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Ressources naturelles
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National dialogue on groundwater (NDGW) – September 14, 2022

Dialogue national sur les eaux souterraines (DNES) – 14 septembre, 2022

**Geological Survey of Canada
/ Commission Géologique du Canada**

Canada

Overview

1. Greetings (Eric Boisvert) – 5 minutes

- a) Housekeeping items
- b) Welcome to DFO

2. News/updates (all) – 10 minutes

- a) Teams
- b) Roundtable

3. Presentations – 30 minutes

- a) The future of the National Dialogue on Groundwater: Report on consultations by [Eric Boisvert](#)
- b) Freshwater fish habitat science at Department of Fisheries and Oceans (DFO) Canada by [Amanda Winegardner](#)

4. Questions (all) – 10 minutes

5. Wrap-up and next meeting on November 2, 2022, from 1 to 2 p.m. (EST)





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NDGW DNES

June 2022 Discussion report – Rapport des discussions Juin 2022

Eric Boisvert et Joby Aubut Bernard
Commission géologique du Canada

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Background - Contexte

- National Dialog on Groundwater created late 2019
- Fulfill commitment to organize a workshop (Open File 7857)
- Virtual : Overcome several communication hurdles
- Then.. COVID !
- Then.. CWA !
- Dialogue national sur les eaux souterraines créé fin 2019
- Remplir engagement d'organiser un atelier (Dossier public 7857)
- Virtuel : Surmonter différents obstacles à la communication
- Et puis .. COVID !
- Et puis, AGE !

