

# Canada1Water Data Portal: Public access to harmonized hydrogeological data layers for Canada



Hazen A.J. Russell

Geological Survey of Canada, Natural Resources Canada

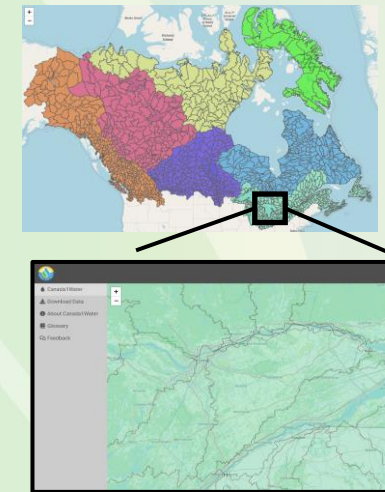
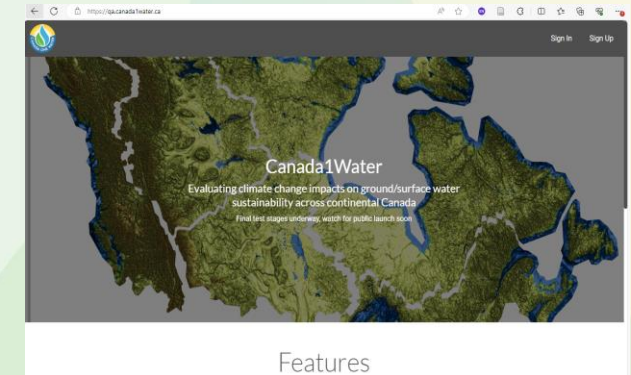
# Cloud-Based Data Portal

## Primary Development Team – Aquanty

- Graham Stonebridge – Applications Scientist
- Eric Kessel – Hydrogeologist and Data Scientist

## Software –Web Developers

- Ariq Emtenan
- Derek Steinmoeller
- Alexis Stevanus
- Iryna Shynkevych



# Publication process

- Submission:
  - Data to GSC publication stream with metadata
- Release Data:
  - open government Open Data licence with doi.
  - Metadata released as part of data release, indexed by Canada
- Documentation: GSC Open File
- Data available for download from portal

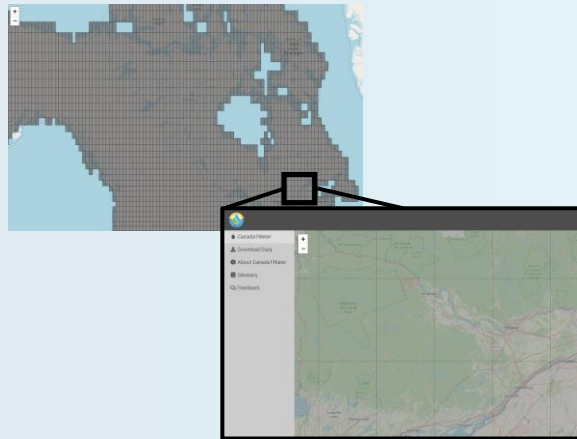
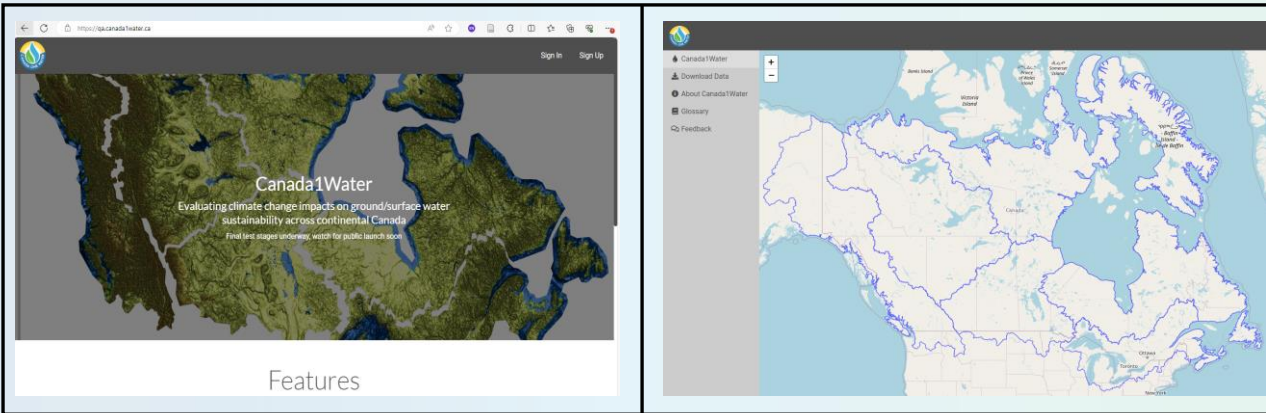


