



REAL-TIME MONITORING OF RISKS AFFECTING INUIT SUBSISTENCE IN THE ARCTIC

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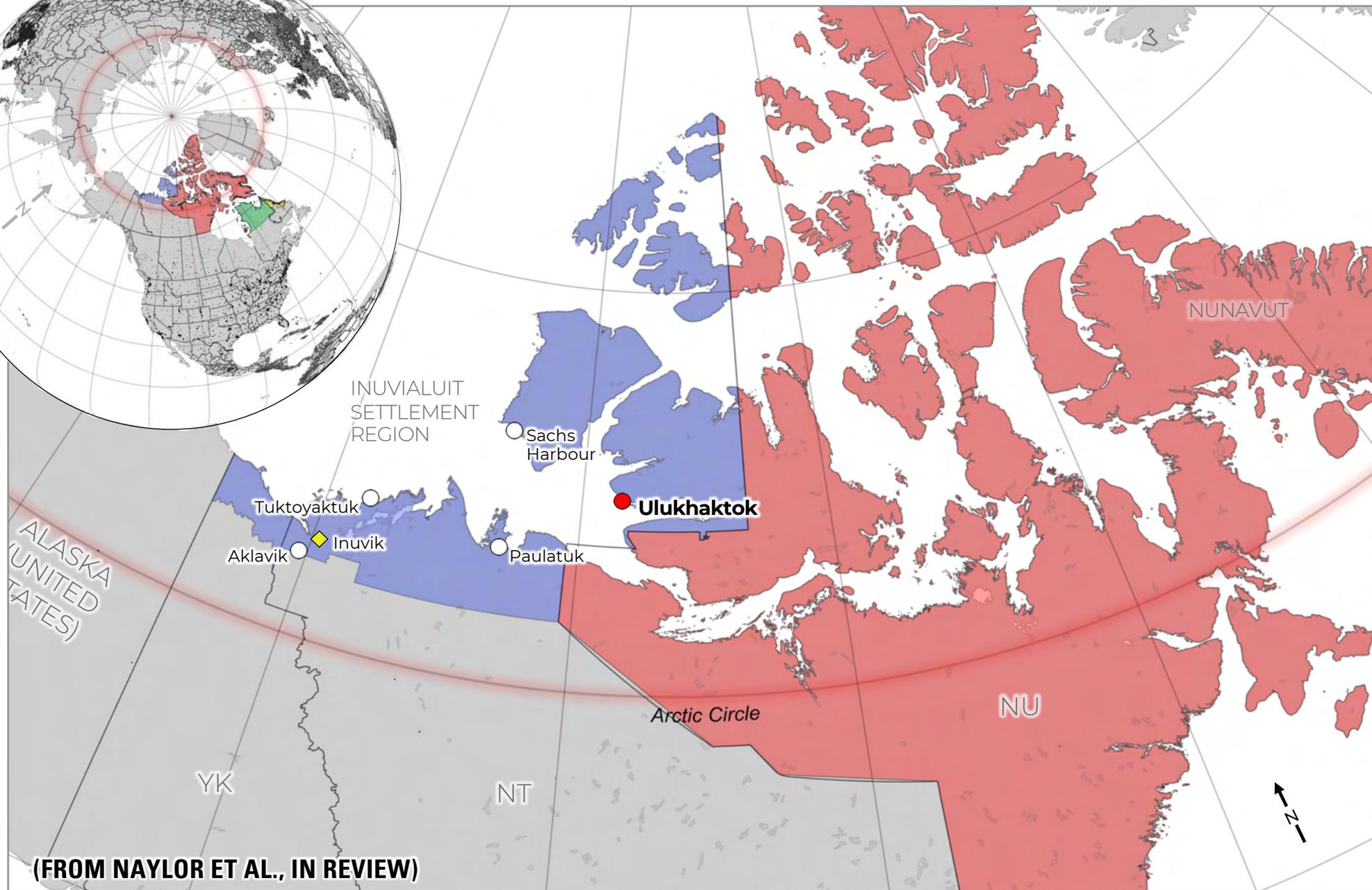
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OUTLINE

