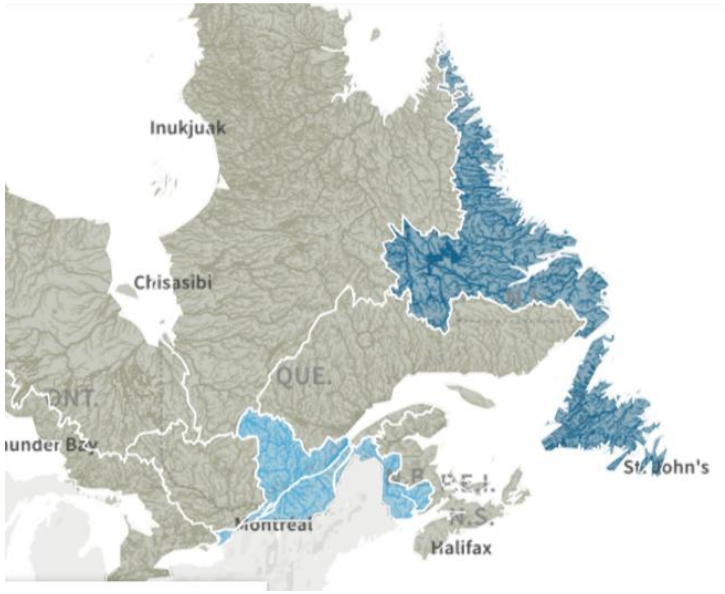
3:30pm – 4:15pm

# Fueling water innovation in Atlantic Canada

*Panel Organizer: Elizabeth Hendriks*
*WWF-Canada*

# Innovation in Atlantic Canada




THE GORDON FOUNDATION

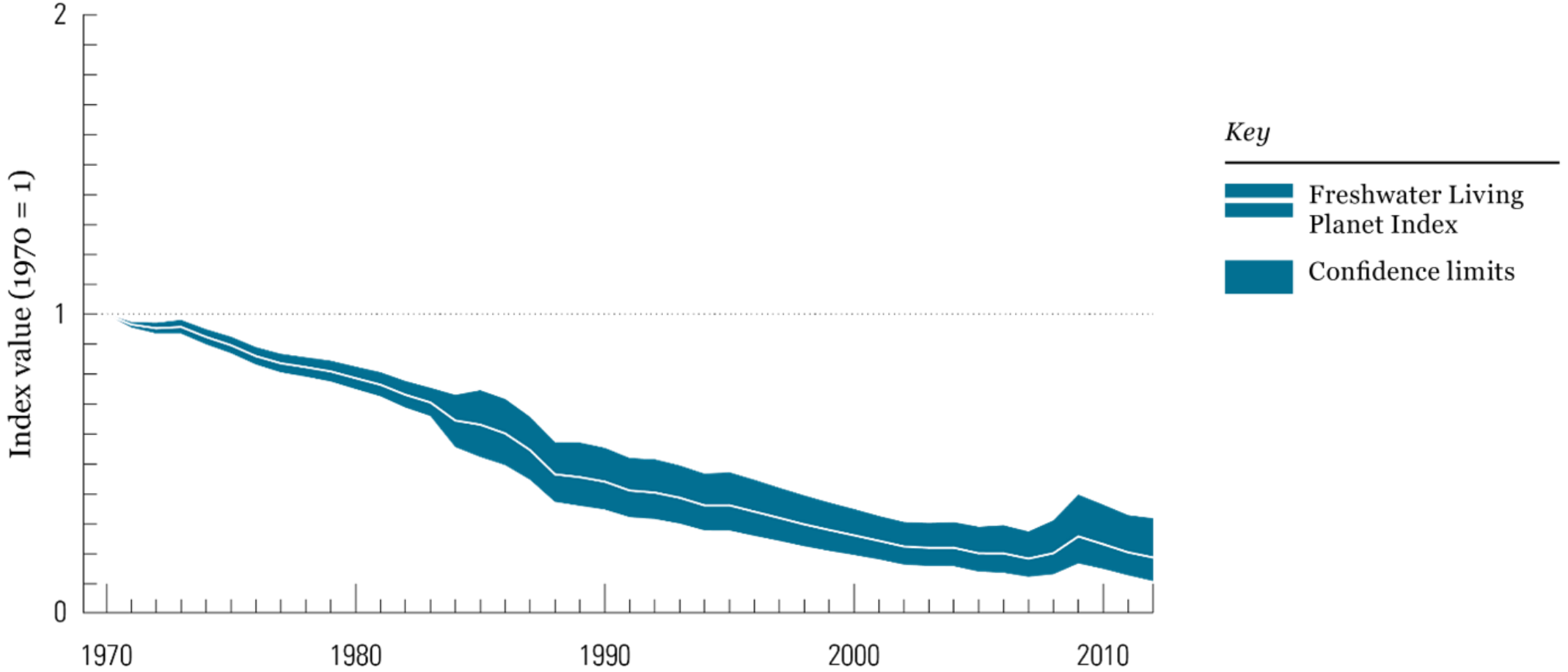
PRINCE EDWARD ISLAND WATERSHED ALLIANCE

RBC

Atlantic Water Network

# The Living Planet Report

The freshwater LPI shows a decline of 83 per cent between 1970 and 2014




Source: WWF/ZSL, 2016

# Canada mapped by rivers, lakes and streams

**Most important resource**

# Watershed Reports

The **Freshwater Threats Assessment (FTA)** works with the **Freshwater Health Assessment (FHA)** to provide a full picture of the health and threats of our freshwater nationally

FHA provides the current state and FTA illustrates the influence of human impact on aquatic habitat.

