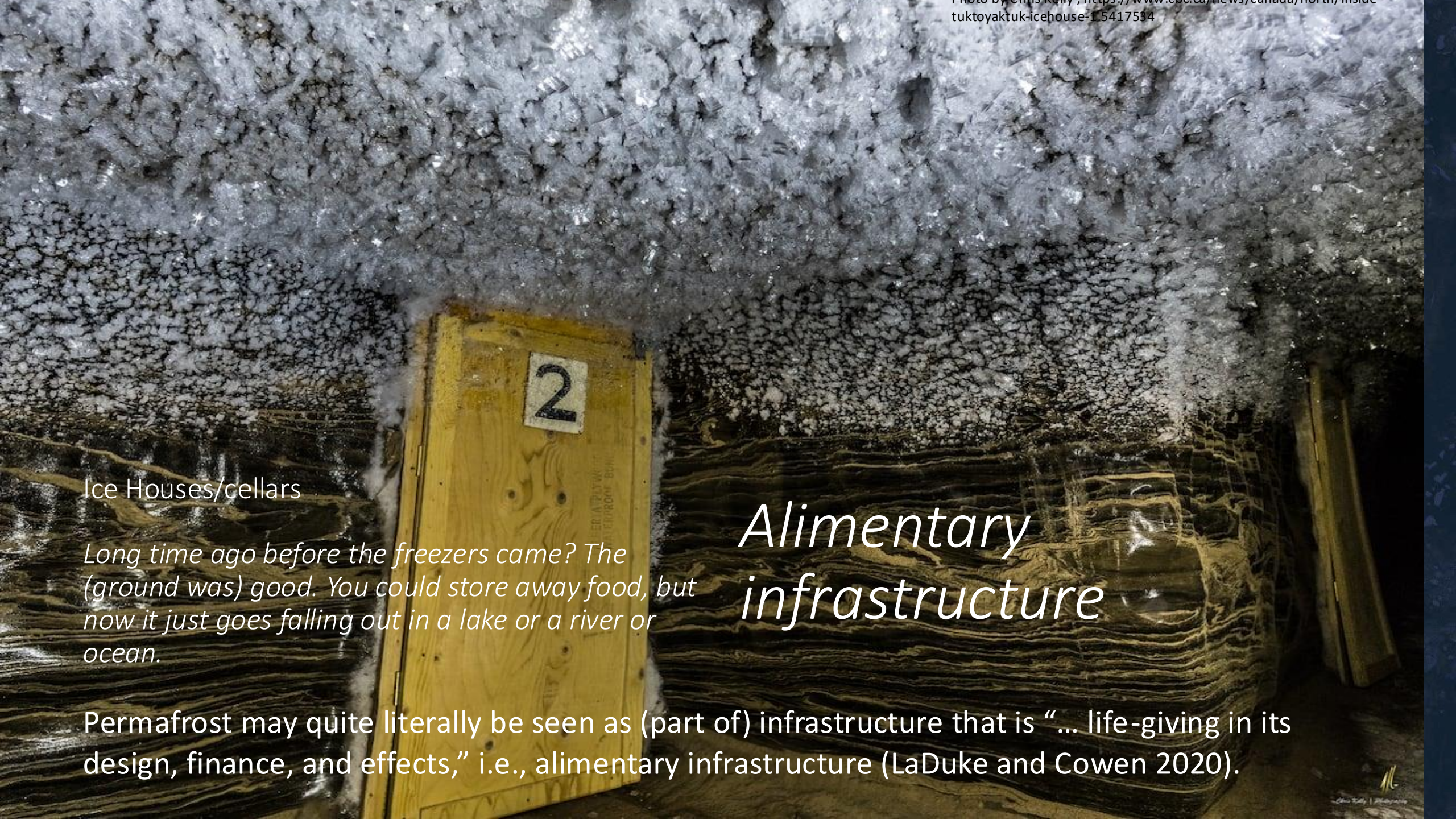


Photo by: Chris Kelly , https://www.cbc.ca/news/canada/north/inside-tuktoyaktuk-icehouse-1.5417534

Alimentary infrastructure

Ice Houses/cellars

Long time ago before the freezers came? The (ground was) good. You could store away food, but now it just goes falling out in a lake or a river or ocean.

Permafrost may quite literally be seen as (part of) infrastructure that is "… life-giving in its design, finance, and effects," i.e., alimentary infrastructure (LaDuke and Cowen 2020).

Permafrost as critical *infrastructure*?

- Indigenous scholar Anne Spice (2018, pg 41) web of relations between "… human and other-than-human beings that sustain Indigenous life in mutual relation" could be indexed by 'critical infrastructure'

- permafrost itself can be understood as critical infrastructure in a decolonial sense: an essential system and web of relations vital to societal functioning and to a good life on the land (Watt-Cloutier 2015)

Qikiqtaruk, https://www.theguardian.com/environment/2025/feb/10/canada-arctic-yukon-herschel-island-qikiqtaruk-inuvialuit-culture-conservation-dilemma-climate-floods-historic-whaling

Photo by Angus Alunik

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MOBILITY, SUPPLY, TRAVEL, SAFETY

Erosion is happening, and it affects travelling, because now you got to stay focused for the cliff or something that you may fall into.

In a few years, we'll have to go straight out the ocean and come back into the smaller rivers [which] is a lot more dangerous, because of the winds that we've been getting and we're seeing a lot more flooding. It worries me that my boy would have to worry about those changes, and it will be harder for him to access the traditional foods. When I'm travelling, I let them know.

→ *So those things are unpredictable, and that's why you got to worry about the younger generation too.*

I don't like that the permafrost is melting at some parts of the sections of the highway. I see, because I'm on the highway every day. And that I don't know if it's from the highway being built there. I think about it.

→ *Uncertainty*

Becoming visible

Permafrost becomes increasingly noticeable

1) as it is exposed to rising temperatures and starts thawing more, causing landscape transformations such as softer, wetter tundra, changes in river systems, riverbank and coastal erosion, slumping, …

2) but also because of the increased attention it receives both from scientific communities and the media.

3) At the same time, permafrost, as well as constant change(s) remains something ordinary, seen as simply part of everyday life, for our Gwich'in and Inuvialuit study participants.

Permafrost? We never really thought about it. Before, when we were out on the land, we never had problems with travelling. But when I think about us going for berries today, sometimes we have to walk quite a distance, and the softer ground is really a disadvantage to us.

Scott Zolkos, University of Alberta/Northwest Territories Geological Surve

It's changing our land, and you know, it's just something that we see almost every day. We don't understand everything about it, like scientifically, but with the changes we see, we understand, and you know, we live it. I mean, that's just life for us.

Máhsı | Mahsì | Quyanainni | Quana | Qujannamiik | Merci

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