
How risk, data and spatial patterns support policy in Canada

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Health
Canada

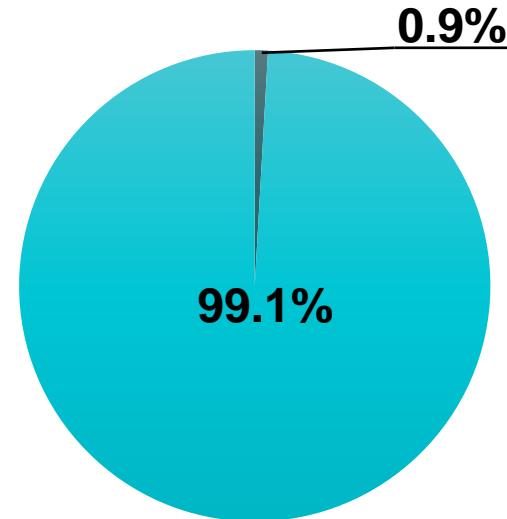
Santé
Canada

Canada

Radon in Canada

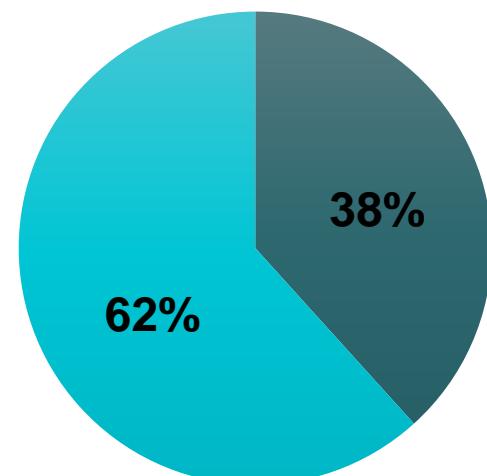
Vancouver, BC

Housing above 200 Bq/m³ ■
below 200 Bq/m³ ■



Halifax, NS

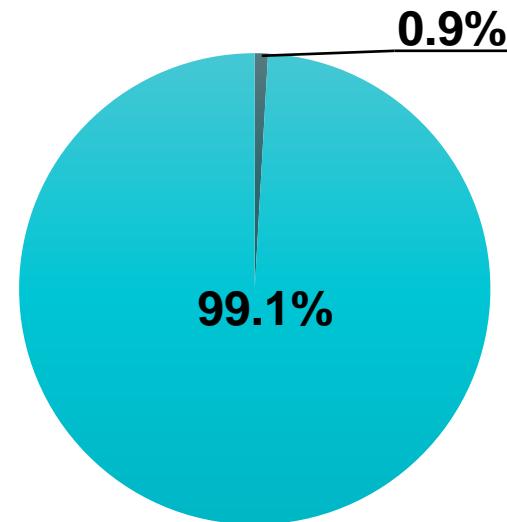
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Radon in Canada

Vancouver, BC

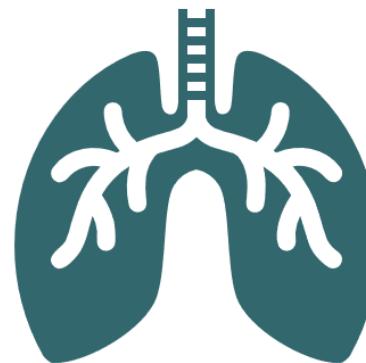
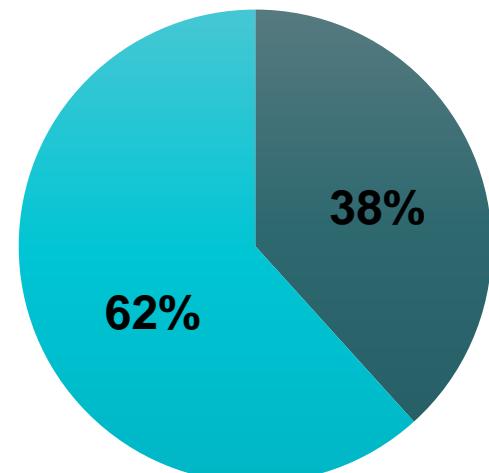
Housing above 200 Bq/m³ ■
below 200 Bq/m³ ■



About 1 in 5 homes
will be above 200
Bq/m³

Halifax, NS

Housing above 200 Bq/m³ ■
below 200 Bq/m³ ■



>3000 Rn lung cancer
deaths per year

Radiation Protection in Canada



Radiation Protection in Canada

National Radon Program

- 2004 proposal to lower radon reference level from 800 Bq/m³ to 200 Bq/m³

Radiation Protection in Canada

National Radon Program

- 2004 proposal to lower radon reference level from 800 Bq/m³ to 200 Bq/m³
- 2007 Established National Radon Program & updated Federal Radon Guideline
 - ◆ Provide a national strategy to achieve compliance and implementing the new guideline

REPORT OF THE RADON WORKING GROUP
ON A NEW RADON GUIDELINE FOR CANADA

REV. 03-10-2006

Submitted to the
FEDERAL PROVINCIAL TERRITORIAL
RADIATION PROTECTION COMMITTEE

March 10, 2006

Radiation Protection in Canada

Federal Radon Guideline

Radon Guideline in Canada

200 Bq/m³

Places where we spend
more than 4 hours per day.

