

# **Groundwater Governance and Policy in Canada**

## Taking Stock, Looking Forward

June 11, 2025  
National Dialogue on  
Groundwater



**THE  
GORDON  
FOUNDATION**

Contact: Dustin Garrick  
[Dustin.Garrick@uwaterloo.ca](mailto:Dustin.Garrick@uwaterloo.ca)  
[www.bluerangelabs.org](http://www.bluerangelabs.org)

**BLUE RANGE LABS**  
UNIVERSITY OF  
**WATERLOO** | FACULTY OF ENVIRONMENT  


# Agenda

1. Team
2. Motivation
3. Issue briefs
4. Landscape study
5. Timeline
6. Collaboration opportunities
7. Q&A

Photo Credits (Left, Right): Dustin Garrick, Paul Ekwar



Belwood, Ontario  
(June, 2025)  
Haldimand Tract



Lodwar, Kenya  
Moi Gardens  
Borehole 1a (2021)

# Team

## BLUE RANGE LABS



UNIVERSITY OF  
**WATERLOO**

FACULTY OF  
ENVIRONMENT

Dr. Dustin Garrick (team lead)  
[dustin.garrick@uwaterloo.ca](mailto:dustin.garrick@uwaterloo.ca)



Dr. Sophie Bhalla,  
Case Studies



Isabel Jorgensen,  
Data Science

*The Gordon Foundation provides funding support for this study. The study is not formally affiliated with the University of Waterloo, although it draws on the wider research program and capacity across Dr. Garrick's lab.*

Advocacy and policy  
engagement committee,  
represented by:



International Association of  
**Hydrogeologists**  
Canadian National Chapter



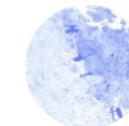
Mike Wei



Jonathan Keizer



Aislin Livingstone



**Shapiro & Co.**  
ENVIRONMENTAL CONSULTING



Alan Shapiro

# Motivation

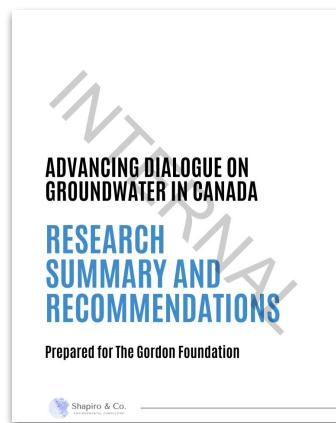
Shapiro review (2025)

Lack of “comprehensive”  
understanding

GW Invisible

GW Undervalued

Economic benefits ≠  
quantified



International Association of  
Hydrogeologists  
Canadian National Chapter



Association internationale des  
hydrogéologues  
Section nationale canadienne

Groundwater is critical to effective freshwater management in Canada

Once in a generation opportunity?

- Development of Canadian Water Agency
- Renewal of Canada Water Act
- New government, relationships
- Structural changes for trade, economy

A multi-pronged response

1. **Coalition building:** Gordon support to IAH-CNC policy engagement
2. **Issue briefs:** Why groundwater matters for Canada's future
3. **Landscape study:** How is groundwater managed & recommendations

# Not a new challenge

Media coverage since 1995

Walkerton 2000

Listen to Article | Translate Article | Share

## THE GLOBE AND MAIL\*

National News

**Water tragedy could happen again, MD says**  
Walkerton contamination traced to manure  
from farm near well supplying community

RICHARD MACKIE

Sources: Bruce-Grey-Owen Sound Health Unit

891 words

11 October 2000

The Globe and Mail

GLOB

Metro

A9

English

All material copyright Thomson Canada Limited or its licensors. All rights reserved.

