Mackenzie DataStream

An open access hub for sharing water data

Water Management in Alberta's Boreal
February 25, 2025

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The Gordon Foundation

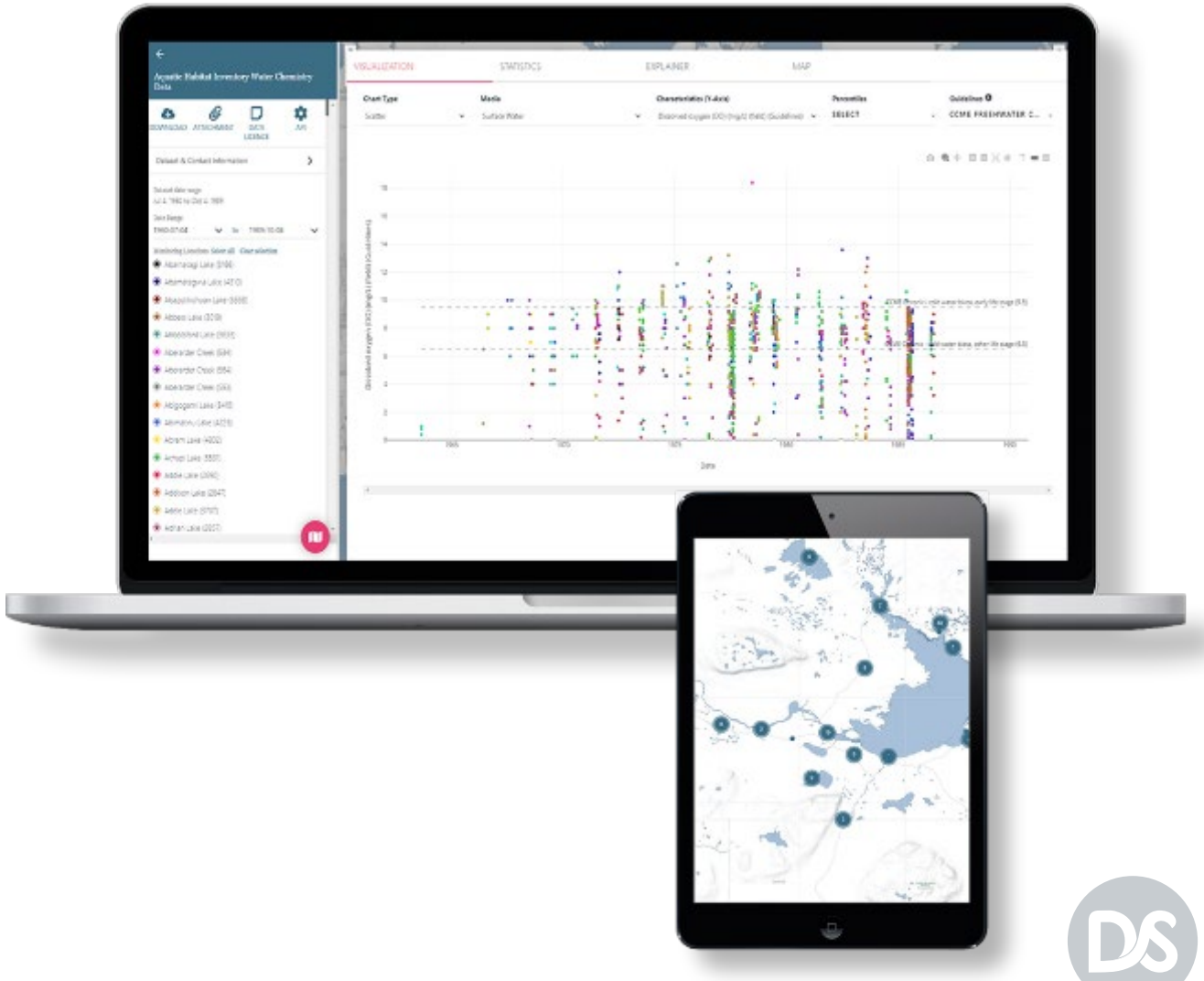
Today’s session

- DataStream 101
- Standardizing water quality data
- Live demo
- Data use cases
- Q&A

DataStream

www.DataStream.org

- Open access site for **water quality data**
- Free and open for anyone to use
- Minimizes barriers to accessing/sharing data
- Fosters connections and collaboration

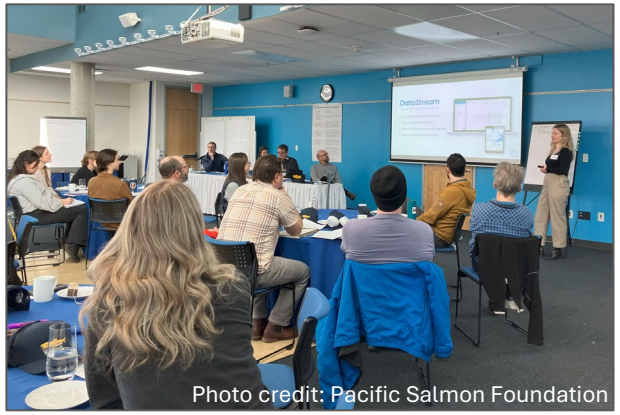


What we do

We work collaboratively across sectors and jurisdictions to imagine – and build – better ways to care for our waters