- you take corrective action sooner, the higher the radon level is
- the corrective action should reduce the radon concentration as much as is practicable
- the construction of new buildings use techniques that minimize radon entry and will help remove radon after the construction is finished, if necessary

[Health Canada Radon Guideline](#)

Organization of the program - 2007



Organization of the program - 2025



National Radon Program National Strategy

- Reduce knowledge gaps through research and data collection
- Provide expert guidance for each area of focus, and act as a single source of information
- Engage and enable provinces and other partners to encourage relevant programs and policies
- Increase awareness and enable action for the public

National Strategy

Reduction Approaches

Updating Building Codes

To reduce radon in new construction – ex.
Inclusion of passive stack



Radon Research

Testing, mitigation, health impacts; filling
the gaps to support program, policy and
public guidance



Radon Health Economic Analysis

Looking at practical radon
interventions – measured in cost per
'quality adjusted life years' (QALY)



Federal Radon Action Plan

Engaging other relevant departments to
encourage the inclusion of radon in
relevant programs, policies and outreach

Radon Action Guides

A 'turn-key' resource that PTs and
Municipalities can use to develop
customized Radon Action Plans

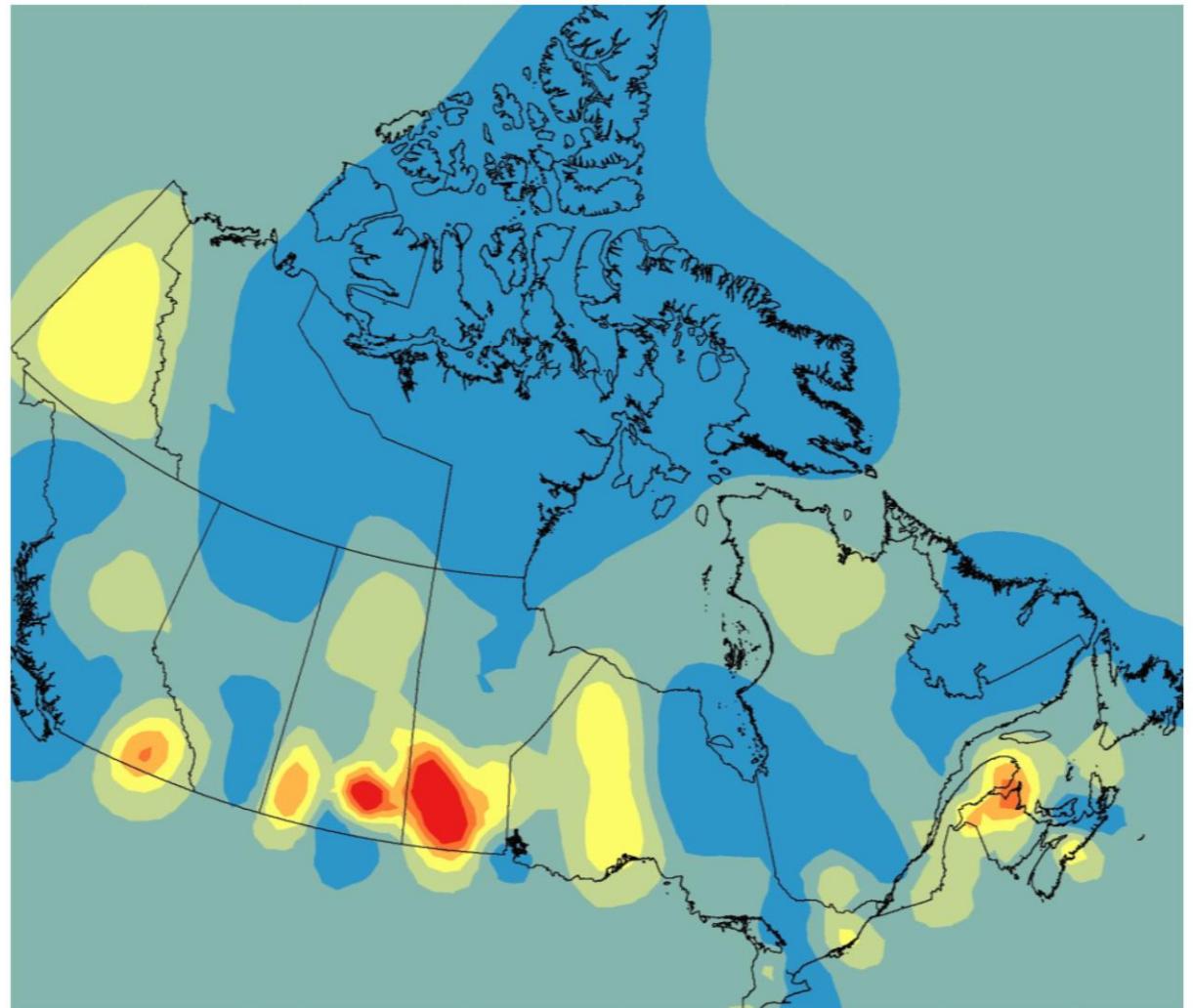
Radon Behaviour Postcard Project

Development of behaviourally informed
postcards to increase awareness and
radon reduction action. Over 10 million
postcards delivered since 2020.