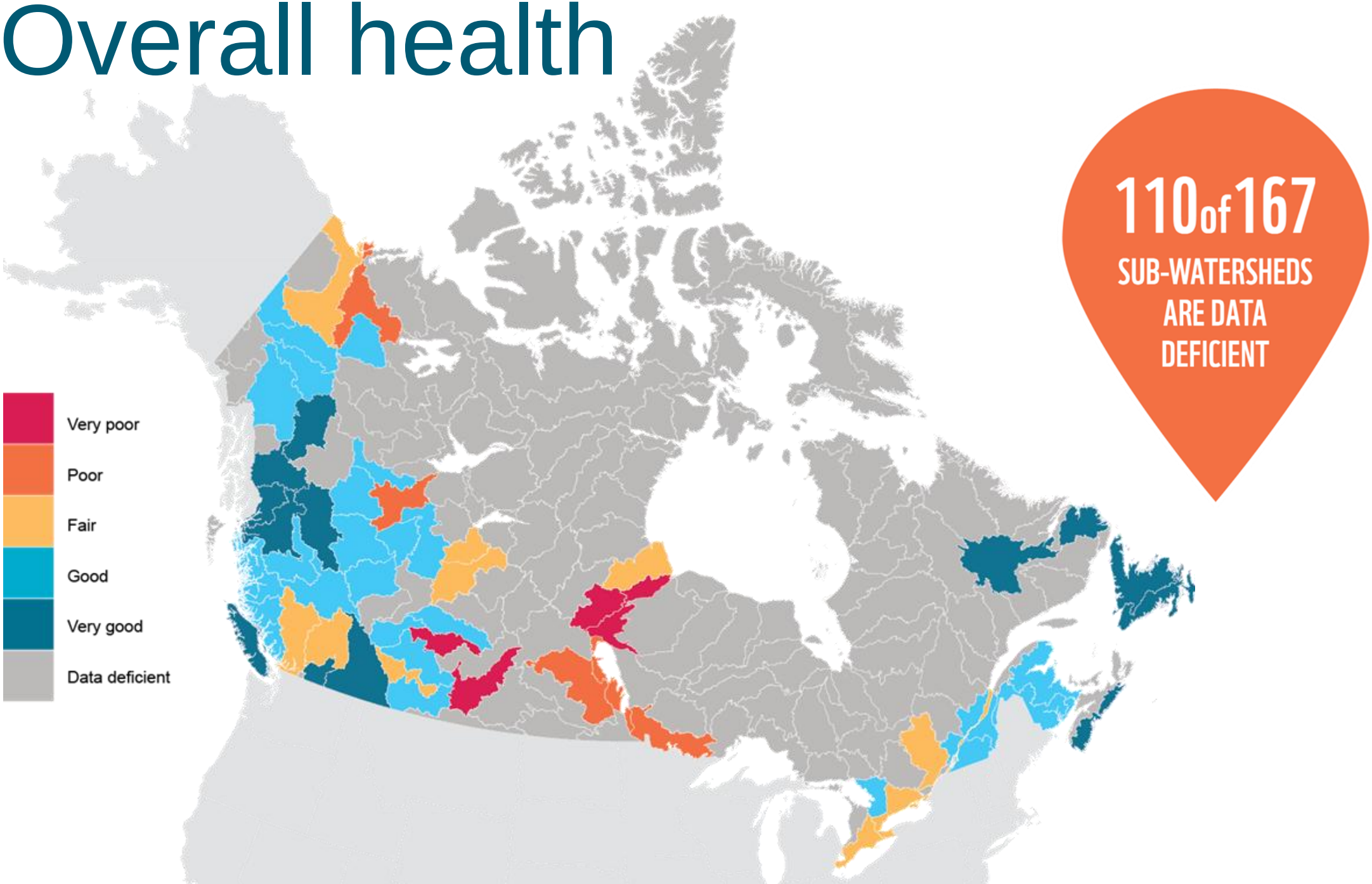
We can then determine "**how**" to fix it through the appropriate course of action – policy, legislation, restoration, etc.