## GSC Liaison and data publication

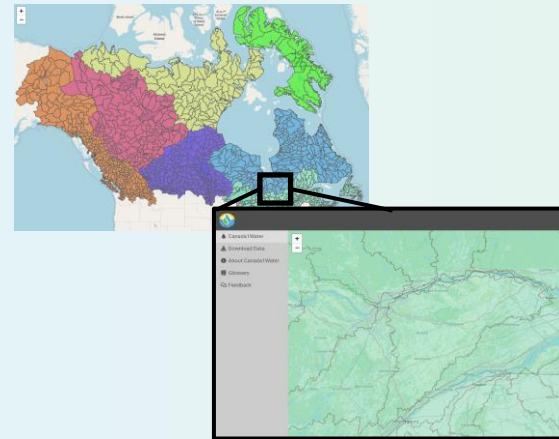
- Eric Boisvert
- Boyan Brodaric
- François Létourneau
- Charles Logan



# Cloud-Based Data Portal



**Grid-based AOI**



**Watershed-based AOI**

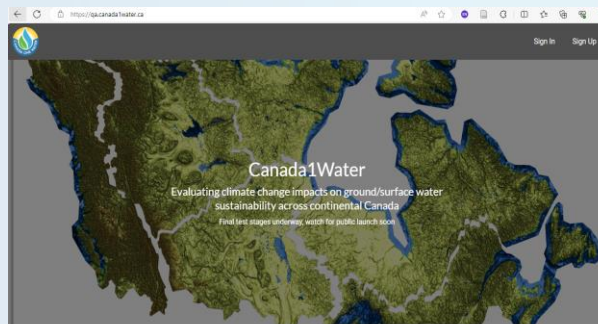
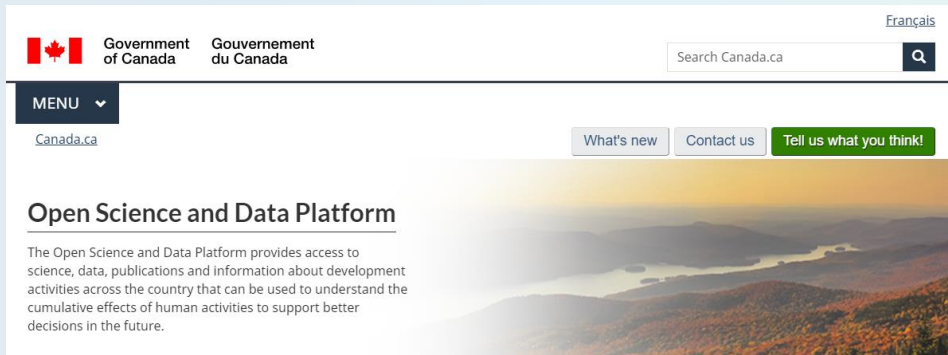
- Modern reactive UI/UX - Vue 3 Framework
- Cloud-optimized geotiffs (COGs) for high-performance of map tile loading
- Integrated with GeoServer (open-source tool) for metadata/WMS/WFS/WCS services
- Access full C1W domain, or Area-of-Interest
  - Model construction data
  - Historic and projected climatology
  - Simulation outputs
  - Projected change in:
    - SW, GW and SM storage
    - Hydrologic seasonality
- Fully documented (metadata)

# Cloud-Based Data Portal Standards and Security



- Webserver OGC - ISO 19115: Geographic information - Metadata
- Sign-in authentication to access Portal.
- Multi-factor authentication and self-service password reset options are available.
- Portal is hosted in Azure Cloud Platform for enhanced security and reliability.
- GeoServer Audit logging enabled to conduct threat and risk assessments.
- Incorporated accessible design elements.
- Comprehensive glossary and user guide included.