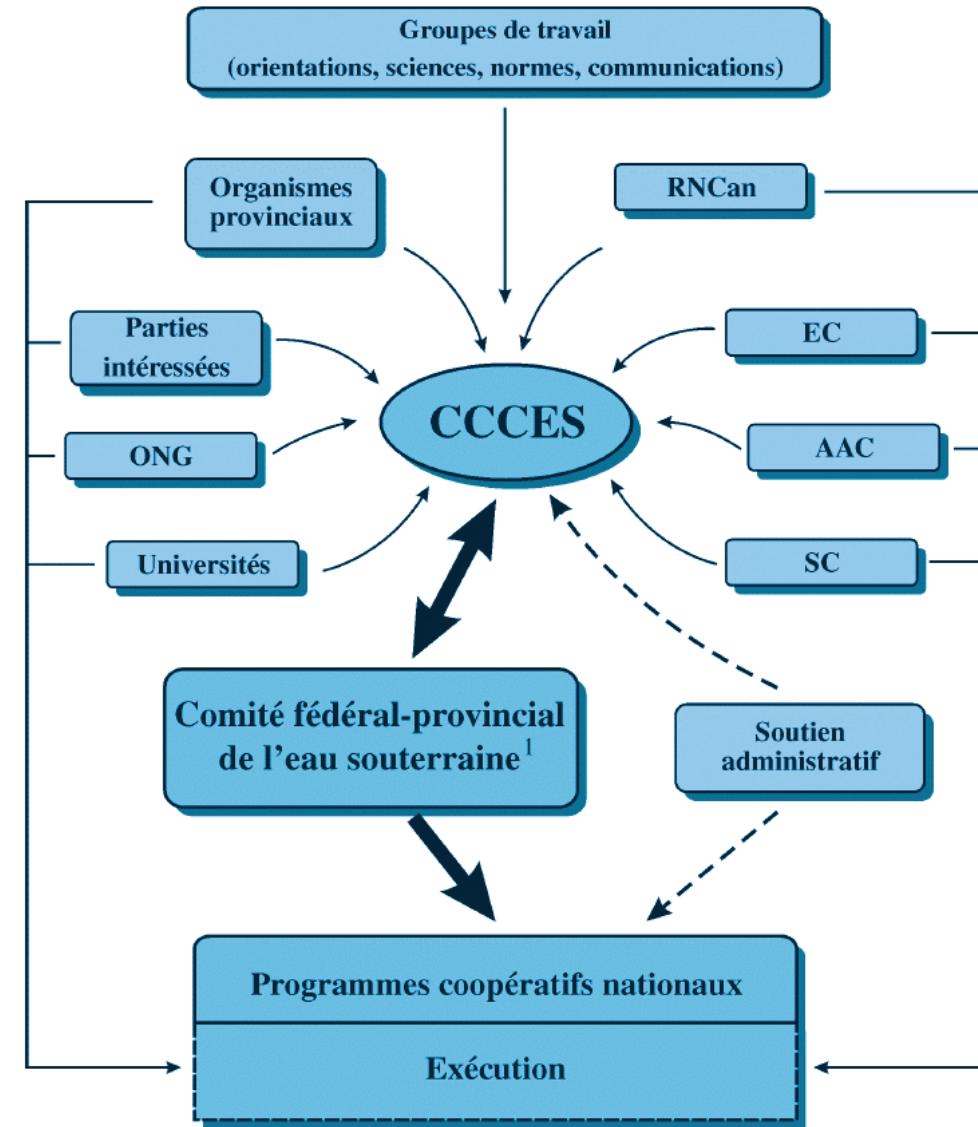
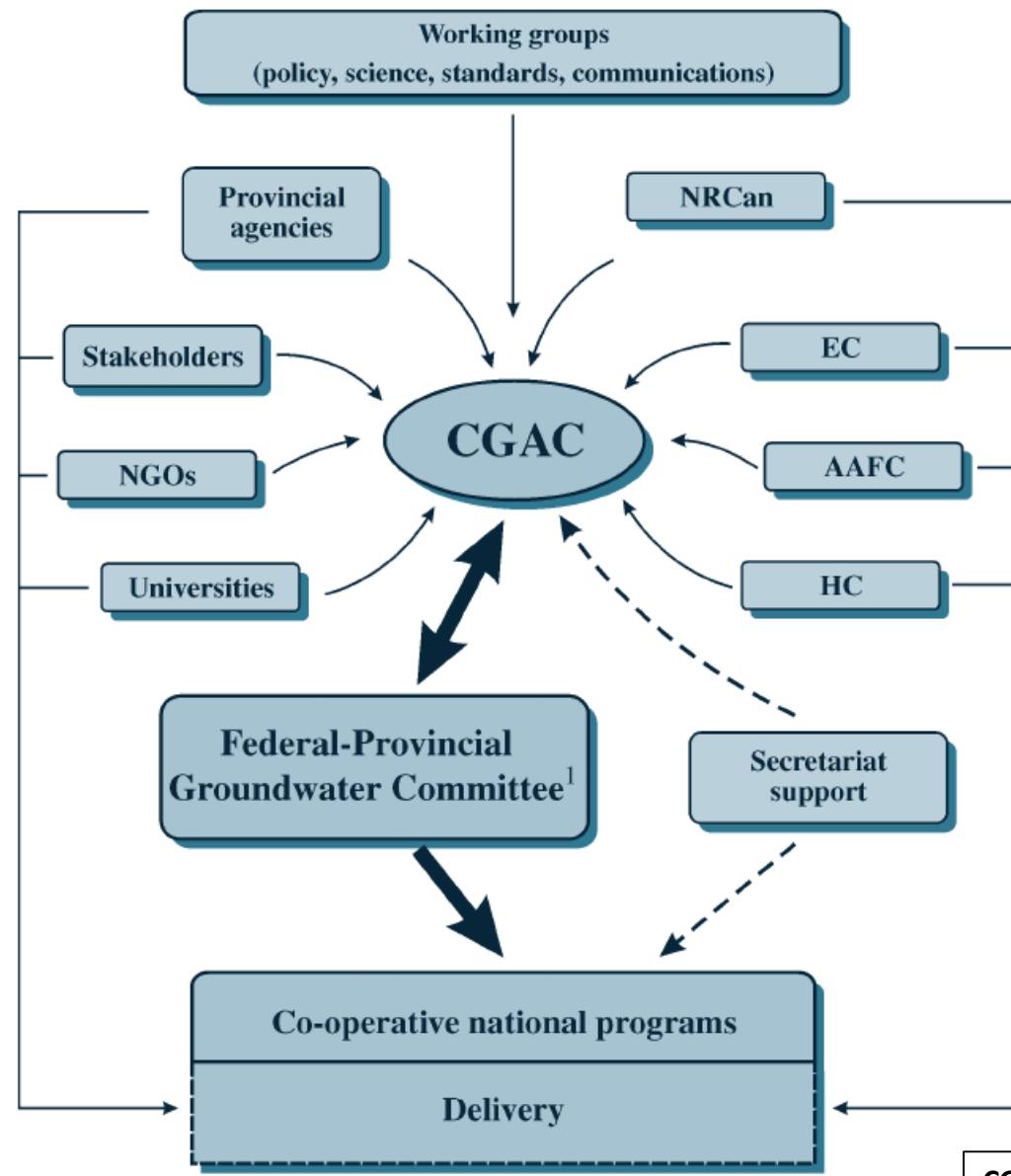
<https://github.com/lcnp/ndgw/wiki>