# Overall Stress

**53 of 167**

SUB-WATERSHEDS EXHIBIT HIGH OR VERY HIGH LEVELS OF STRESS

# Overall health

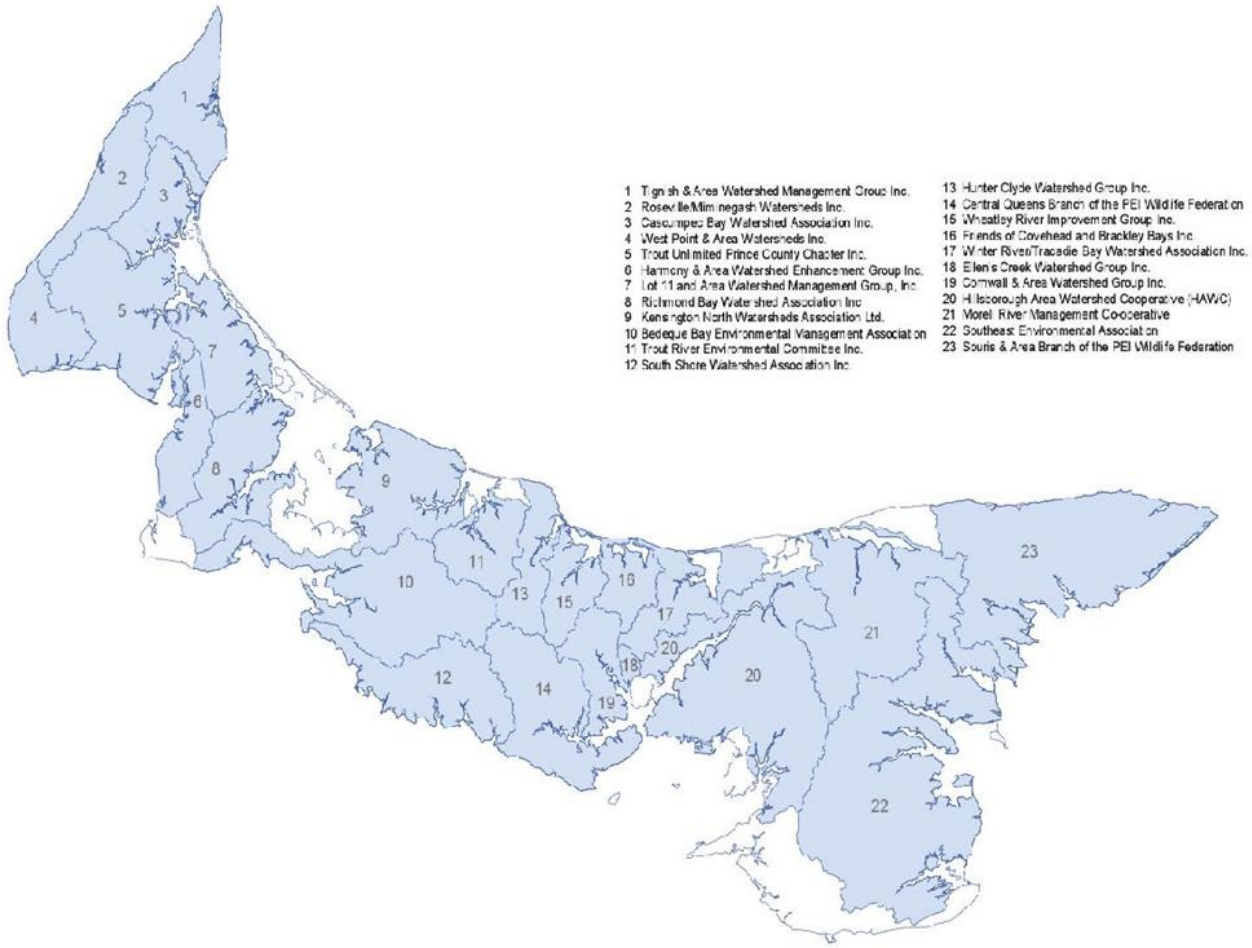


# We have to do better…

# From the bottom up-
# How NGOs can collect data to influence policy
# (an Atlantic-Canadian Perspective)

PRINCE EDWARD ISLAND WATERSHED ALLIANCE

# PEI Government- Watershed Management Fund provides core funding for watershed groups




| Allocation | Amount |
|---|---|
| Total Envelope | $1,120,000 |
| | |
| Support for Alliance | $25,000 |
| 50% on size | $547,500 |
| 12.5% on leveraging | $136,875 |
| 12.5% on community involvement | $136,875 |
| 25% on performance | $273,750 |
| Total Funding | $1,120,000 |
| | |

# PEIWA

- Umbrella organization that provides a strong united voice for watershed groups on PEI.
- BOD that meets monthly.
- Full-time Watershed Ecologist.
- Ability to apply for large-scale funding that benefits all PEI Watershed groups.
  - Currently $2 million grant from the DFO Coastal Restoration Fund for:
    - Training
    - Staff
    - Equipment Purchase
    - Data Management
    - Demonstration projects

PRINCE EDWARD ISLAND
WATERSHED
ALLIANCE

# Funding Training, Purchase of Monitoring Equipment & Data Collection

PRINCE EDWARD ISLAND WATERSHED ALLIANCE

PRINCE EDWARD ISLAND WATERSHED ALLIANCE

- Core funding provided by Provincial Government allow for the maintenance of highly qualified staff/reduces turnover rate.
- These environmental groups are able to increase their capacity/expand the scope of the work they are doing.
- Government and industry take notice!
- Leads to collaborative working relationships to monitor and address environmental issues.

# Case Study- Coalition-SGSL

Canada

Coalition pour la ité du sud du Golf du S -Laurent
Southern Gulf of -Lawrence Coalition on Su ainability