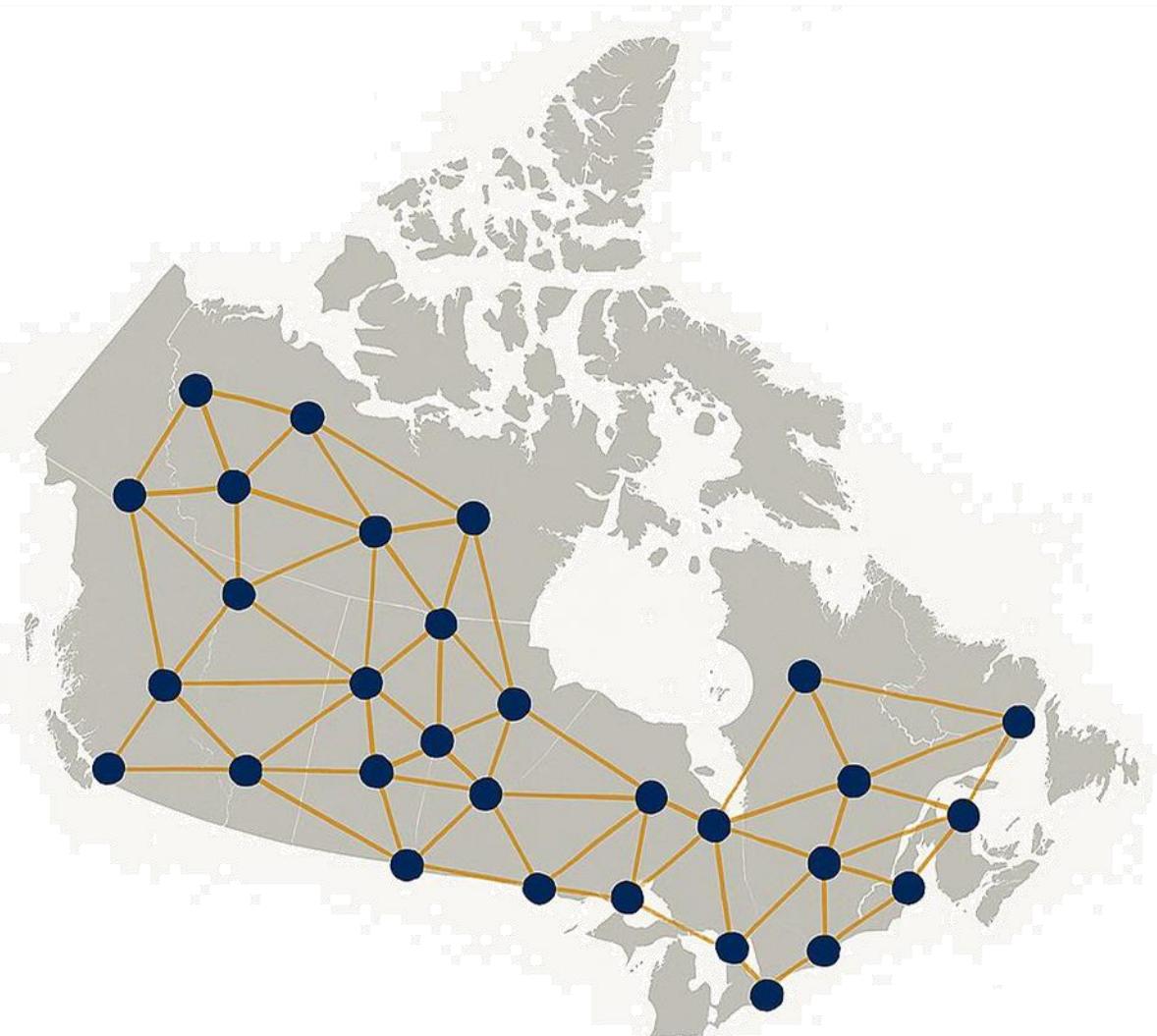
National Strategy Database & Mapping

Then

- Increase the understanding of radon levels across Canada
- Determining exposure potentials



National Strategy Database & Mapping



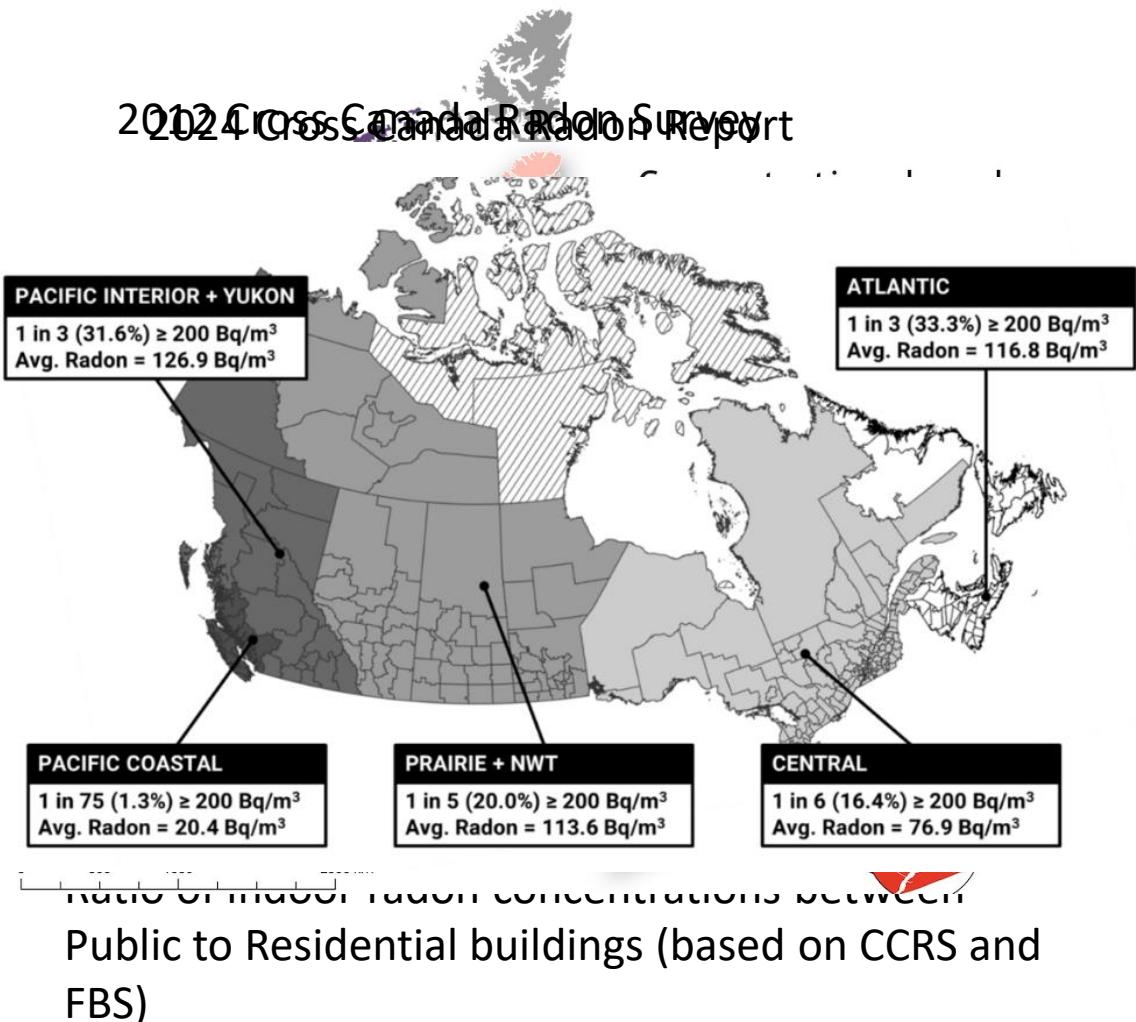
Now

- Focus on smaller scales, and targeted questions
- Bidirectional data sharing agreements with provincial/territorial governments and universities
 - ◆ Eg) INRS, UoC, UoW, BC-CDC
- Supporting database and mapping initiatives (ex. **British Columbia Radon Repository, Cross Canada Radon Report**)

