

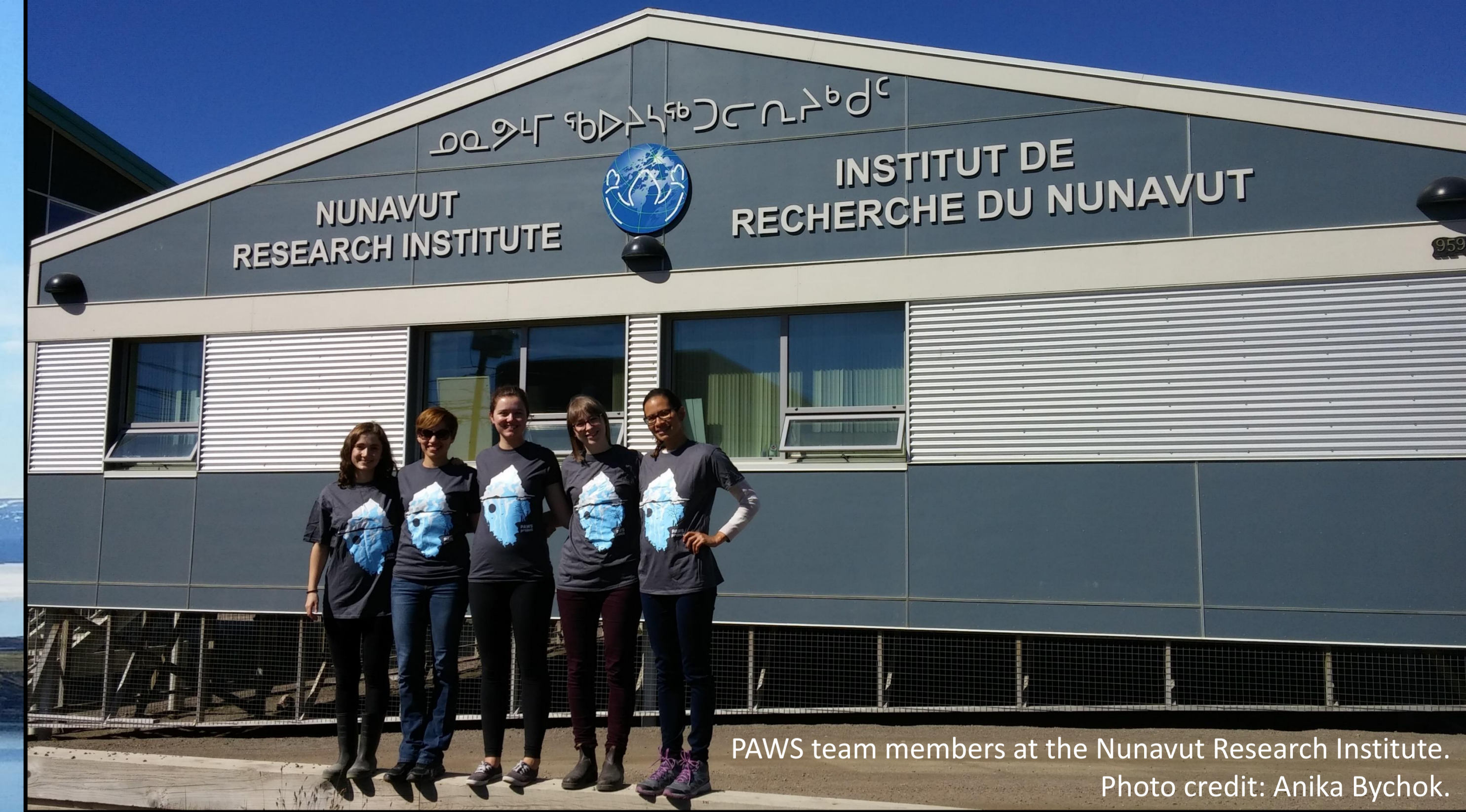
# Enteric pathogens in surface water in Iqaluit, Nunavut