## DOW JONES FACTIVA

Factiva search: April 29th 2025

("Groundwater" (Canada) January 1st 1995 to present, excluding corporate news)

**Selected headlines were chosen on ad hoc basis: illustrative, not indicative.**

2011+ Oil Sands, Fracking



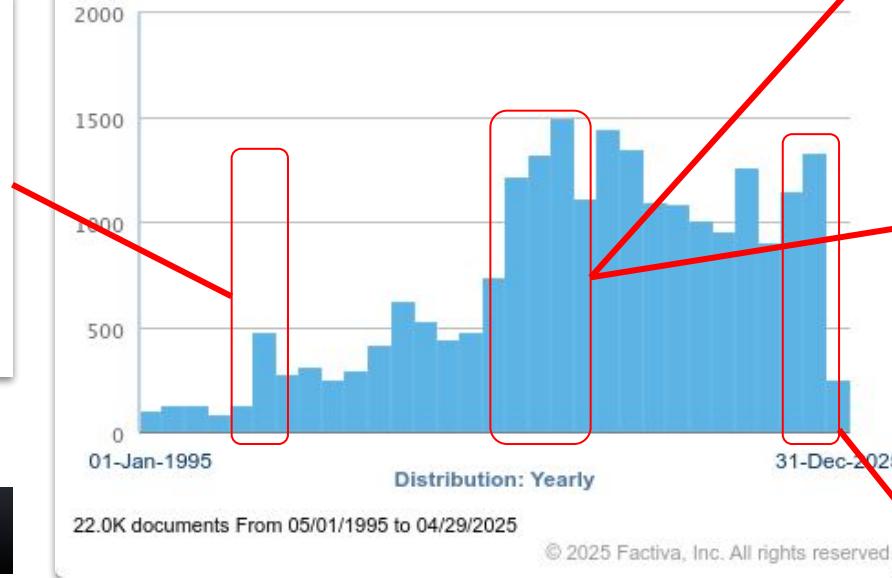
Report warns of oilsands impacts on groundwater

Karen Kleiss

Edmonton Journal

577 words

## Document Distribution By Date



2013+ Nestle, Licencing



Oliver Brandes and Tim Morris  
Issues & Ideas

**B.C.'s water problems bigger than Nestlé;**  
**The great groundwater giveaway has been**  
**happening for more than century and it is**  
**time to set clear rules**

Oliver Brandes, Tim Morris

Oliver Brandes and Tim Morris

Vancouver Sun

890 words

23 August 2013

Vancouver Sun

Today: potpourri of issues, inc. growth

News  
**Unwelcome water is raising house prices:**  
**Yukon Party**

Whitehorse Star

757 words

26 April 2024

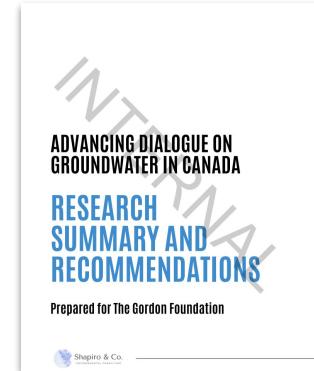
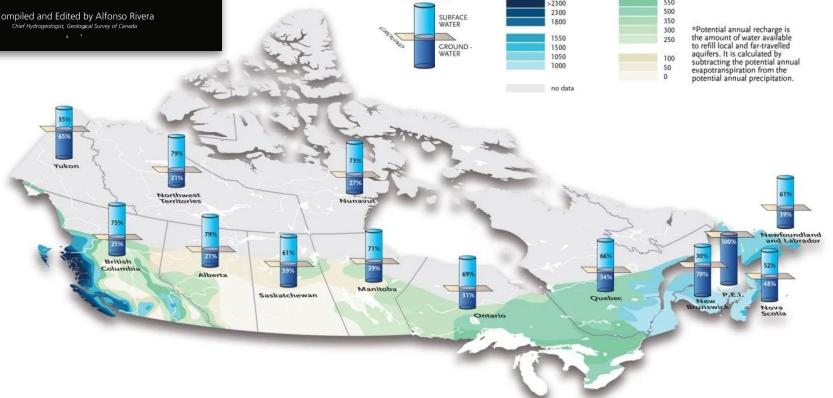
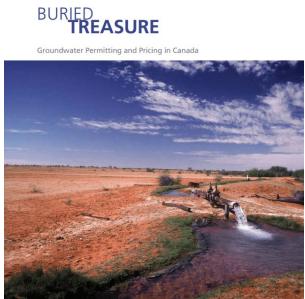
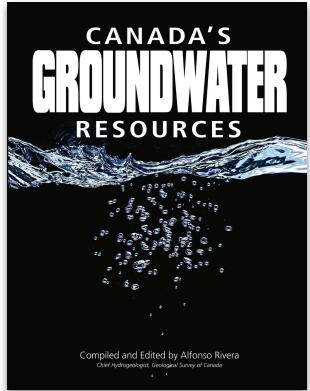
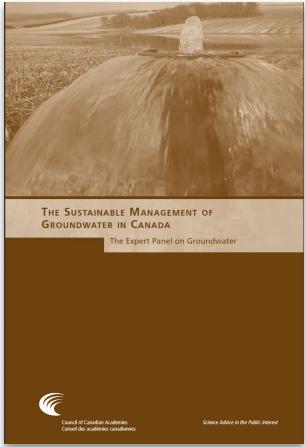
The Whitehorse Daily Star Online