Open Data Platform

DataStream's free and open data platform provides a place to share and access water quality data



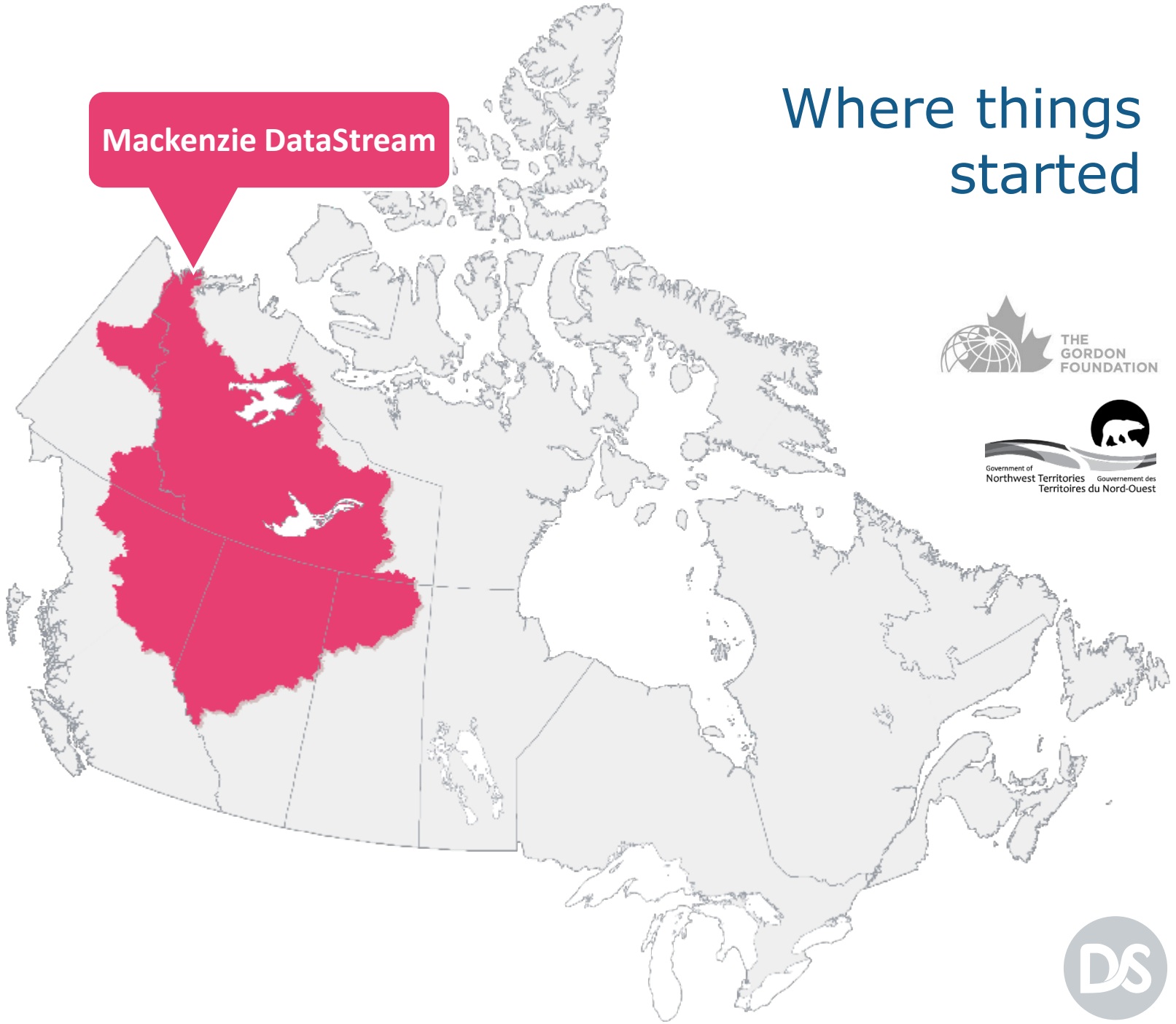
Community Building

DataStream convenes across sectors and watersheds, and amplifies community science so that it can be used in decision-making at all levels

Education & Training

DataStream fosters knowledge sharing and the adoption of best practices for managing and sharing data

Where things started



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- Over 50 datasets shared
- Data from over 70 collection organizations
- Nearly 30% of organizations are Indigenous-led

DataStream

DataStream was developed by The Gordon Foundation and is delivered in collaboration with regional monitoring networks.