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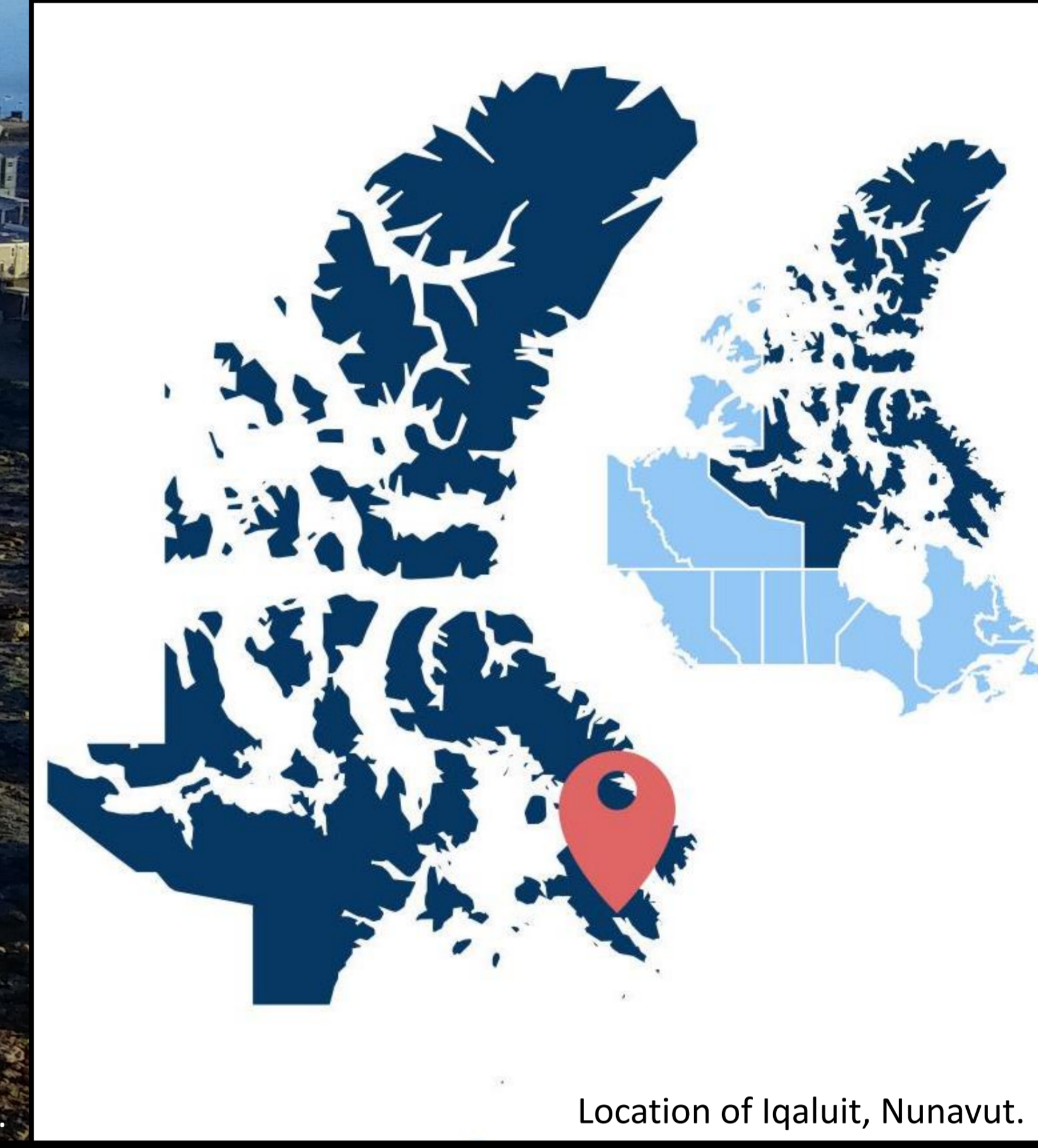
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City of Iqaluit and Frobisher Bay. Photo credit: Stephanie Masina.



PAWS team members at the Nunavut Research Institute. Photo credit: Anika Bychok.