CSUW/HW

English

All material copyright Whitehorse Star or its licensors. All rights reserved.

# Building on the past



# Issue briefs

## Why Groundwater Matters for Canada's Future

### Focus

Canada's Hidden Wealth



<http://documents.worldbank.org/curated/en/099145503202323072>

### Approach

Approximately four (4) issue briefings including:

1. **Canada's Hidden Wealth:** The importance of groundwater for Canada's wellbeing
2. **Groundwater and growth in housing policy**
3. **Groundwater and energy policy**
4. **Groundwater and agriculture/trade policy**

### Audience(s)

Policy and thought leaders across First Nations, ministries, business associations



**Mark Carney's Liberals to protect Canada's Nature, Biodiversity, and Water**

→ integrating water security into Canada's trade and diplomatic priorities;

**Enshrine First Nations' right to water into law.**

Anchored by an (info)graphic or data visualization

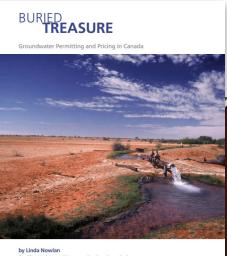
A pan-Canadian map illustrating the economic, cultural, and environmental importance of groundwater

# Landscape study

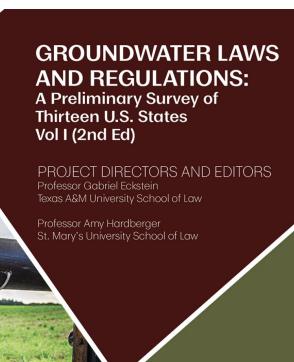
## How GW is managed across Canada

### Focus

A pan-Canadian comparison



Nowlan et al., 2005



An example from the US

(supervised by Eckstein and Hardberger, 2018)

### Approach

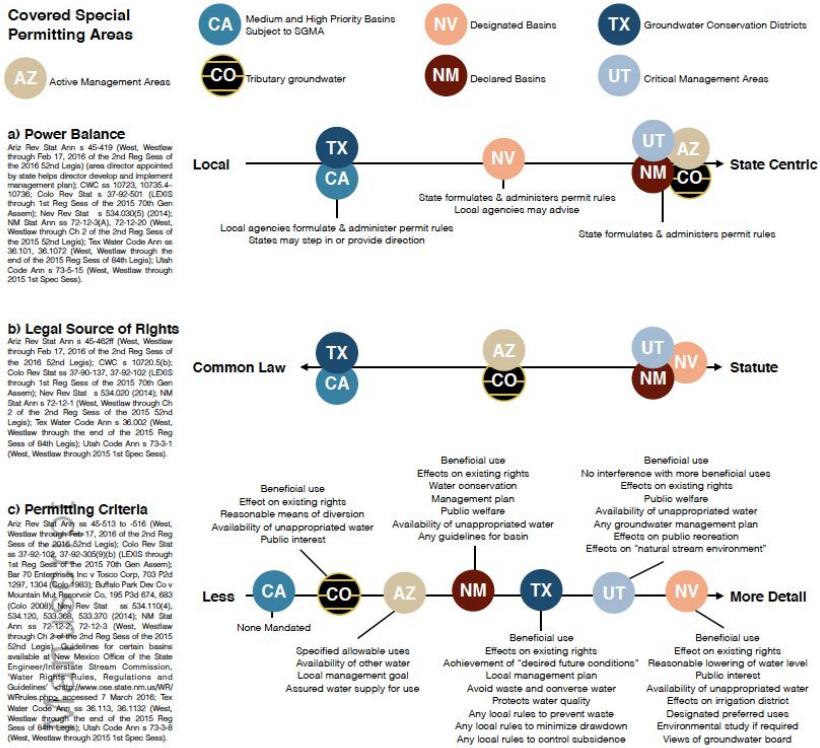
1. Examine how the thirteen provinces and territories manage groundwater
2. Map existing federal roles and trace key changes with a focus on the past 15 years
3. Identify ways groundwater management can contribute to the fulfillment of the UN Declaration on the Rights of Indigenous Peoples
4. Identify knowledge and coordination gaps
5. Make recommendations for addressing these gaps, including potential complementary federal roles for guidelines, monitoring, funding, and capacity building