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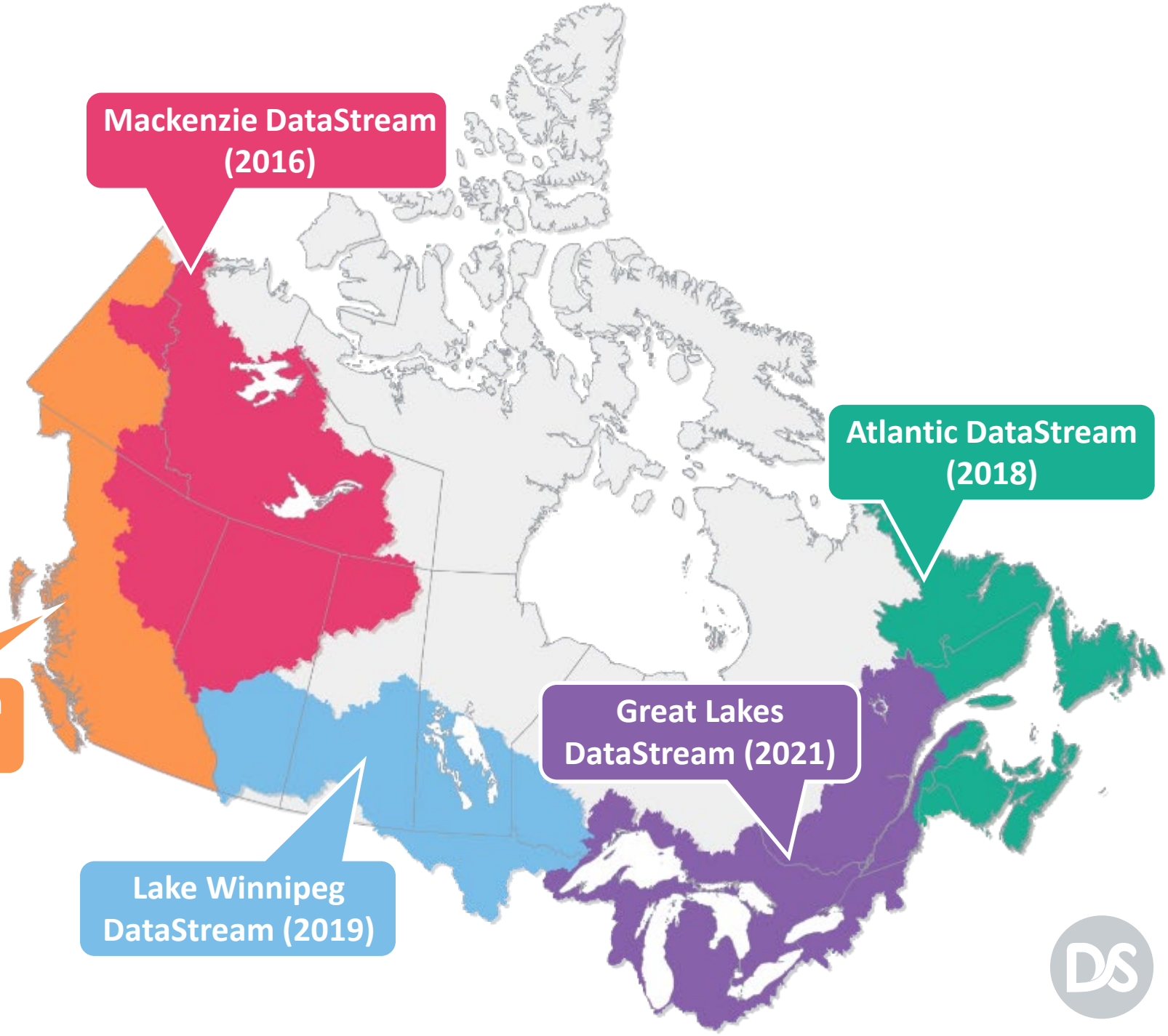
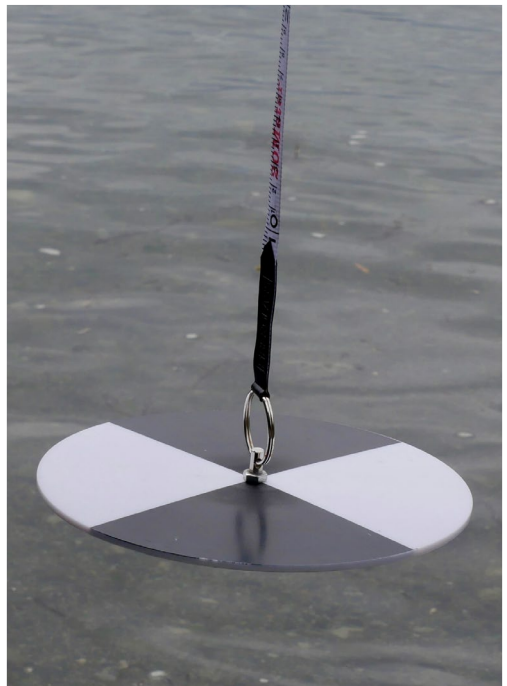
Atlantic Water Network

LWF LAKE WINNIPEG FOUNDATION



What kind of data is on DataStream?