Structure

- Formalize a structure
 - National geological surveys committee
 - PanCanadian geoscience strategy ?
 - Canadian Framework of Collaboration on Groundwater
 - Canada Water Agency
 - Canadian Council of Academies (2009)
- Formaliser une structure
 - Comité national des commissions géologiques
 - Stratégie PanCanadienne sur les géosciences
 - Cadre Canadien de collaboration en matière d'eau souterraine
 - Agence Canadienne de l'Eau
 - Conseil des académies Canadiennes (2009)





CGAC = Canadian Groundwater Advisory Committee

CCCES = Cadre Canadien de Collaboration en matière d'Eau Souterraine

Format

- 1 hour quarterly allows for short presentations and question
- Not suitable for planning and strategizing
- Nonetheless useful to stay connected
- Rencontres de 1 heures aux 4 mois : que des présentation courtes et des questions
- Pas adéquat pour planification et stratégie
- Toutefois, utiles pour demeurer connectés



Frequency - Fréquence

- Good as it is (quaterly) !
- Add one larger event (F2F ?) around projet planning schedule
- F2F must be hybrid
- Parfait comme c'est (aux 4 mois) !
- Ajouter un événement plus long (FàF) aligné sur les périodes de planification de projet
- FàF doit demeurer hybride



Audience

- Keep restricted to public sector – discuss public agency issues
 - Keep audience hydrogeologist and related fields
 - Others, on invitation when relevant
 - Discussion over inclusion on indigenous people
-
- Restreint au secteur public – discussion d'enjeux des agences publique
 - Restreint aux hydrogéologues et aux domaines connexes
 - Autres, sur invitation lorsque pertinent
 - Discussion sur l'inclusion des premières nations



Themes

- Groundwater-surface water systems & groundwater supported ecosystems
- Working with indigenous people
- Application of groundwater science within F/T/Ppolicy
- Emerging issues
- Collaboration for groundwater data
- Climate Change
- Governance
- *Deep Groundwater ?*
- Interaction eau de surface – eau souterraine & services écosystémiques
- Inclusion des premières nations
- Application de la géoscience sur les eaux souterraines aux politiques F/T/P
- Enjeux émergeants
- Collaboration sur les données
- Changements climatiques
- Gouvernance
- *Eaux souterraines profondes ?*



Suggestions

- Open Internal GGP scientific presentations open to whole NDGW
 - Organise a F2F workshop
 - Facilitate creation of thematic working groups
 - Evaluate/Adapt CFCGW
- Ouvrir les présentations scientifiques internes de PGES à l'ensemble du DNES
 - Organiser un atelier FàF
 - Faciliter la création de groupes de travail thématiques
 - Évaluer/Adapter CCCES

CFCGW = Canadian Framework for Collaboration on Groundwater
CCCES = Conseil Consultatif Canadien sur matière d'Eau Souterraine



Merci Thank you



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DRAFT



Freshwater Habitat Science Initiative- Fisheries and Oceans Canada

National Dialogue on Groundwater

September 14, 2022



Photo credits: DFO

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Outline

1. Background on Freshwater Habitat Science Initiative (FHIN)
2. What type of science does the FHIN do?
2. Opportunities for the future



River near Cultus L, BC (C. Leblanc)