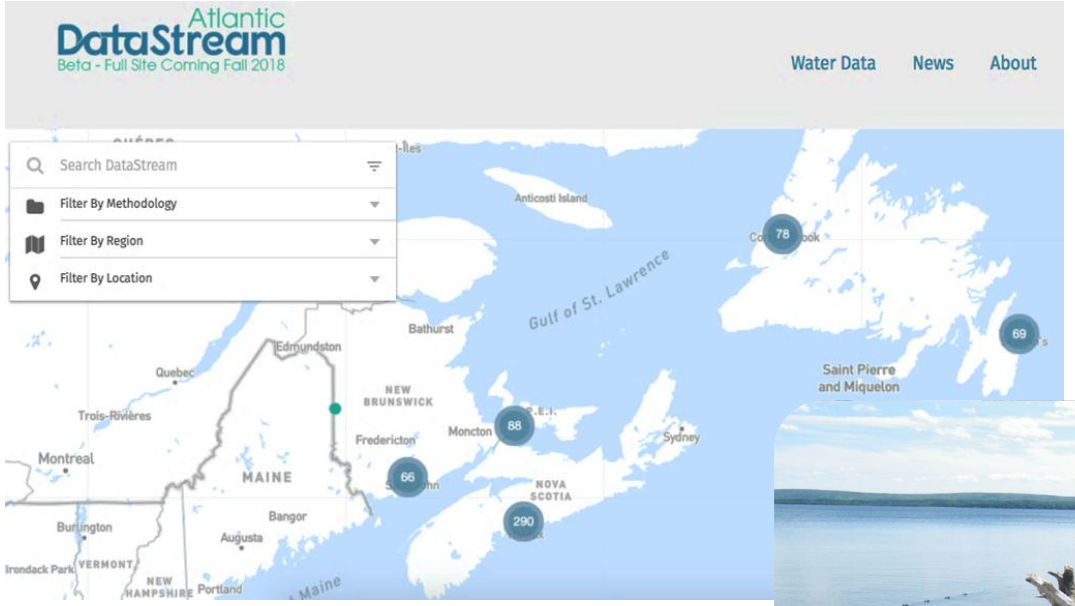
# Context of Community-Based Monitoring in Atlantic Canada

Emma Wattie

Canadian Science & Policy Conference

November 2018

Atlantic Water Network



- Regionally Focused
- ~40 Community-Partners
  - Provide Networking opportunities
- Support to CBWM Organizations
  - Equipment
  - Data Management Solutions
- Work with National Partners

# CBM in Atlantic Canada

- ~80 active monitoring groups
- Many 20-30 years old
- CBM's Economic Benefit
  - Example ACAP groups

# CURA $H_2O$

Community-Based Water Monitoring and Management

Research project (2011-2016)

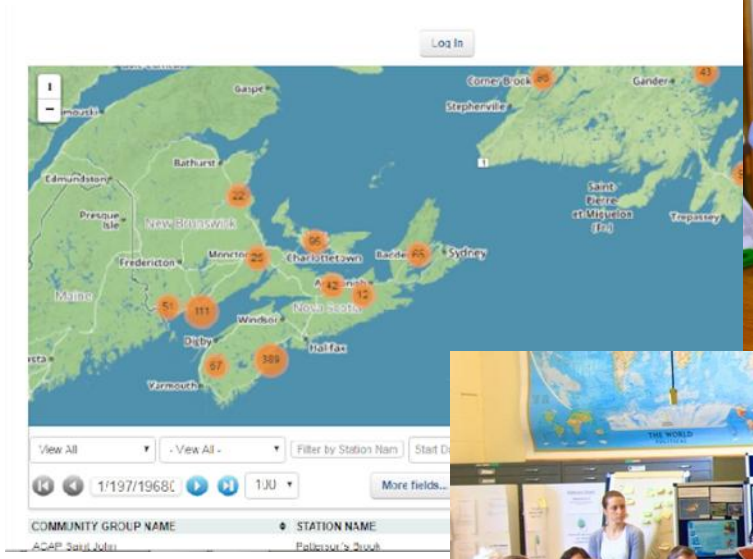
Standardization

- Training
- Equipment
- Regional water quality dataset

Social Sciences and Humanities Research Council of Canada

# CURA $H_2O$ ended… now what?

- Started to tackle standardization
- Large dataset
- Network of community-based water monitors