- Water quality data collected across watersheds
- Lab Data: Nutrients, metals, isotopes, etc.
- Field Data: pH, temperature, DO, etc.
- Media Types:
  - Surface water
  - Sediment
  - Groundwater (in development)



Who is sharing data on DataStream?

- Watershed organizations
- Academics
- Indigenous governments and orgs
- Provincial/Territorial Governments
- Federal Government

Data contributors maintain ownership of their data

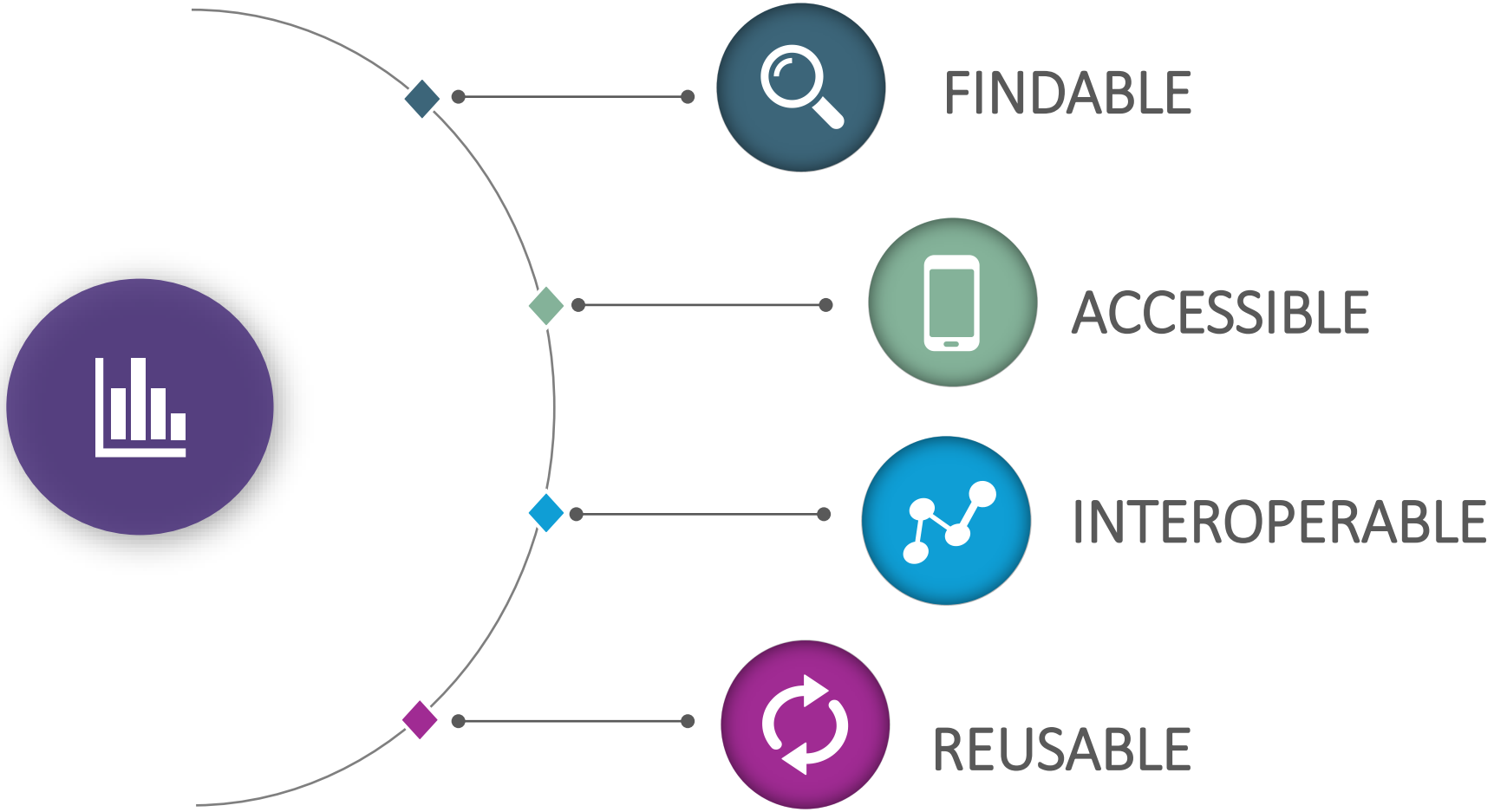
Motivations for collecting and sharing data on DataStream

- Keep community members involved and informed
- Educational opportunities
- Community building – deepening connections with the water
- Fish health/habitat monitoring
- Establishing baselines - published data can be used to convince funders to provide restoration support
- Guiding restoration activities

NWT Cumulative Impacts Monitoring Program (CIMP)

Standardizing water quality data

FAIR Principles for Scientific Data Management



Mark D. Wilkinson et al. (2016). *Nature*.