# Landscape study

## Examine groundwater governance across 13 provinces and territories

1. Characterize approaches to allocating groundwater, monitoring, and management
2. Identify distinct models, e.g. sharing a similar legal doctrine or common approaches to key management functions
3. Discover innovations in fulfilling UNDRIP and regional approaches (e.g. watersheds, municipalities, agricultural and other sectors)
4. Draw lessons about implementation capacity and gaps
5. Share practitioner perspectives on knowledge and coordination gaps

Nelson, R. L. & Perrone, D. (2016). Local Groundwater Withdrawal Permitting Laws in the South-Western US: California in Comparative Context. *Groundwater*, 54 (6), pp.747-753.  
<https://doi.org/10.1111/gwat.12469>



An example from the Southwest USA

# Landscape study

## Examine groundwater governance across 13 provinces and territories

### Methods

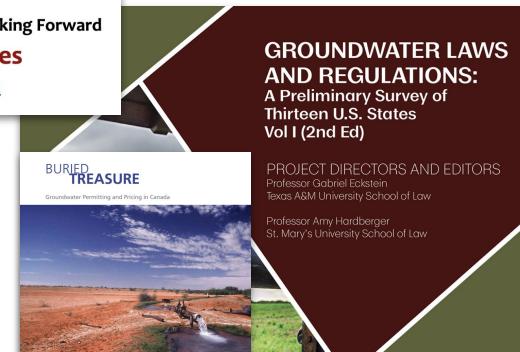
- Synthesize public information
- Rely on expert knowledge (worksheets)
- Conduct rapid review

### Who completes the worksheets

- Experts from the IAH-CNC committee
- Practitioners across the NDGW
- **Core response window:** July and August 2025, with a buffer into early September

Worksheet, adapted from *Buried Treasure* (Nowlan 2005), and the survey of 13 states in the US (supervised by Eckstein and Hardberger, 2018)

Groundwater Governance and Policy in Canada: Taking Stock, Looking Forward  
**Worksheet for Provinces and Territories**  
Contact: Dustin Garrick, [dustin.garrick@uwaterloo.ca](mailto:dustin.garrick@uwaterloo.ca)



**GROUNDWATER LAWS AND REGULATIONS:**  
A Preliminary Survey of Thirteen U.S. States Vol I (2nd Ed)

PROJECT DIRECTORS AND EDITORS  
Professor Gabriel Eckstein  
Texas A&M University School of Law