Database & Mapping Initiatives

National Surveys

- 2009 Federal Building
 - ~21 000 buildings tested
- 2012 Residential
 - ~13 000 test randomly distributed across health regions
 - First of its kind in Canada
- 2024 Residential
 - ~65 000 tests collected from various research and private partners



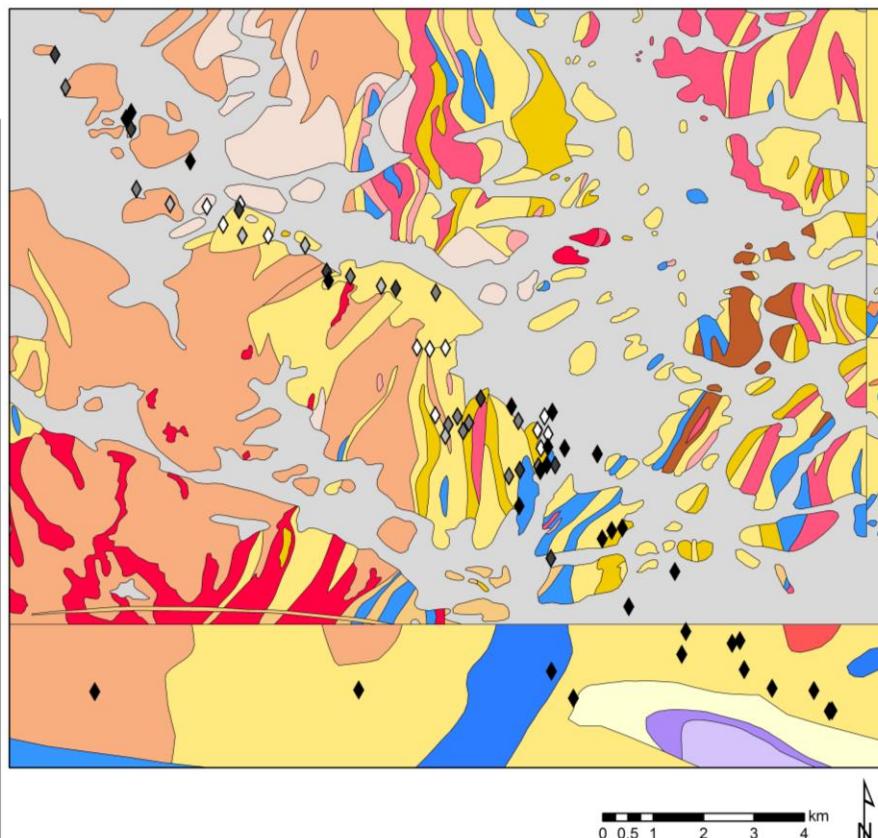
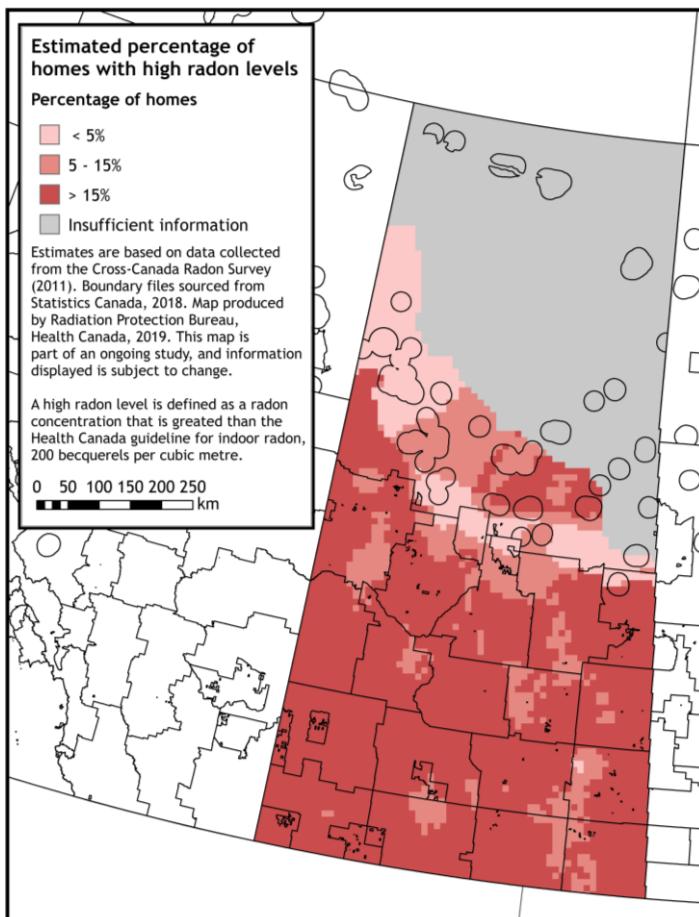
Post Card Campaign Outreach Support

- **Target Areas:** Higher prevalence of radon to ensure that messaging reached residents that need it the most
- **A/B testing:** Refine messaging to be more impactful and engaging
- Achieve continues **strong digital engagement**, solid test kit uptake, and clear evidence of regional responsiveness, even among new audiences