# Five Year Plan and onward



## Data Access

- Open
- Index service

## Documentation Access

- GSC publication
- Index service

## Portal

- Funded for five year
- Map based
- Interactive





Natural Resources  
Canada

Ressources naturelles  
Canada



**Geological Survey of Canada – Commission géologique du Canada**

**GSC “Groundwater Project” 2024-2029  
“Projet Eaux Souterraines” de la CGC 2024-2029**

**E. Boisvert, J. Mochizuki**

**2024**

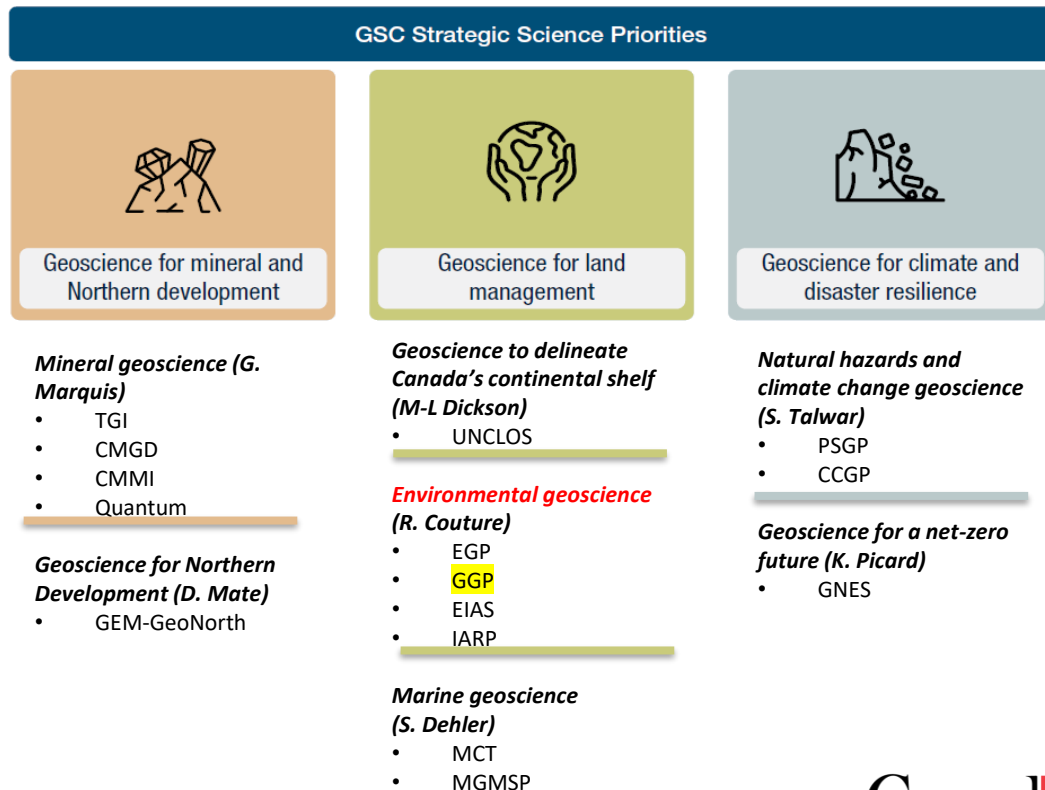
# New program cycle 2024-2029

- New program structure
- Merge of GGP and EGP in a larger EGP
  - « Project » vs « Program »
- Strong push for better alignment with NRCan and GoC objectives
  - In support of Environment Impact Assessments