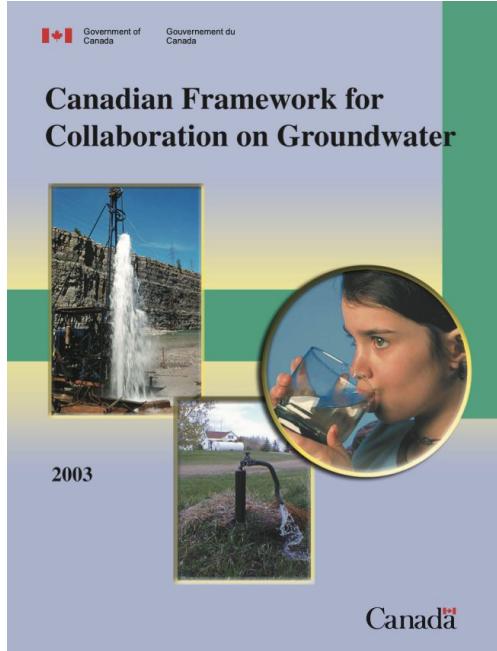
Professor Amy Hardberger  
St. Mary's University School of Law

### Worksheet

- [1. Your role in groundwater management](#)
- [2. Jurisdiction and definitions](#)
- [3. Groundwater Use and Allocation](#)
- [4. Groundwater Quality](#)
- [5. Groundwater Monitoring](#)
- [6. Groundwater Financing and Fees](#)
- [7. Transboundary Agreements](#)
- [8. Fulfillment of the UN Declaration on the Rights of Indigenous Peoples](#)
- [9. Other Laws](#)
- [10. Innovations, Capacity, and Gaps](#)

# Landscape study

## Mapping federal roles and opportunities



**Focus on roles that respect and complement provincial and territorial jurisdiction**

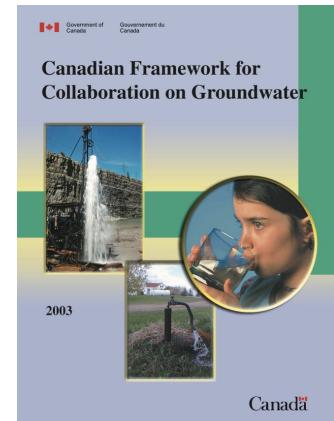
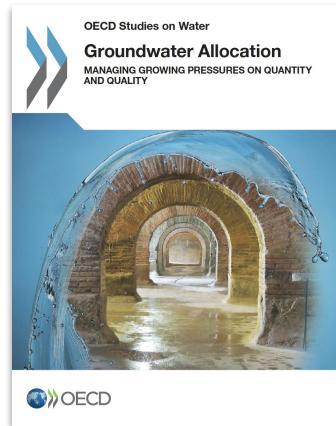
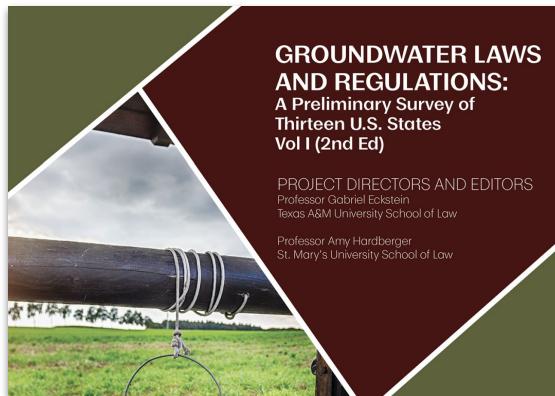
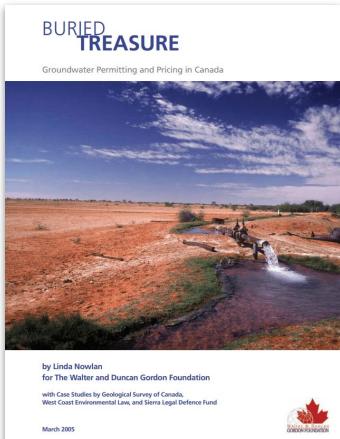
1. Explore how groundwater intersects with different agency mandates, and the mandate letter released in May 2025
2. Understand each agency's existing and historic roles in groundwater management, including the legal and regulatory basis for that role
3. Identify the role of agencies in different functions, such as developing frameworks and guidelines, information and monitoring (including groundwater studies), and providing funding
4. Learn agency perspectives on opportunities and concerns related to existing and future roles in groundwater management