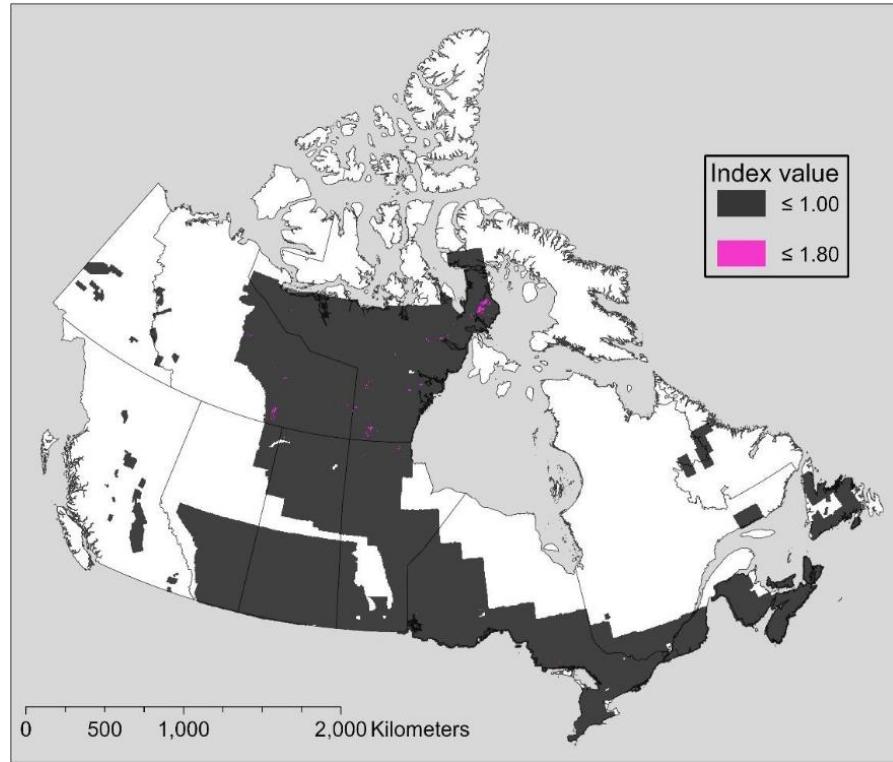


Research Support

Estimating radon exposure from bedrock geology in Saskatchewan



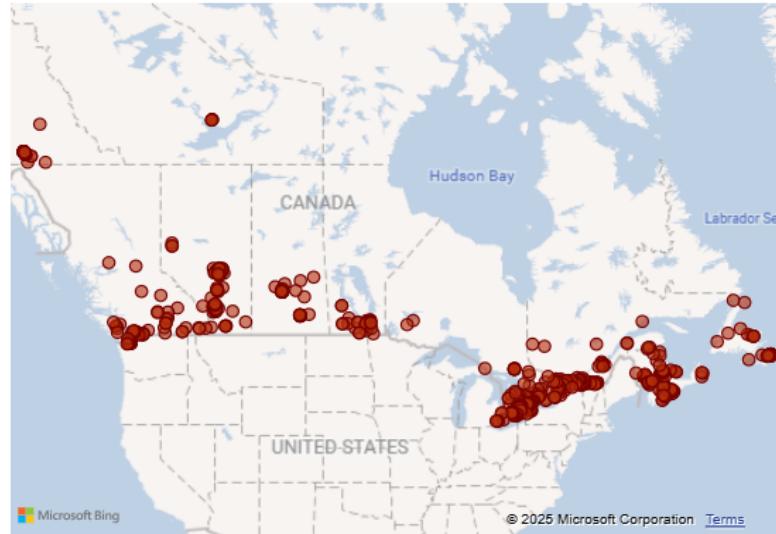
Effects of indoor Rn from private wells in Chelsea, Quebec



Activity concentration index of eU from airborne γ -ray spectroscopy

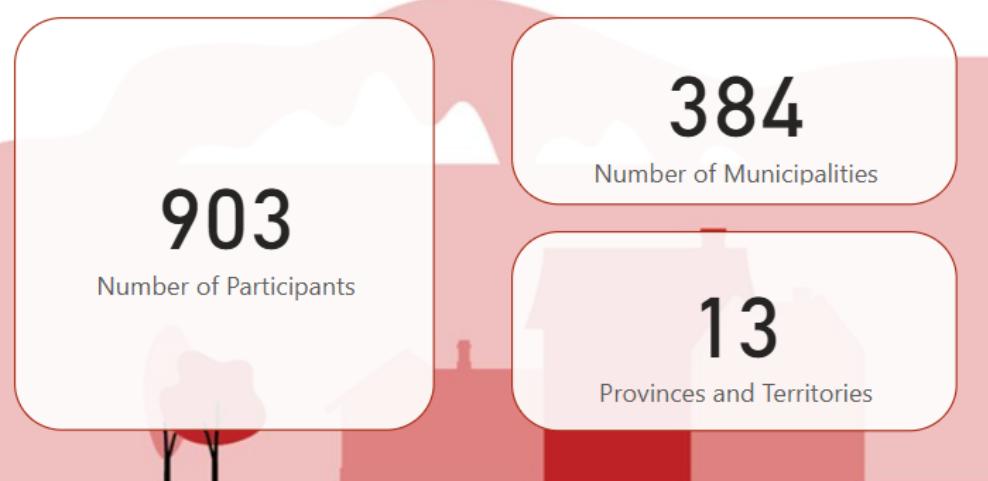
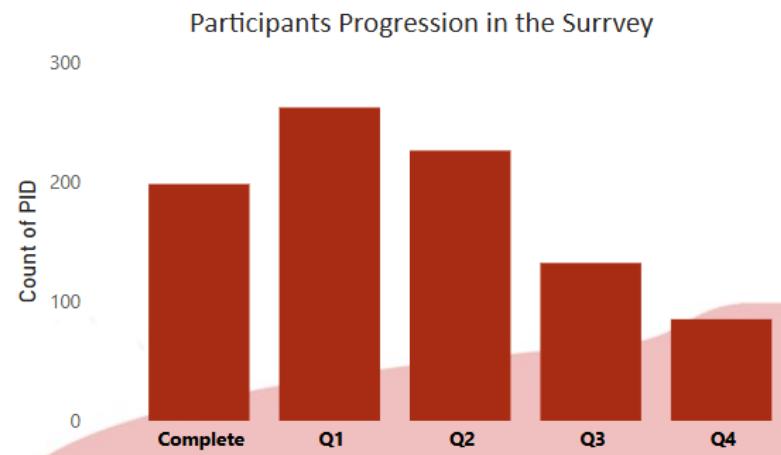
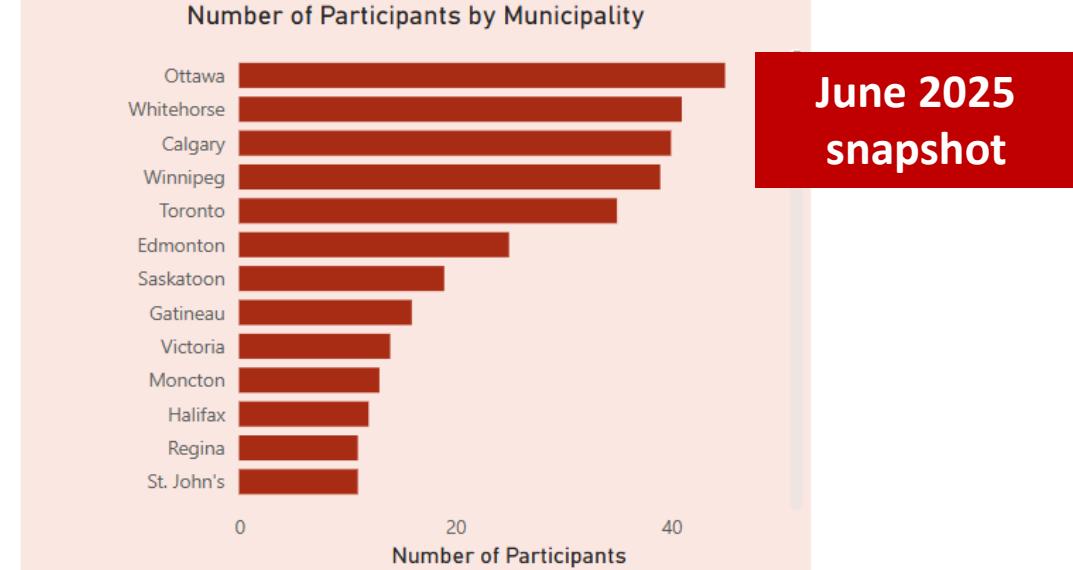
Research Support