Location of Iqaluit, Nunavut.



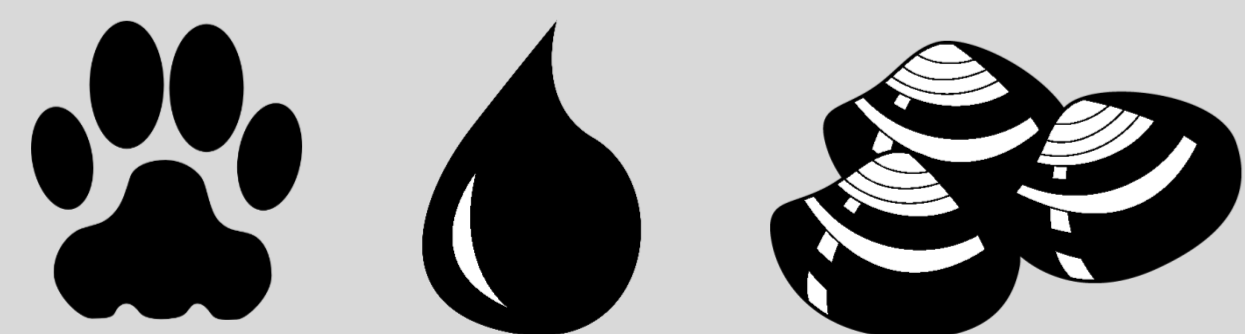
Water sampling in Apex. Photo credit: Joanna Petrasek-MacDonald.

## Introduction

- **Waterborne disease** is a global public health priority<sup>1</sup>.
- Indigenous peoples' health in Northern Canada is highly impacted by the **environment** due to their reliance on local ecosystems for food and traditional practices<sup>2,3</sup>.
- Acute gastrointestinal illness (**AGI**) can be acquired via environmental factors such as food or water<sup>4</sup>.
- One of the highest incidences of self-reported AGI in the global literature is in **Iqaluit, Nunavut**<sup>5</sup>.

## Research Goals

- The **People, Animals, Water, and Sustenance (PAWS) Project** was developed to create a participatory, community-based surveillance system to identify sources of pathogens that cause AGI in Iqaluit.