# We asked!

Atlantic Water Network

WWF

# Moncton, New Brunswick - January 2017

WALTER & DUNCAN GORDON FOUNDATION

Government of Northwest Territories
Gouvernement des Territoires du Nord-Ouest

# We Listened!

Atlantic DataStream

Atlantic Water Network

WALTER & DUNCAN GORDON FOUNDATION

The Hillsborough

A Canadian Heritage River

Hillsborough River Association

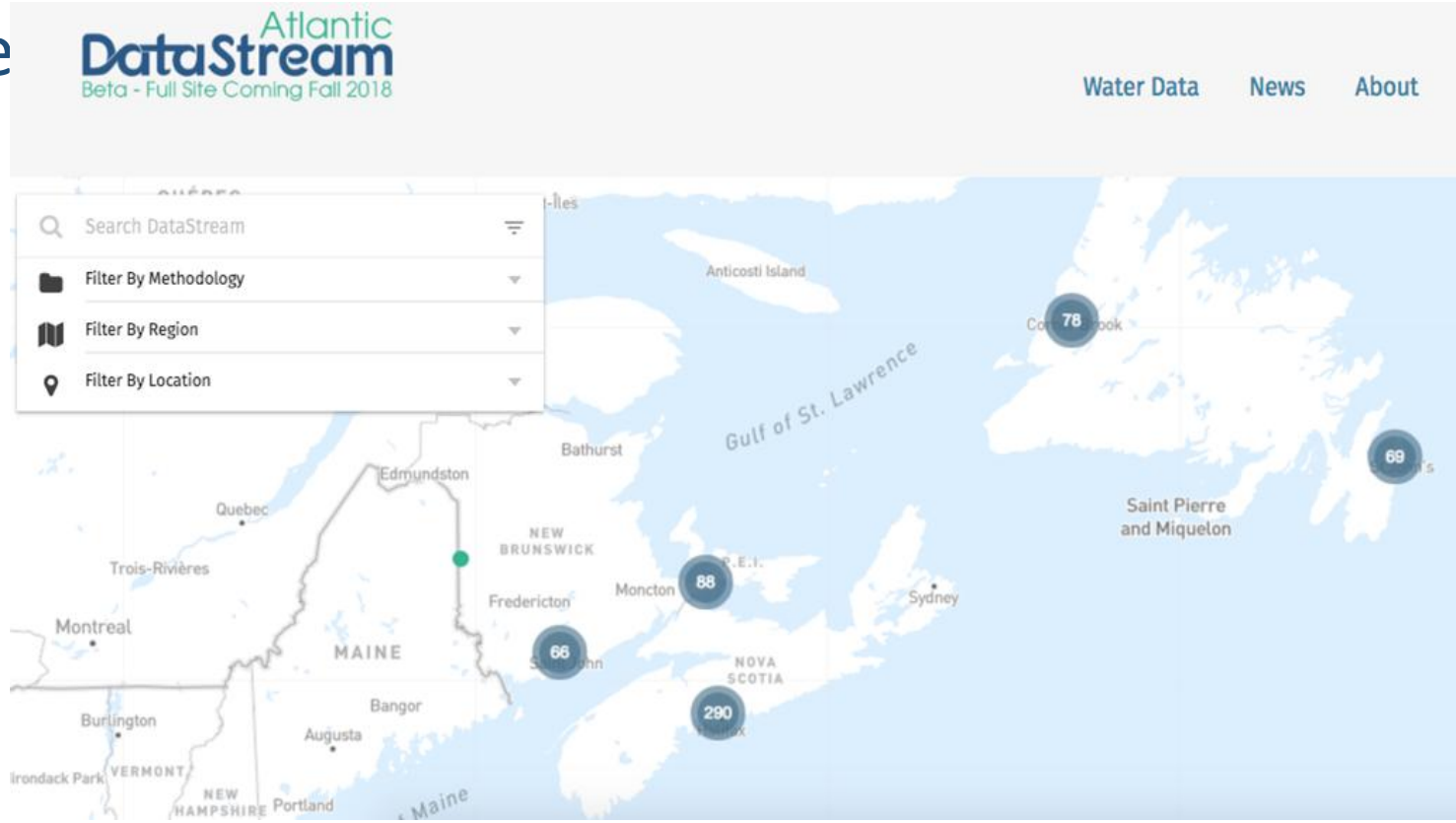
WWF

Environment and Climate Change Canada

Environnement et Changement climatique Canada

# Atlantic DataStream

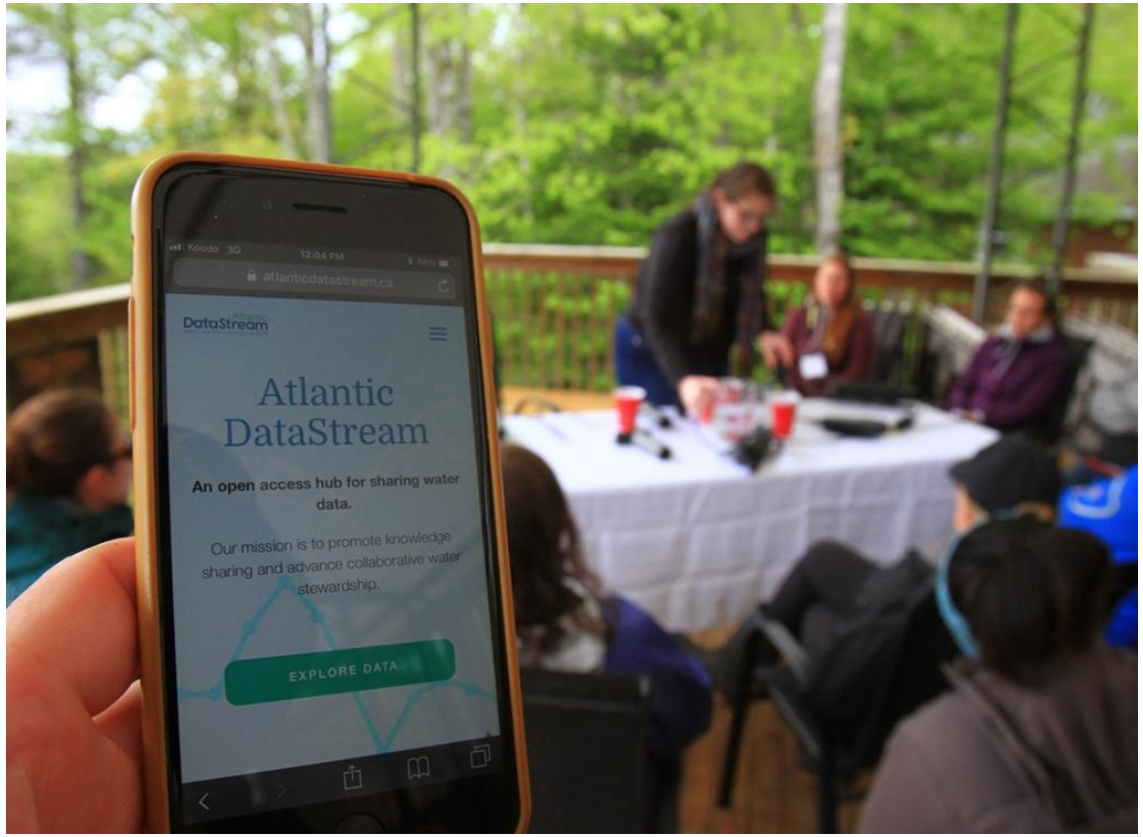
- Atlantic Ecosystem Initiative funded project (2018-2020)
- AWN community partners' data online!
  - 23 groups online
  - + Environment and Climate Change Canada
- Successful proposals to bring more datasets online