Seasonal Variation Survey Participant Overview

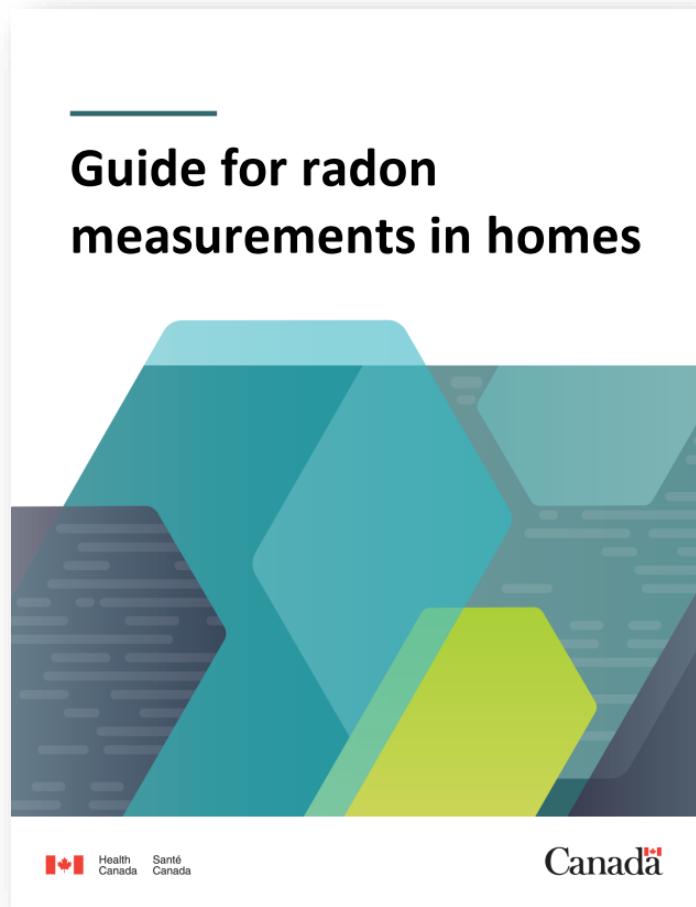


Province

- AB
- BC
- MB
- NB
- NL
- NS
- NT
- ON
- PE
- PEI
- QC
- SK



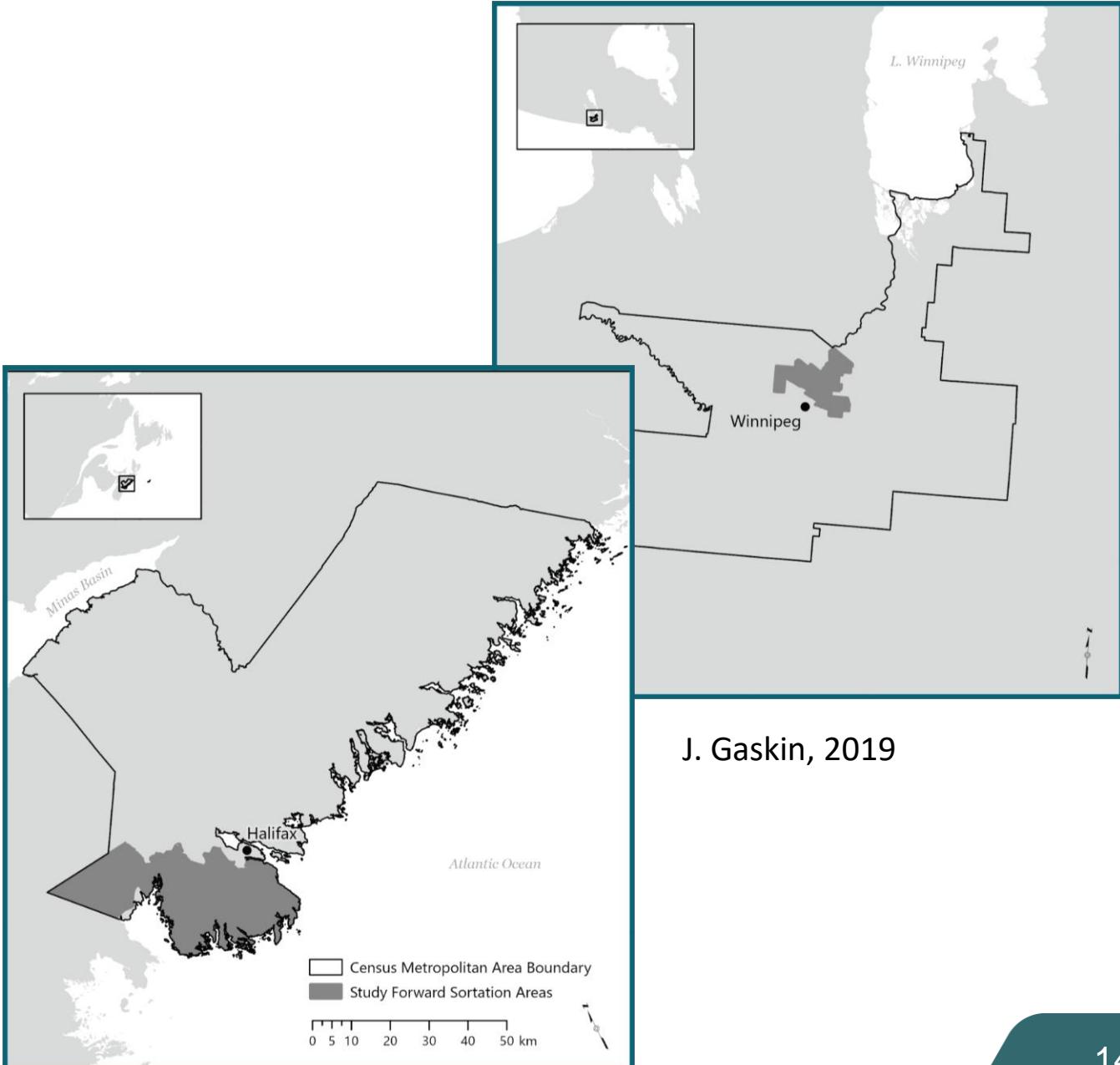
Research effects on guidance Measurement Guidance



- ◆ Reduce barriers, and increase accessibility
- ◆ 2024 – simplified the guidance on time frames, approved ERMS
- ◆ Next is determining effects of seasonality to determine if testing can occur year round