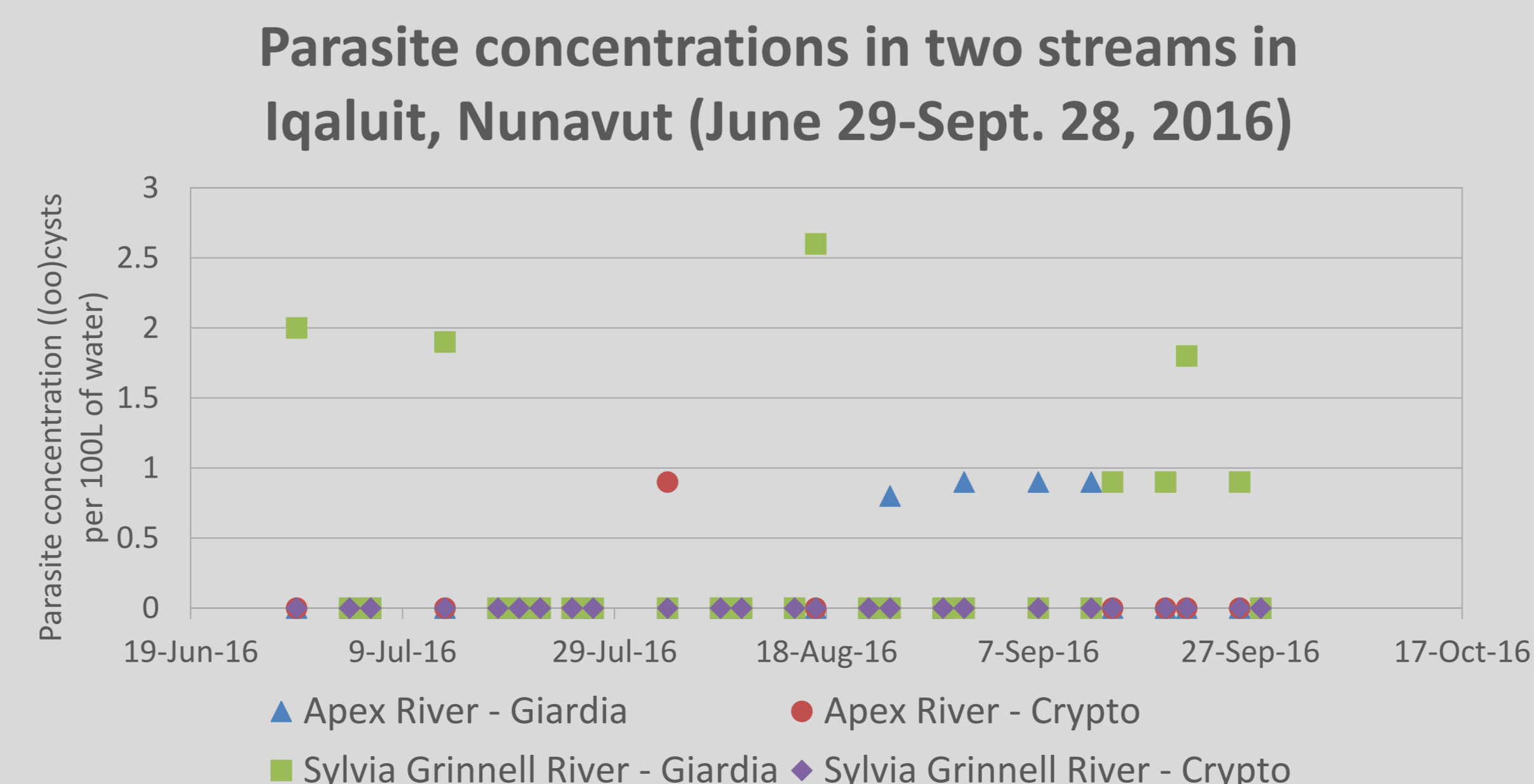
- The water portion of this project explores potential **waterborne disease transmission** in Iqaluit by:
  - I. Estimating the prevalence of **Giardia** and **Cryptosporidium** parasites in untreated surface water that residents often collect for drinking;
  - II. Identifying temporal trends and risk factors for contamination; and
  - III. Examining molecular source attribution of parasites.

## Methods

- **Water samples** were collected weekly from June to September, 2016 from two streams commonly used by community members as sources of untreated drinking water.
- Samples were collected and processed in Iqaluit using the IDEXX Filta-Max<sup>®</sup> system for **pathogen isolation**.
- Samples were tested weekly at an external lab to provide information about the presence of these pathogens.
- **Environmental data** were collected to identify potential associations between positive samples, weather conditions, and other water quality parameters.

## Preliminary Results

- **20%** of samples tested positive for *Giardia* and **1.8%** of samples tested positive for *Cryptosporidium* (n=55).



## Next Steps

- Positive samples will be genetically characterized to provide information about the **molecular epidemiology** of these pathogens.
- The research team will work with Northern partners to develop a culturally acceptable and effective **knowledge translation strategy** to share our results with the community.

## Discussion

- Compared to Southern Canadian regions, rates of **Giardia** are similar and rates of **Cryptosporidium** are lower in surface water in Iqaluit<sup>6</sup>.
- This study improves our understanding of potential causes of AGI in Iqaluit.

## References

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## Acknowledgements

Special thanks to the city of Iqaluit and its community members for their support and partnership in the development of this project. We are incredibly grateful for the continued collaboration with the Nunavut Research Institute (NRI); thanks to J. Shirley, M.E. Thomas, M. Cote, and R. Armstrong. This work is supported and funded by ArcticNet, the Government of Ontario, and Arthur D. Latournell. Many thanks to Danielle Julien, Anna Manore, Enoyqa Sudlovenick, Anika Bychok, Victoria Watson, and Joanna Petrasek-MacDonald for their invaluable field support.



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