# Landscape study Contributions and recommendations

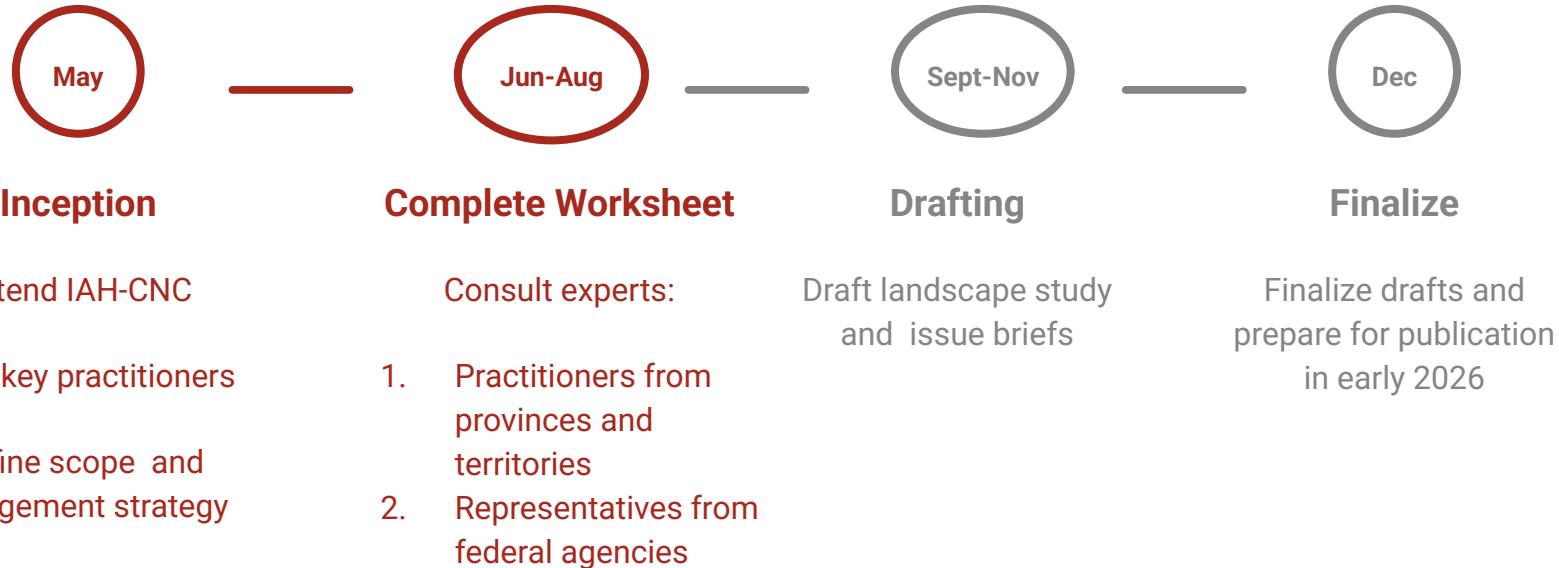
Updating past  
studies

Comparing governance approaches,  
capacity, and gaps

Recommendations



# Process



# Ways to Collaborate

Please tell us how this study can add value for your work

Help to complete the worksheet for your jurisdiction

Let us know if you want to discuss this study

Any other ideas?

# Appel à participation

## Gouvernance et politique des eaux souterraines au Canada

La Gordon Foundation prépare un rapport sur la gouvernance et le paysage politique des eaux souterraines au Canada, provisoirement intitulé *Gouvernance et politique des eaux souterraines au Canada : faire le point, regarder vers l'avenir*. Ce rapport porte principalement sur la répartition et l'utilisation des eaux souterraines (y compris les incidences de l'utilisation des eaux souterraines sur la qualité de l'eau et la protection des sources d'approvisionnement en eau potable des communautés). Un sommaire détaillé des motivations et des objectifs du rapport est fourni dans la [présentation des diapositives ici](#) et un [bref résumé est disponible ici](#). Le rapport synthétisera les informations publiques et les contributions d'un groupe diversifié de praticiens et praticiennes des eaux souterraines. Toutes questions au sujet du rapport peuvent être adressées à Dr Dustin Garrick ([dustin.garrick@uwaterloo.ca](mailto:dustin.garrick@uwaterloo.ca), responsable de l'étude) ou à Aislin Livingstone ([aislin@datastream.org](mailto:aislin@datastream.org), Gordon Foundation). N'hésitez pas à diffuser cet appel à contribution dans vos réseaux, y compris auprès des partenaires des nations autochtones.