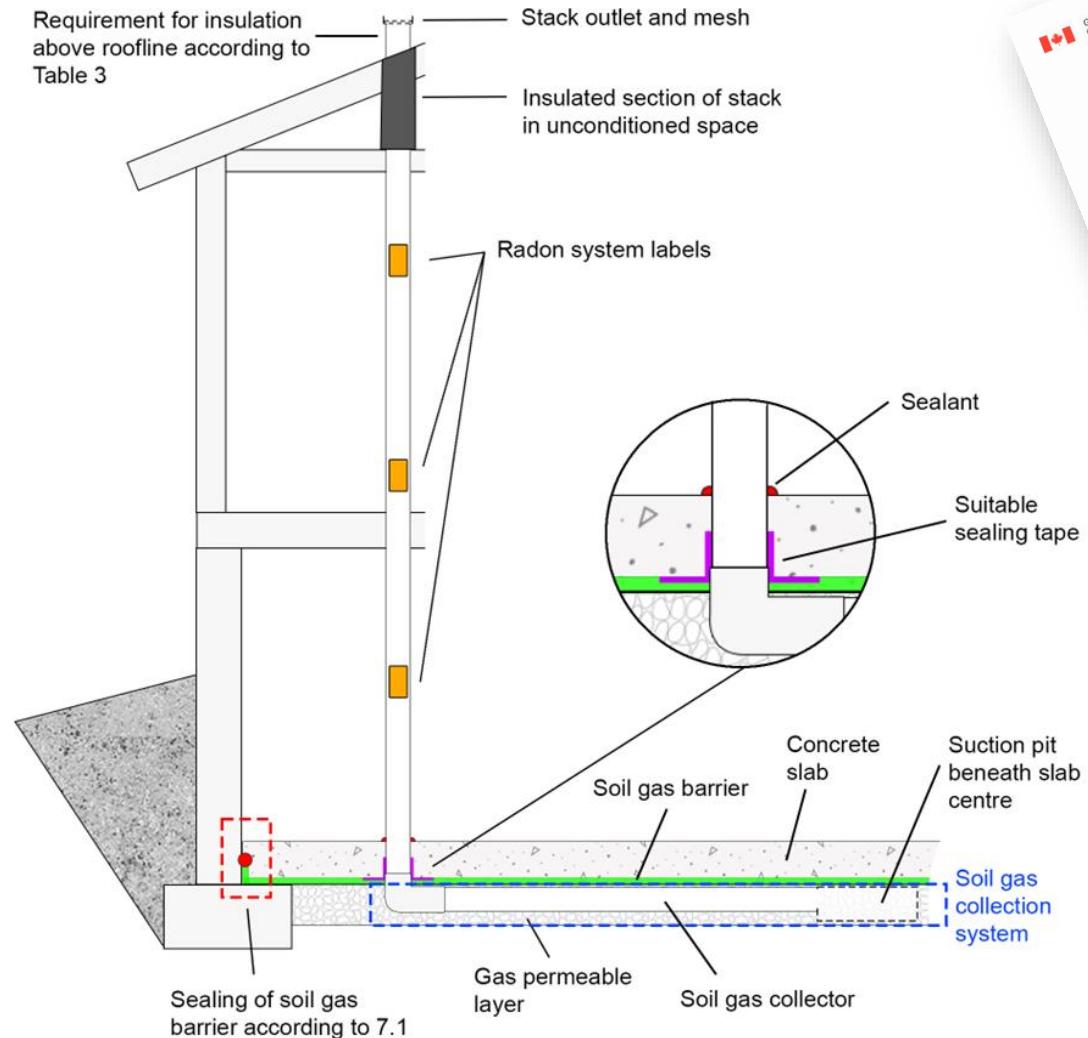
Research effects on guidance National Building Code

- Study conducted in Winnipeg and Halifax
- Done to test the efficacy of a radon impermeable barrier and rough in
- No difference between the two groups in Winnipeg, In Halifax the **newer builds had higher radon**
- Meaningful evidence for changing the national building code.