Stream in CFB Gagetown, NB
(A. Winegardner)

Background on the Freshwater Habitat Science Initiative (FHN)

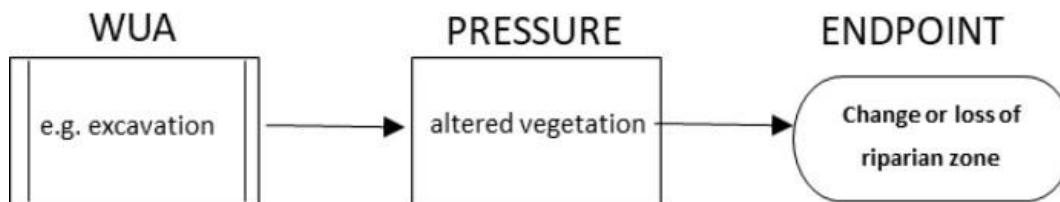
The FHN is a national initiative focusing on 1) freshwater fish and fish habitat research and 2) the effectiveness of freshwater habitat management measures.

- The FHN is specific to habitat science research, and is one freshwater program within the larger landscape of DFO (e.g. Species At Risk, Aquatic Invasive Species, freshwater aquaculture).
- The FHN supports DFO's Fish and Fish Habitat Protection Program by providing science advice on topics like:
 - Impact of specific activities (e.g. mining, construction etc.) on fish habitat
 - Ways to avoid and mitigate negative impacts
 - Cumulative stressors across freshwater landscapes
- The FHN works in diverse habitats and ecosystems, from the interior rivers of BC important for anadromous salmon to the Great Lakes to pristine boreal lakes to heavily impacted urban streams.
- No specific work on groundwater, however many of our focal systems have interactions with groundwater.
- The FHN includes in-house research as well as partnerships with external partners (including other government departments, provincial and territorial collaborators, universities, non-governmental organizations and Indigenous organizations).

What type of science does the FGIN do?

Linking anthropogenic stressors to habitat changes

- Undertake research that helps our regulatory colleagues link “works, undertakings and activities” (WUAs) to pressures on aquatic habitats and likely endpoints.
- Focus on four main categories: activities on land, activities in water, noise and water flow.
- Transform this type of research into schematics and other communication tools that help to visualize these potential changes and aid in decision making.
- Identify unknowns and factors that create uncertainty in predicting impacts of certain activities (e.g. climate change).



Conceptual Pathway of Effect
(Brownscombe and Smokorowski 2021)



Rattling fish bypass (C. Pennell)

What type of science does the FHN do?

Describing cumulative stressors across freshwater fish habitat

- Provide science advice on how to measure cumulative pressures across landscape and watershed scales.
- Track fish movement and habitat use using large scale telemetry arrays to better understand impacts of regional stressors.
- Study habitat modifications, taking into consideration other factors (like increased water temperature).
- Model uncertainty related to the impacts of multiple stressors on fish and fish habitat.



Lake ON telemetry (J. Midwood)

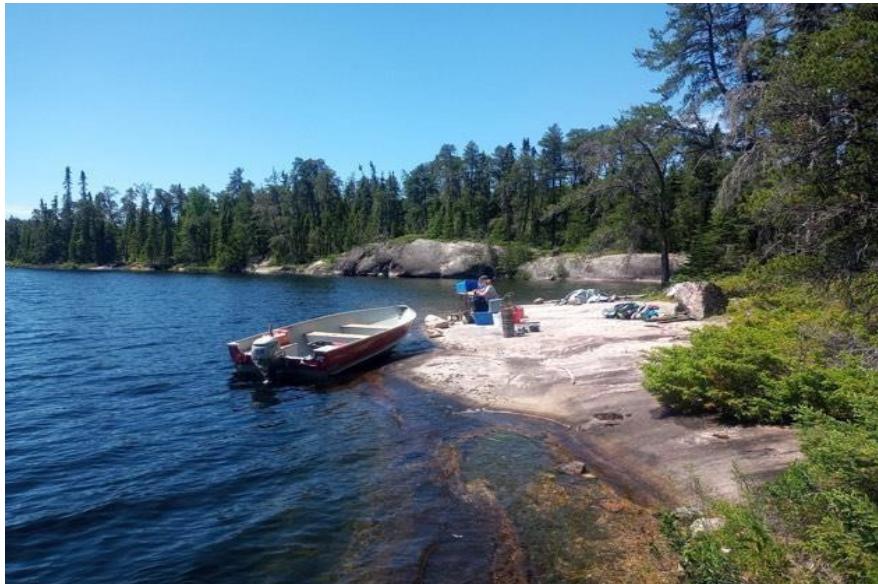


Rattling fish bypass (C. Pennell)

What type of science does the FHN do?