# DataStream Kick Off June 2018

# Since the Kick Off

## Onboarding new groups




## Training & Equipment Loans

# Perfect Storm

- Coordinated effort
- Building towards Atlantic DataStream for some time
- Didn’t have the capacity to do it on our own

# Thank you!

www.atlwaternetwork.ca

@atlwaternetwork

emma.wattie@smu.ca

Atlantic Water Network

THE GORDON FOUNDATION

# DataStream

**Carolyn DuBois**
Director, Water Program
The Gordon Foundation
Carolyn@gordonfn.org

## Community

Communities are connected to their waters and best-placed to see changes as they happen.

## Policy & Action

Knowledge can be translated into action to protect the health of watersheds on which we all depend.

## Open Data To Knowledge

Open data advances scientific knowledge, supports collaboration, and fuels innovation.

## Community

Communities are connected to their waters and best-placed to see changes as they happen.

## Policy & Action

Knowledge can be translated into action to protect the health of watersheds on which we all depend.

## Open Data To Knowledge

Open data advances scientific knowledge, supports collaboration, and fuels innovation.

**Lack of data sharing infrastructure can limit impacts of water monitoring and research initiatives**

# Data-Policy Cycle

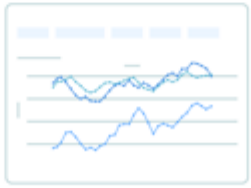
## Where DataStream fits in

### Community

Communities are connected to their waters and best-placed to see changes as they happen.

### Policy & Action

Knowledge can be translated into action to protect the health of watersheds on which we all depend.