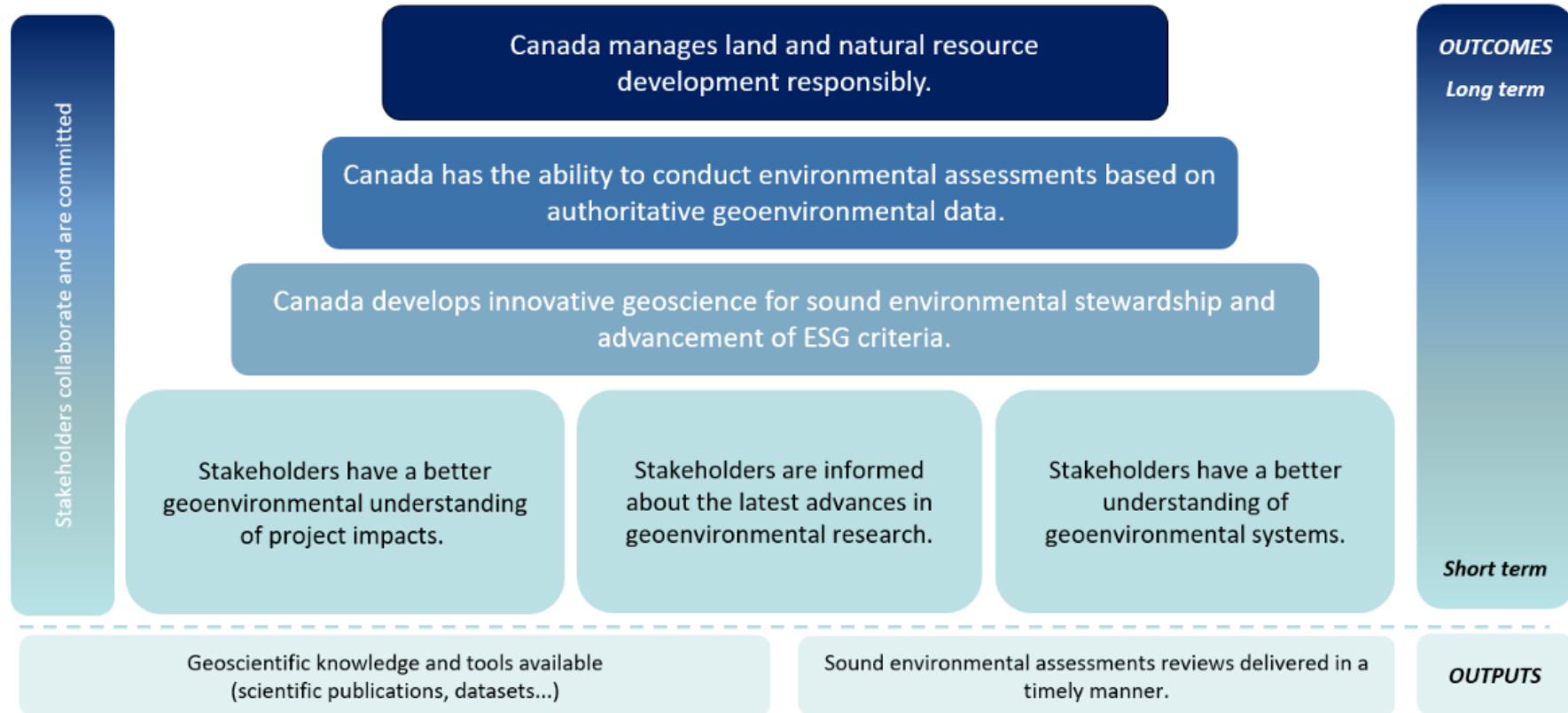


# New GSC program structure

- Environmental Geoscience Program
- Groundwater Geoscience Program
- Environmental Impact Assessment Service
- Impact Assessment and Regulatory Processes



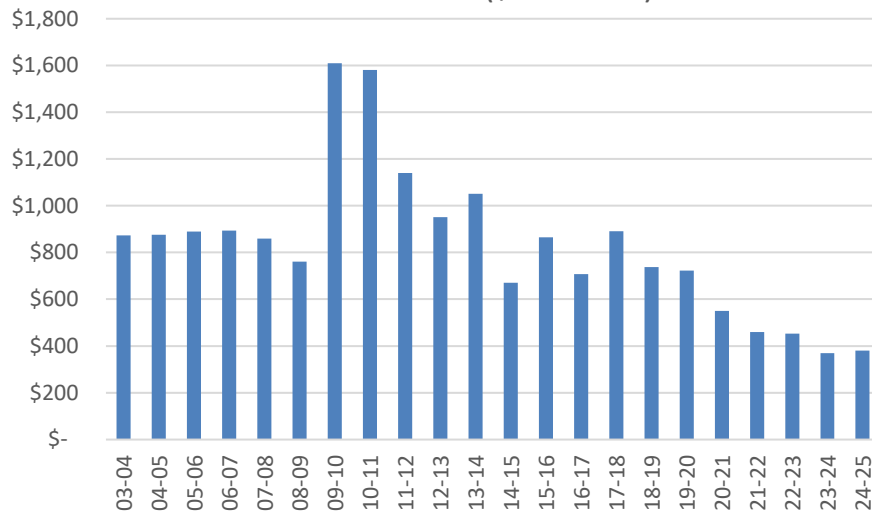
## ENVIRONMENTAL GEOSCIENCE PROGRAM LOGIC MODEL (2024-2029)



# Resources

- 383 K\$
- 8 GSC FTE
- Budget pressures
- Travel constraints

Évolution base A (\$ de 2024)