Pour participer : [Sign up to be a contributor or learn more here](#) avant le 31 Juillet

# Call for participation

## Groundwater Governance and Policy in Canada

The Gordon Foundation is preparing a report on the groundwater governance and policy landscape in Canada provisionally entitled, *Groundwater Governance and Policy in Canada: Taking Stock, Looking Forward*. The primary focus of this report is the allocation and use of groundwater (including the impacts of groundwater use on water quality and source water protection for community drinking water supplies). A detailed summary of the report's motivation and objectives is provided in the [slide overview provided here](#) and a [short abstract is here](#). The report will synthesize public information and inputs from a diverse group of groundwater practitioners. Questions about the report can be directed to Dr. Dustin Garrick ([dustin.garrick@uwaterloo.ca](mailto:dustin.garrick@uwaterloo.ca), study lead) or Aislin Livingstone ([aislin@datastream.org](mailto:aislin@datastream.org), Gordon Foundation). Please feel free to share this call for contributors across your networks, including partners from Indigenous Nations.

To participate : [Sign up to be a contributor or learn more here by July 31st](#)

# Contact

Dustin Garrick

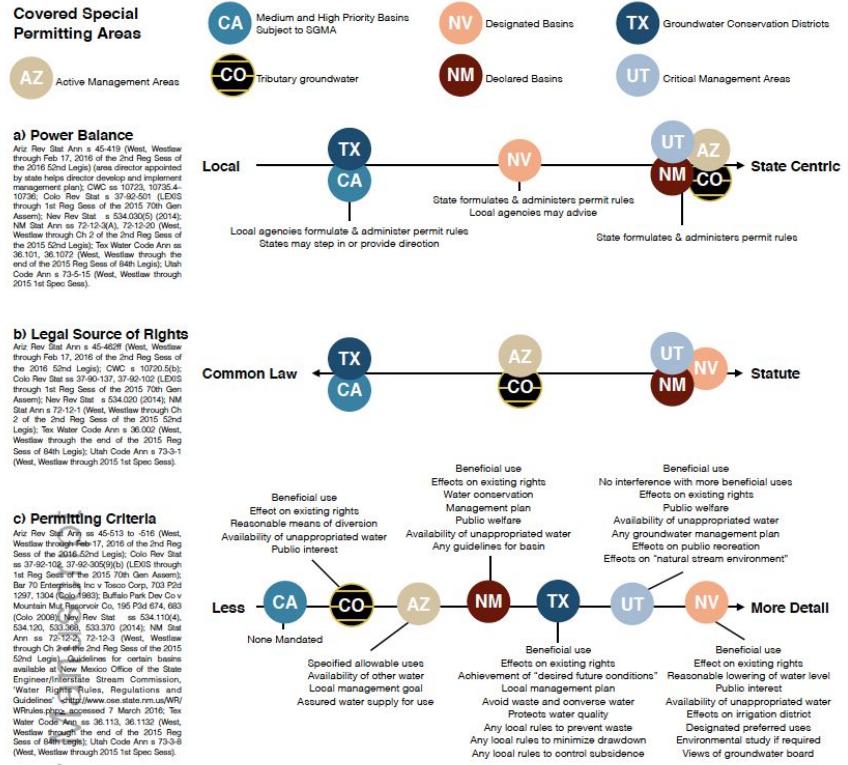
[Dustin.Garrick@uwaterloo.ca](mailto:Dustin.Garrick@uwaterloo.ca)