CARE Principles for Indigenous Data Governance

C A R E

Collective Benefit

Authority to Control

Responsibility

Ethics

The Global Indigenous Data Alliance. GIDA-global.org

The First Nations Principles of OCAP https://fnigc.ca/ocap-training/

Structured datasets are useful datasets

WQX
WATER QUALITY EXCHANGE

- Location Fields
- Sample Fields
- Result and Analysis Fields

Dataset level metadata

DATASET

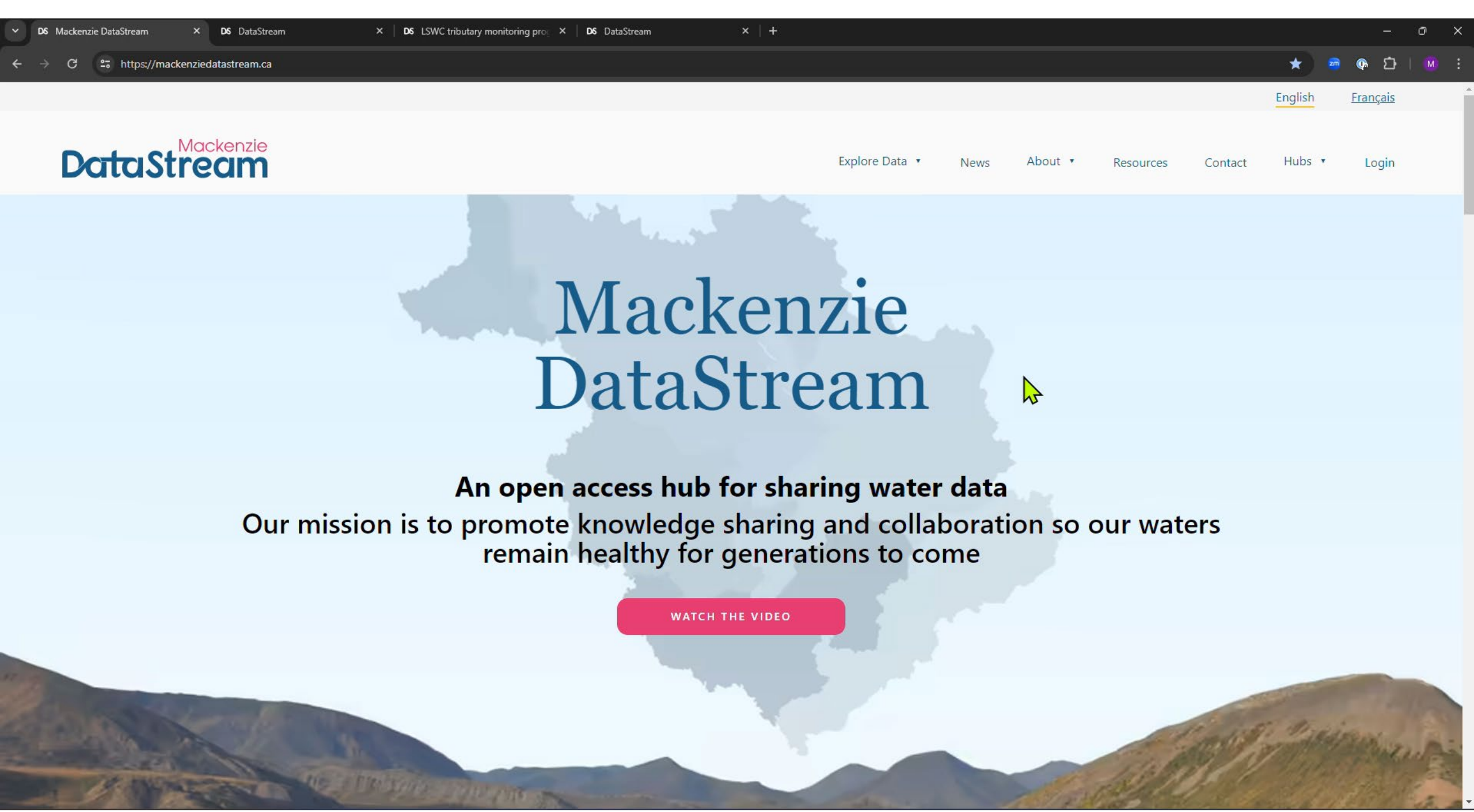
LSWC tributary monitoring program

Map and Visualize | Download (CSV)

The Lesser Slave Watershed Council Tributary Monitoring Program collects water quality data for the five major tributaries of Lesser Slave Lake at upstream, mid and downstream locations. There is no government led monitoring being done in the Lesser Slave Watershed. Stakeholders and local government support this program financially so that we can collect valuable water quality information that will inform watershed management planning and decisions in the future. Water quality data is collected with portable water quality sensors and via grab samples that are sent for laboratory analysis.