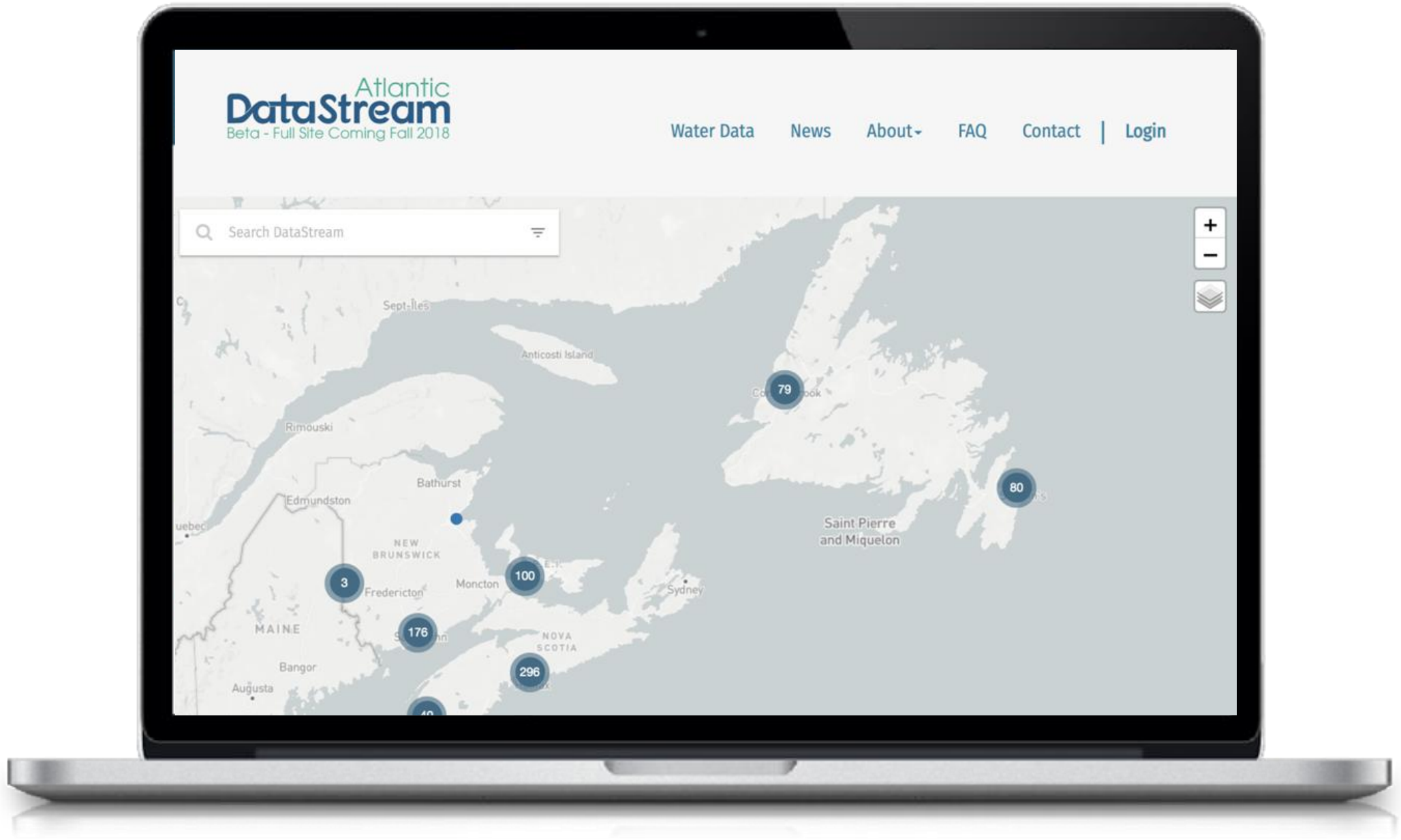


### DataStream

DataStream provides a place to store, share, and compare water monitoring data across watersheds.

### Open Data To Knowledge

Open data advances scientific knowledge, supports collaboration, and fuels innovation.


Atlantic
DataStream
Beta - Full Site Coming Fall 2018
Water Data
News
About
FAQ
Contact
Login
Search DataStream
Sept-Îles
Anticosti Island
Rimouski
Bathurst
Edmundston
NEW BRUNSWICK
Fredericton
Moncton
Sydney
MAINE
Bangor
Augusta
NOVA SCOTIA
Saint Pierre and Miquelon
79
80
100
3
176
296

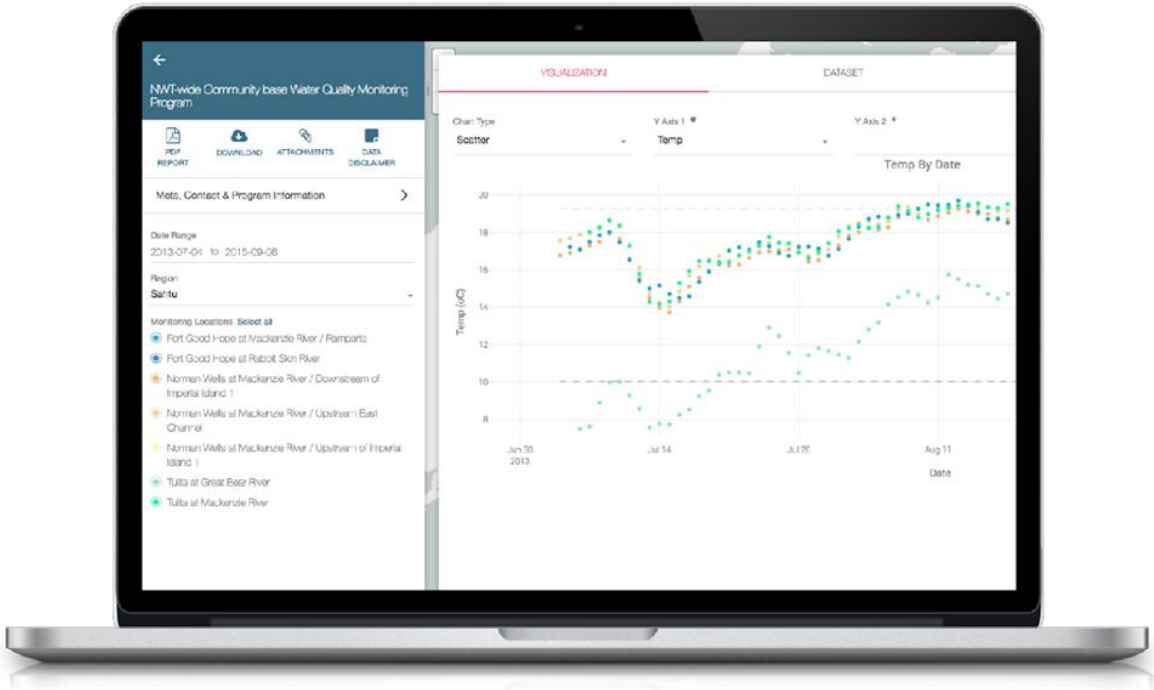
# DataStream

**What DataStream is?**

- Neutral, independently run and free to use
- Open Access
- Clear approach to data ownership and licensing
- Scientifically robust foundation
- User-friendly upload, search and visualization