<https://www.bankofcanada.ca/rates/related/inflation-calculator/>

# PROGRAMME DE GÉOSCIENCES ENVIRONNEMENTALES DE LA CGC – GSC ENVIRONMENTAL GEOSCIENCE PROGRAM

ORGANIGRAMME – ORG CHART

**Réjean Couture**

Directeur responsable

*Responsible Director*

**Gilles Cotteret**

Coordonnateur

*Coordinator*

**Jean-François Bureau**

Affaires autochtones & dissémination

*Indigenous Affairs & Dissemination*

**Juliette Mochizuki**

Agente de planification en géosciences

*Geoscience Planning Officer*

**Christine Laberge**

Finances

*Finance*

**François Létourneau**

Chef, gestion de l'information

*IM Lead*

**François Oliva**

Gestionnaire – Évaluations  
environnementales  
*Manager - EIAs*

**Lauriane Dinis**

Gestionnaire de projet – Éval.  
régionales  
*Project Manager – Regional assess.*

**Éric Boisvert**

Gestionnaire de projet - Processus  
*Project Manager - Processes*

**Gilles Cotteret**

Gestionnaire de projet -  
Caractérisation  
*Project Manager - Characterization*

**François  
Oliva**

201

Évaluations  
env. fédérales

*Federal  
Environmental  
Assessments*

**Benoît Jautzy  
Marion**

421

Métaux  
environnement-  
Abitibi

*Metals  
Environment-  
Abitibi*

**Pierre-Marc  
Godbout**

422

Enclave  
argileuse

*Clay Belt*

**Greg  
Oldenborger**

441

Échanges  
contaminants

*Contaminant  
Exchange*

**Christine  
Rivard**

442

ES Niagara-  
Ouest

*Western  
Niagara GW*

**Hazen Russell  
Melissa Bunn**

443

Canada1Water  
Phase 2

*Canada1Water  
Phase 2*

**Daniel  
Paradis**

444

Gestion  
ressources en  
eau

*Management:  
Water Resource*

**François  
Létourneau**

469

Réseau  
d'information sur  
les ES

*Groundwater  
Information  
Network*

**Honn  
Kao**

311

Sismicité induite

*Induced  
seismicity*

**Gwyn  
Lintern**

312

Dépôts de  
dragage en mer

*Dredge  
Disposal at Sea*

**Josué  
Jautzy**

315

NWMO

*NWMO*

**Stephen  
Wolfe**

471

Éoliens est du  
Canada

*Eolian East  
Canada*

**Jason  
Ahad**

472

Outils feux  
boréaux

*Boreal Fire  
Tools*

© H... in Right of C...



Natural Resources  
Canada

Ressources naturelles  
Canada

Canada










▼



	<input type="checkbox"/>		<a href="#">Program</a>	<a href="#">Project or (sub)activity ID ↑</a>	<a href="#">Project Title</a>	<a href="#">Last Updated</a>
	<input type="checkbox"/>		EGP2024	EGP2024-311-ISR	Induced Seismicity Research	2024-06-06
	<input type="checkbox"/>		EGP2024	EGP2024-421-ABITIBI	Un siècle d'activité minière en Abitibi : évolution spatio-temporelle des émissi <a href="#">More ...</a>	2024-06-11

# « Process project »

- **Bunn/Russell:** Canada1Water Phase 2 
- **Paradis:** Management: Water Resource 
- **Rivard:** Western Niagara GW 
- **Oldenborger:** Contaminant Exchange 
- **Létourneau:** Groundwater Information Network 



[https://www.youtube.com/channel/UCWiCrKnTeF-j\\_La6\\_Wc5NMA](https://www.youtube.com/channel/UCWiCrKnTeF-j_La6_Wc5NMA)

# Groundwater Information Network

- Increasing requirements for security
- Process adds on top of diminishing resources
- Consolidation with other IM/IT (TBD)