Version	5.0.0
DOI	https://doi.org/10.25976/t1je-t809
Data Steward Email	meghanpayne@lswc.ca
Data Collection Organization	Lesser Slave Watershed Council
Data Upload	Lesser Slave Watershed Council

DataStream Demo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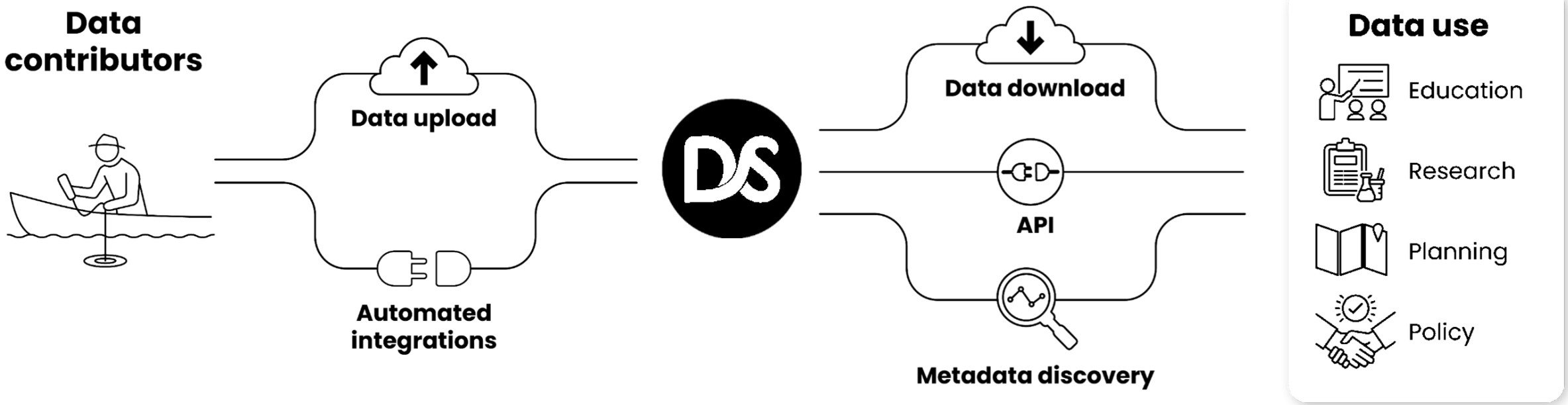
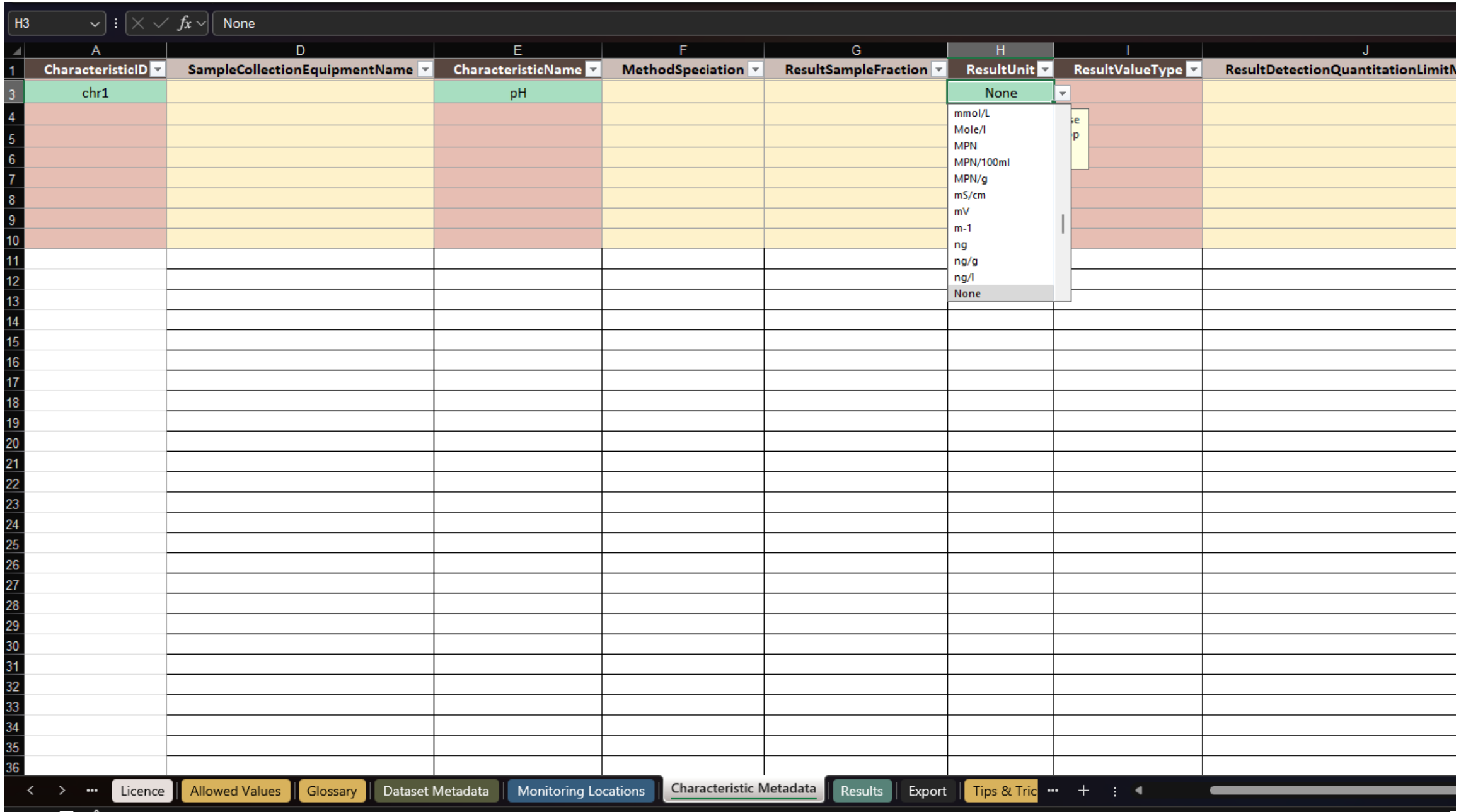
An open access hub for sharing water data
Our mission is to promote knowledge sharing and collaboration so our waters remain healthy for generations to come
WATCH THE VIDEO