- Ulukhaktok
- ‘Tooniktoyok’
- Methods
- Results





(FROM NAYLOR ET AL., IN REVIEW)



THE IMPORTANCE OF HUNTING IN ULUKHAKTOK

- Cultural significance
- Nutritional significance
- Economic significance



THE TOONIKTOYOK PROJECT

“[To provide for...] with extreme determination”

- Two-year real-time participatory mapping and land-use monitoring project (June 2018 – June 2020).
 - Joint hamlet-researcher application to CIRNAC CCPN program.
 - Objectives and outputs developed by community members and stakeholders in-line with community priorities and values.
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TOONIKTOYOK 'S AIM

“to facilitate the generation, documentation, and two-way sharing of observations, experiences and knowledge of changing climatic conditions and determinants of hunting group productivity among hunters, researchers and decision-makers, to enhance the safety and success of our hunters and provide timely information for decision-making”



METHODS

- Cohort of 10 hunters (23 – 82yrs)
 - Local youth project coordinator.
 - Bi-weekly semi-structured interviews and mapping sessions, GPS tracking of hunting activity, secondary weather/sea-ice data, 7 months of participant observation, and 2019 harvest study
 - Semi-structured interviews focused on hunting activities, hunting productivity, economics of hunting, observations of environmental change, broader socio-economic and political constraints or facilitators to adaptation.
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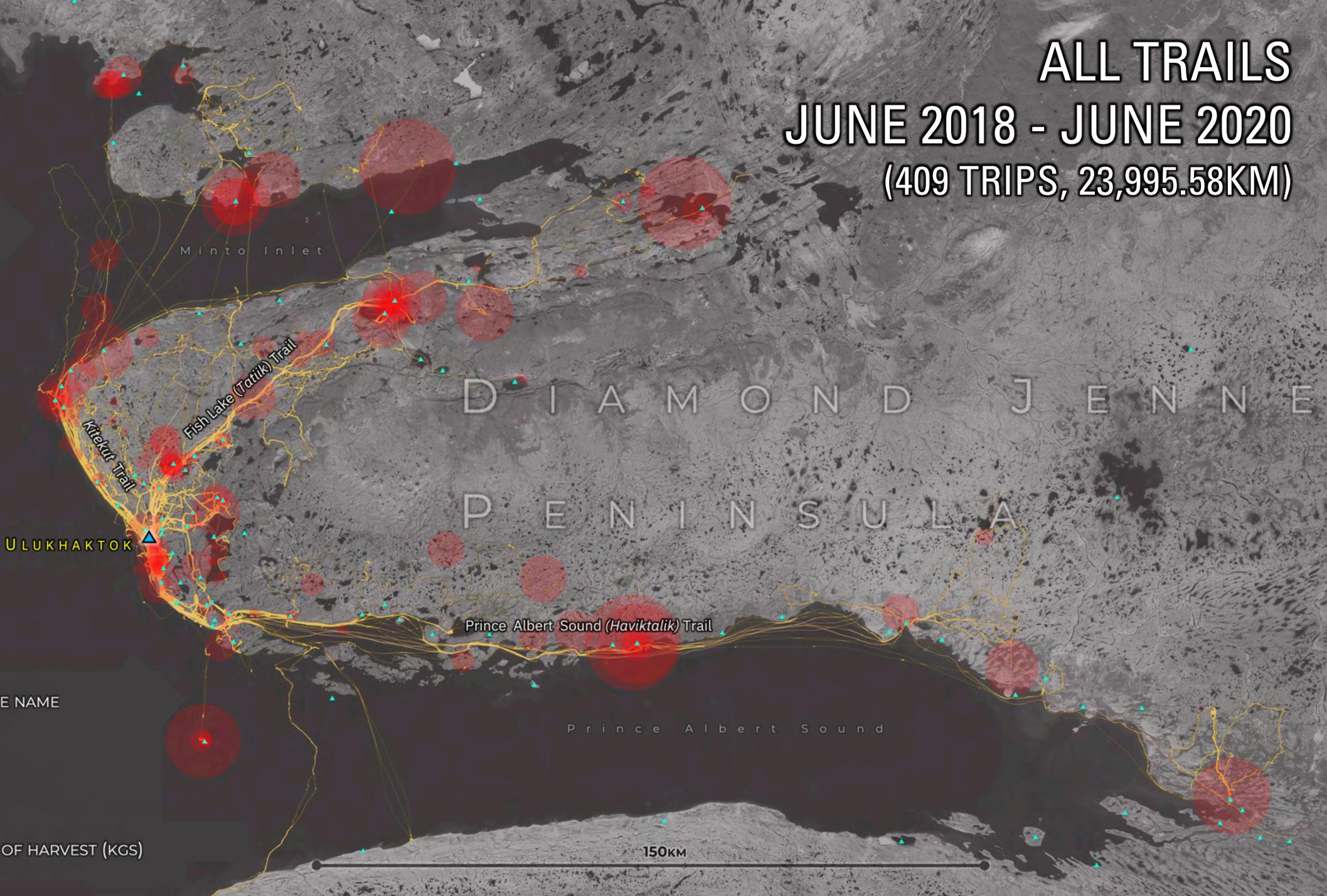
TOONIKTOYOK BY NUMBERS:

- June 2018 – June 2020:
 - 509 pages of interview transcripts
 - 409 trails recorded (376 by GPS, 33 annotated)
 - 23,995.58km of routes recorded:
 - 21% ATV (4,927.52km)
 - 26% Boat (6,248.89km)
 - 53% Snowmachine (12,819.17km)
 - Calculated land use area of $\sim 27,940.857 \text{ km}^2$ (including land, sea and ice)
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ALL TRAILS

JUNE 2018 - JUNE 2020

(409 TRIPS, 23,995.58KM)



▲ = INUINAIT PLACE NAME

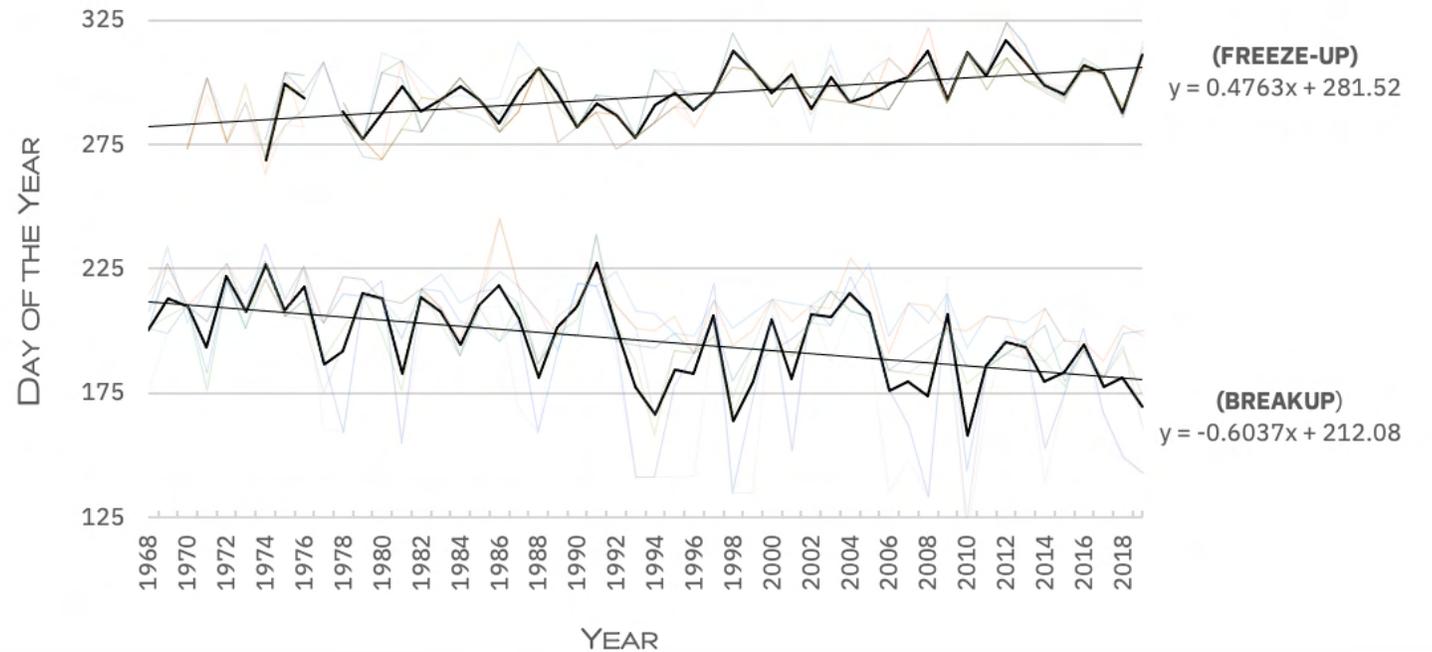
— = TRACKED TRAIL

● = RELATIVE MASS OF HARVEST (KGS)

150KM

WHERE DOES CLIMATE FIT?

Incremental impacts from climate change (e.g. changes to sea ice regime or permafrost dynamics) often allow hunters to adapt to changing conditions over time...



WHERE DOES CLIMATE FIT?

But an increasing frequency of extreme events attributed to climate change is constraining the ability of hunters to leave the community spatiotemporally:

“The biggest thing for the ice this year is how long it’s taking to freeze up.... The ocean is taking so long to freeze, and the ice isn’t staying when it does freeze. It opens up [again]. It’s been opening up all winter...ice is not getting thick enough anymore I guess... It was like this last year too, but it didn’t last as long; this time it’s lasting longer.” (CO, 20th March, 2019).

“We used to have wind for maybe one, two days, and then good weather again. Nowadays it’s one, two weeks of wind. Wintertime the (east) winds just keeps the ice from forming – just blows it away and blows it away – and keeps the water so rough that the ice can’t form. Even though it gets cool enough.” (AK, 23rd July, 2019).