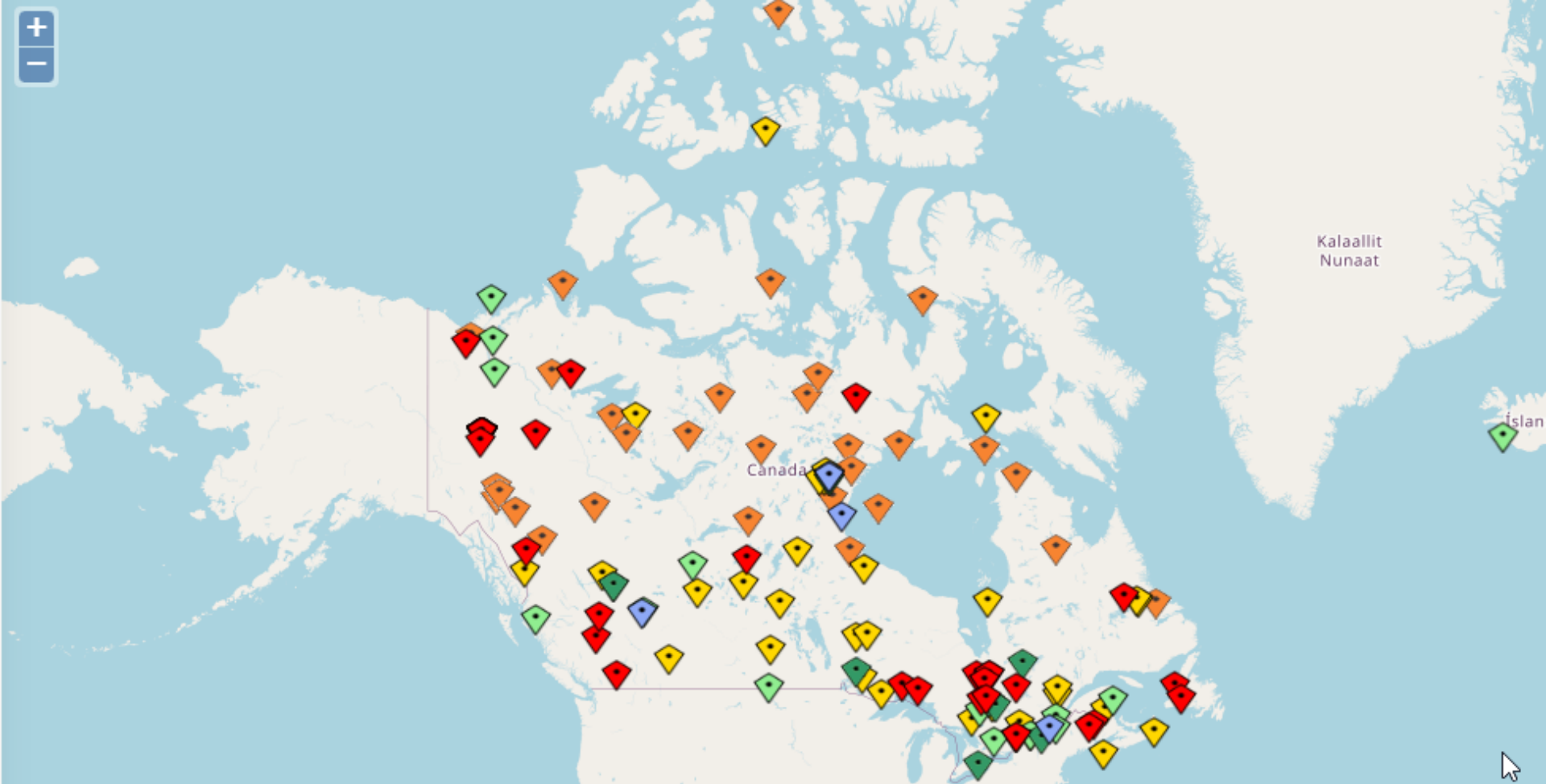
# CWA

- Growing interest for groundwater
  - Short meeting with D. Wolfish (ADM)
- CWA is a coordination body
- General reconnaissance that NRCan has the « lead » for groundwater at federal level
- GW is a file assigned to NRCan rep at CWA Hub
- Active discussions with GSC DG and NRCan chief scientist



# NDGW – What's next?

- Get it back on track
- Canada Tour
- By Topic
- Strategic



© His Majesty the King in Right of Canada, as represented by the Minister of Natural Resources, 2023



Natural Resources  
Canada

Ressources naturelles  
Canada

Canada

## Presented at: National Dialog on Groundwater

Date presented: 12<sup>th</sup> June 2024

For information regarding reproduction rights, contact Natural Resources Canada at [copyright-droitdauteur@nrcan-rncan.gc.ca](mailto:copyright-droitdauteur@nrcan-rncan.gc.ca).

This publication is available for free download through GEOSCAN (<https://geoscan.nrcan.gc.ca/>).

### Recommended citation

Author(s), 20xx. Publication title; Geological Survey of Canada, Scientific Presentation xx,  
1 .pptx file. <https://doi.org/10.4095/xxxxxx>

*Publications in this series have not been edited; they are released as submitted by the author.*