How it works


Data contributors
Data upload
Automated integrations
Data download
API
Metadata discovery
Data use
Education
Research
Planning
Policy

DataStream Upload Template

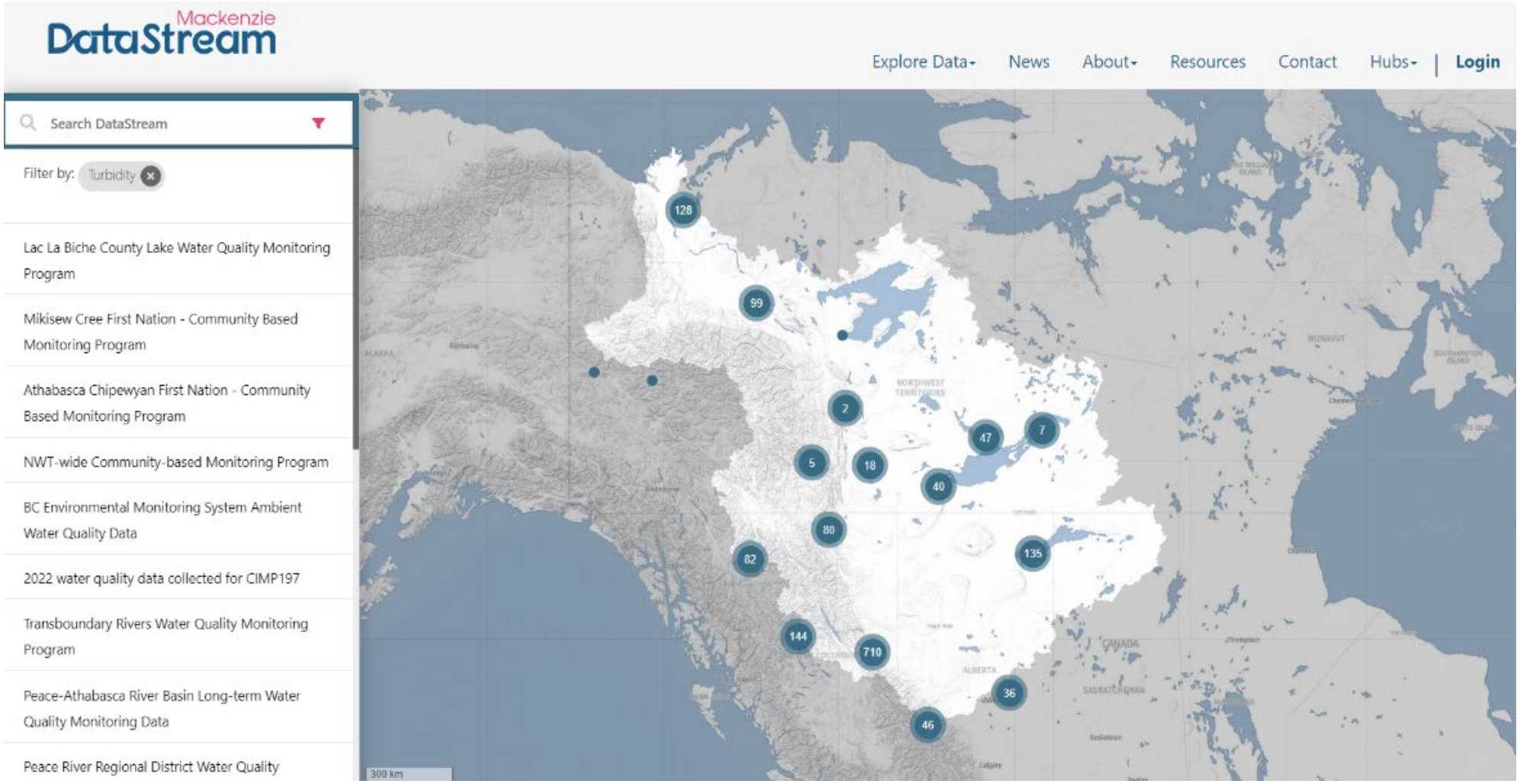


DataStream Use Cases

Northwest Territories-wide Community-based Water Monitoring

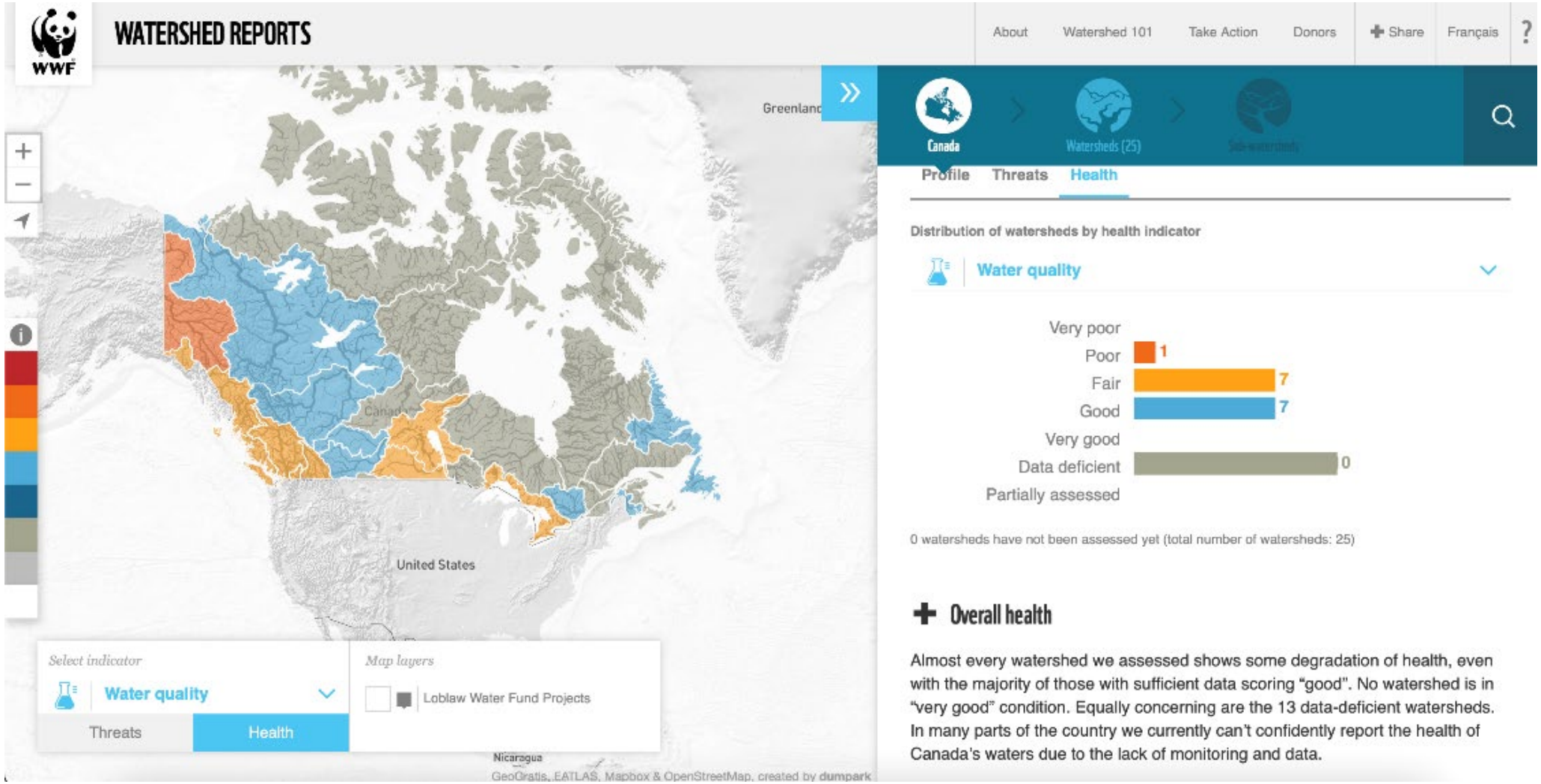
Government of Northwest Territories / Gouvernement des Territoires du Nord-Ouest

Pipeline Installation and Repair in the Northwest Territories



DEHCHO FIRST NATIONS

WWF Watershed Health Assessment Reports



Open data is a team sport, collaboration is key!

Regional Partners

Government of Northwest Territories / Gouvernement des Territoires du Nord-Ouest

Atlantic Water Network

LWF LAKE WINNIPEG FOUNDATION

Collaborators & Supporters

RBC

The Chawkers Foundation

THE GORDON FOUNDATION

Canada

John and Pat McCutcheon Charitable Foundation

Environment and Climate Change Canada / Environnement et Changement climatique Canada

Fondation ECHO Foundation

Thank You!

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