Developing ecosystem indicators for freshwater habitat

- Targeted research, both internal and external, to support the development and selection of indicators and metrics that can analyze, monitor and communicate the state of fish habitat across the country.
- Better understanding linkages between fish habitat and fish productivity.
- Investigating how seasonal variation impacts fish habitat and fish productivity.
- Quantifying fish abundance in different habitat types of boreal lakes.

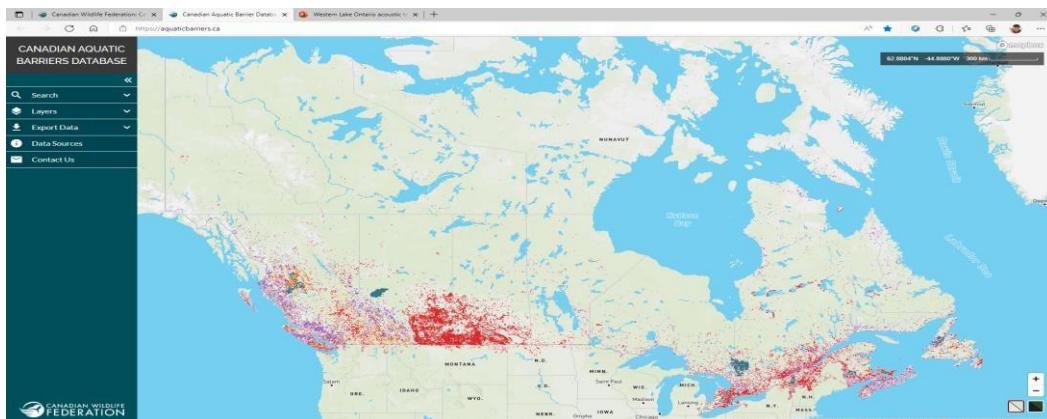


IISD-ELA (P. Blanchfield)

What type of science does the FHN do?

Understanding the effectiveness of management measures

- Research to help DFO provide better advice on activities that modify or manage fish habitat (e.g. restoration activities, flow diversion activities, riparian and shoreline enhancement activities).
- Research projects that assess commonly used habitat management measures.
- Use of environmental DNA (eDNA) for better monitoring the impact of monitoring activities.
- Funding for the Canadian Wildlife Federation to develop the Canadian Aquatic Barriers Database.



Canadian Aquatic Barriers Database
(<https://aquaticbarriers.ca>; CWF)

7



Restigouche restoration (J. Hill)

What type of data does the FHN produce?

- Data on freshwater (and anadromous/diadromous) fish richness, diversity and abundance across various freshwater ecosystems.
- Short-term and long-term data for various variables related to water quality (e.g. nutrients, sedimentation, contaminants, temperature etc).
- Physical habitat variables (e.g. type of habitat, shoreline condition, habitat disturbance).
- Information about fish behaviour and passage related to various habitat features (e.g. turbines, culverts, dams).

FHIN: Looking to the future and opportunities for collaboration

- Future plans for the FHIN:
 - Continued coordination with end-users of our research and science advice.
 - Explore integration of research priorities defined by Indigenous communities.
 - Approach for open science/data and data management.
- Opportunities for collaboration:
 - Data related to freshwater fish habitat,] including water flow and geospatial data.
 - Data relevant to the assessment of cumulative effects and stressors across freshwater systems (and especially in light of climate change).



Chilliwack L (C. Leblanc)

**Thank you and see you all at the next meeting:
November 2, 2022, from 1 to 2 p.m. (EST)**