**What DataStream <u>is NOT?</u>**

- No direct role in collecting data on the water
- No interpretation or analysis



# Continuous, platform-wide improvement

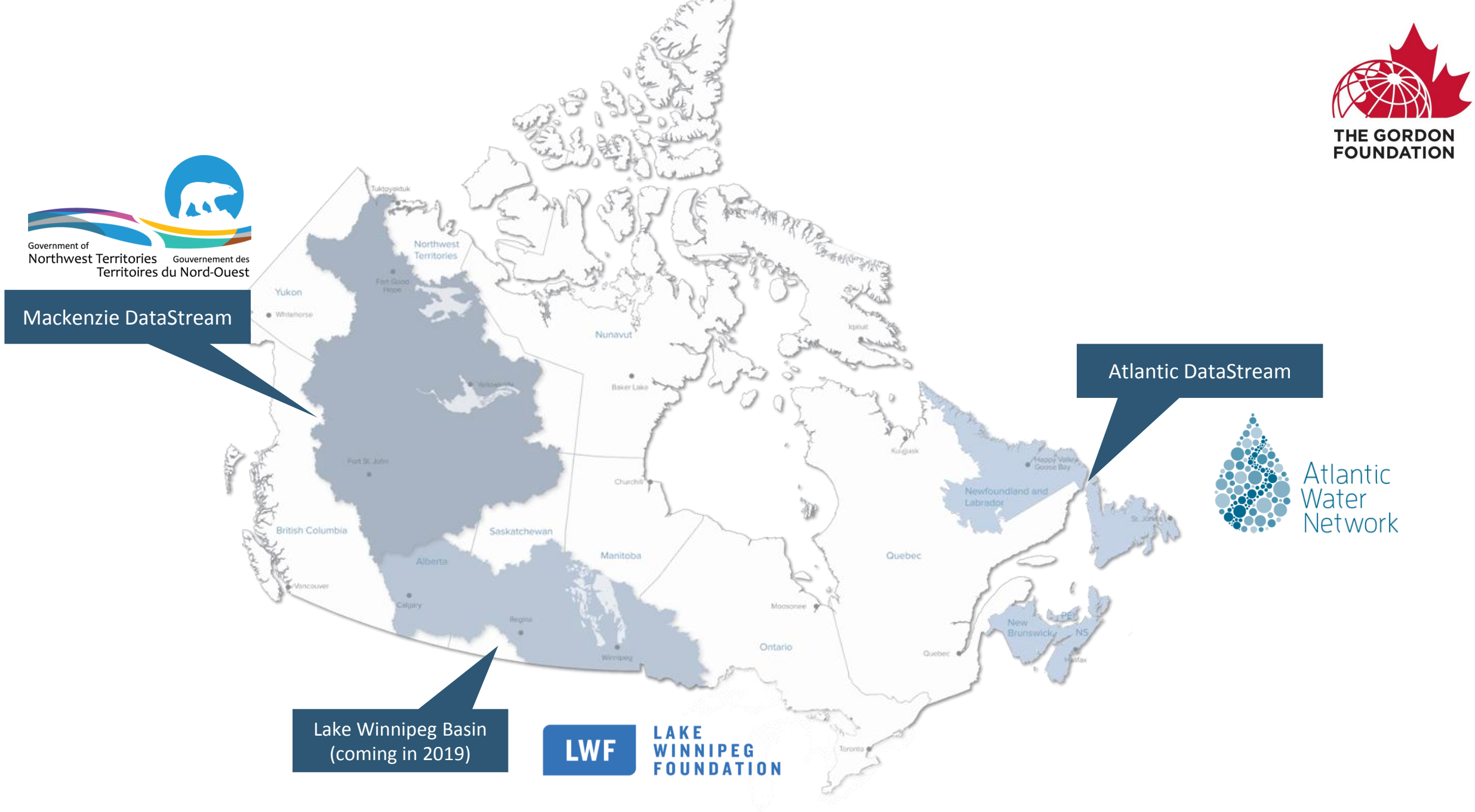
- **Spring releases**
  - Robust, internationally adopted data model (WQX)
  - Focus on story-telling and showcasing on-the-water efforts
- **New this Fall!**
  - Use of blockchain to provide transparent record of changes in datasets over time
- **What's coming?**
  - More data (always)
  - Better, more intuitive search
  - Growth to the Lake Winnipeg Basin

# Mackenzie DataStream

Photo: Pat Kane

THE GORDON FOUNDATION

Government of Northwest Territories
Gouvernement des Territoires du Nord-Ouest


Government of Northwest Territories
Gouvernement des Territoires du Nord-Ouest
Mackenzie DataStream
THE GORDON FOUNDATION
Atlantic DataStream
Atlantic Water Network
Lake Winnipeg Basin (coming in 2019)
LWF
LAKE WINNIPEG FOUNDATION
Tuktoyaktuk
Northwest Territories
Yukon
Whitehorse
Fort Good Hope
Nunavut
Baker Lake
Iqaluit
Fort St. John
Churchill
Kuujjuaq
Happy Valley Goose Bay
Newfoundland and Labrador
British Columbia
Saskatchewan
Alberta
Manitoba
Quebec
Vancouver
Calgary
Regina
Winnipeg
Moosonee
Ontario
New Brunswick
PEI
NS
Quebec
Halifax
Toronto

THE GORDON FOUNDATION

DataStream

**Thank you!**

Carolyn DuBois
carolyn@gordonfn.org

# Blockchain and DataStream

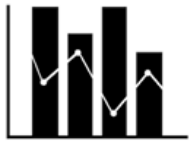
## Verification of data authenticity

**VERIFICATION STATUS**

| | |
|---|---|
| **Pending** | The blockchain verification process is underway. |
| **Verified** | The dataset hash matches the one written into the Ethereum Blockchain. The dataset you are accessing is an authentic version. |
| **Unverified** | The dataset hash does not match the hash stored on Ethereum Blockchain. This means the data has been altered since the time of upload. |

1.

Diverse water monitoring initiatives are using DataStream to organize, store, and visualize the water quality data they want to share.

2. 

#aBc123dEF456gH7

When a dataset is uploaded to DataStream, a unique data hash is created. This hash reflects the exact contents of the data file in an encrypted form.

3. The data hash is submitted and written into the Ethereum Blockchain. The decentralized nature of the blockchain network means this record is permanent, traceable, transparent and secure.

4.

DataStream users can verify that they are accessing the authentic (unaltered) version of the data through a built-in user interface, or independently verify the record on the Ethereum Blockchain network themselves.