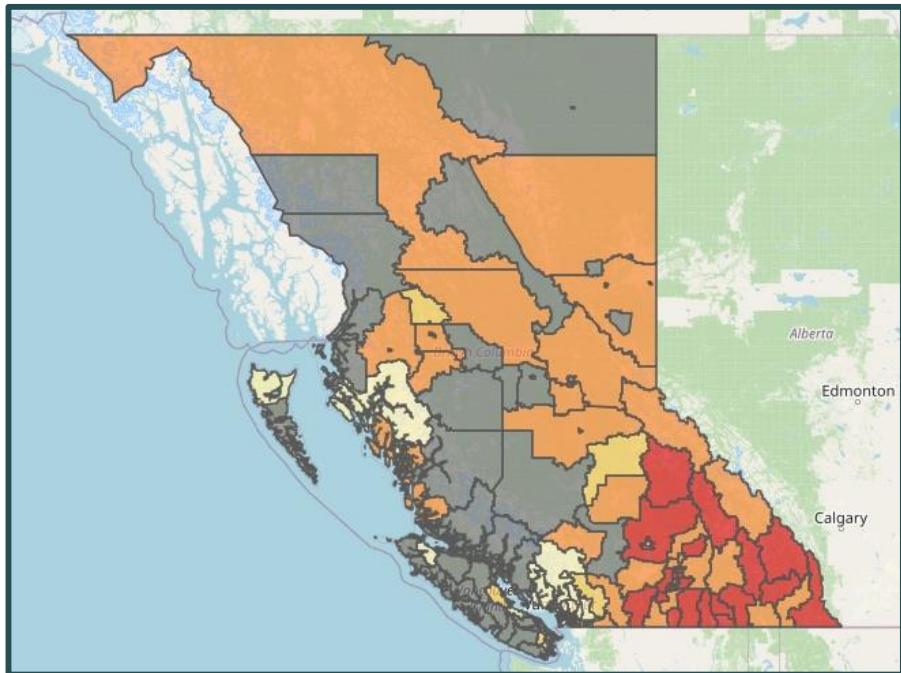
Research effects on guidance National Building Code

- Passive stack technical requirements from CGSB 149.11 included in proposed change to National Building Code (NBC) for 2025 (PCF 1713)
- Inclusion of passive stack in 2025 NBC awaiting approval

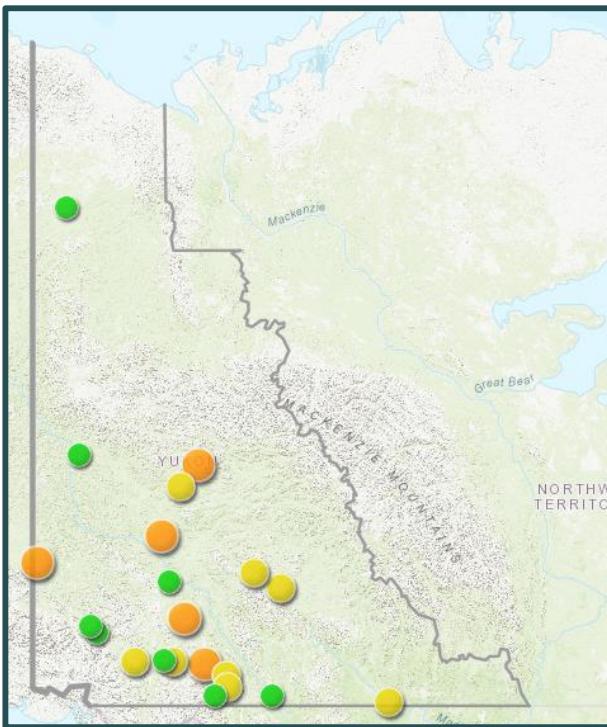


Database & Mapping

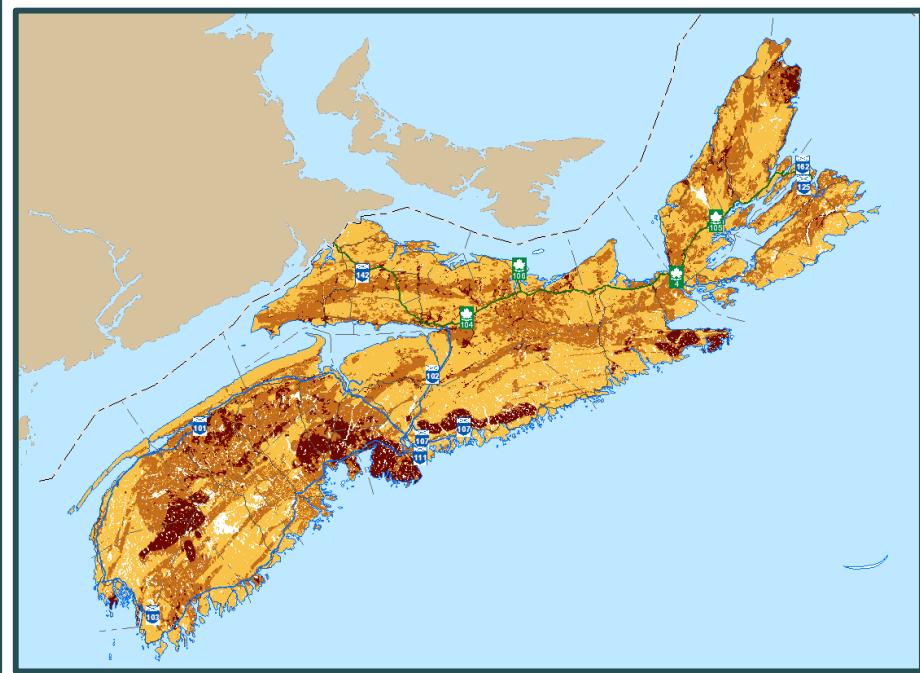
Working with provinces



British Columbia,
[BC Provincial Health
Services Authority](#)



Yukon,
[Yukon Government](#)



Nova Scotia,
[NS Dept. Natural
Resources & Renewables](#)