WHERE DOES CLIMATE FIT?

Unpredictable conditions are also affecting the ability of hunters to safely traverse ice, and is limiting the applicability of previously well-established ecological knowledge...

THE ROLE OF SOCIO-ECONOMIC FACTORS I...

Factors relating to colonialism and socioeconomic stressors within the community are having a compounding effect:

Wage-based economy, Inuit ecological knowledge transfer

“Nowadays, you know, everyone wants to go and hunt while it’s the weekend... Most of them work...” (DK, 31st July 2019).

“We were going to go up here and look for eggs too today, just near Fish Lake [(Tatiik)]. But we didn't get to go anywhere... my partner was working [and the kids were at home from school because of the summer break].” (KN, 11th June 2019).





THE ROLE OF SOCIO-ECONOMIC FACTORS II...

Costs of hunting equipment and consumables

“My parents’ machine and sled box is still at Pituutaq [(out on the land)]... mine is [also] broken down. I’ve got to change the piston ring and get a new crank case [and] crankshaft! \$2500... [dollars it’ll cost]... and that’s just my parent’s one!” (TA, March 18th 2019).

“People and elders... they’re always running out of naphtha. Naphtha is not cheap... 45 gallons of naphtha is 1,078 [CAN] dollars, and a barrel of skidoo gas is under 400! See what the jump on that is? Triple. [Naphtha is] the main thing you use when you’re out, to keep the heat in [the tent/cabin].” (DK, 31st July 2019).



CURRENT ADAPTATIONS?

- ‘Bricolage’ adaptations
- Institutional support? CCHAP/IHAP
- Maladaptations? Wage-based economy, nutrition transition