# Appendix

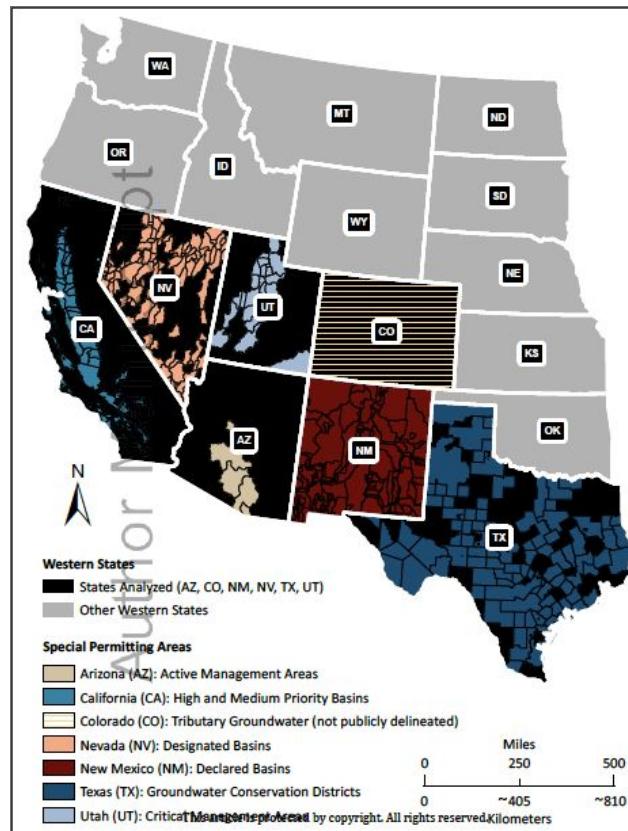
Selected excerpts from past studies

# Which models exist?

# Understanding variation



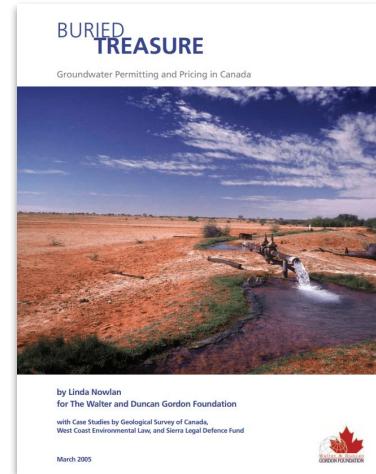
Nelson, R. L. & Perrone, D. (2016). Local Groundwater Withdrawal Permitting Laws in the South-Western US: California in Comparative Context. *Groundwater*, 54 (6), pp.747-753. <https://doi.org/10.1111/gwat.12469>



# Buried treasure, a baseline

Table 9: Length of groundwater permits

Jurisdiction	Length of permit
BC	No permits issued for groundwater
AB	Variable: 1, 2, 10, or 25 years depending on purpose; also historic licences in perpetuity <sup>i</sup>
SK	Variable, from 5 years to in perpetuity <sup>ii</sup>
MB	Up to 20 years <sup>iii</sup>
ON	Varies, 2-10 years depending on purpose and environmental conditions <sup>iv</sup>
QC	10 years <sup>v</sup>
NB	Approvals are issued in perpetuity
NS	Not to exceed 10 years <sup>vi</sup>
PEI	Usually open-ended, exploration permits 1 year <sup>vii</sup>
NL	5–10 years depending on the source of the water
YK	Up to 25 years <sup>viii</sup>
NWT	Maximum licence term is 25 years <sup>ix</sup>
NUN	Maximum licence term is 25 years



# Health check

## Box 2.1. OECD Health Check for Water Resources Allocation

**Check 1.** Are there accountability mechanisms in place for the management of groundwater allocation that are effective at the aquifer or other relevant scale?

**Check 2.** Is there a clear legal status for all water resources (surface and groundwater, as well as alternative sources of supply)?

**Check 3.** Is the availability of water resources (surface and groundwater, as well as alternative sources of supply) and possible scarcity well-understood?

**Check 4.** Is there an abstraction limit ("cap") that reflects in situ requirements and sustainable use?

**Check 5.** Is there an effective approach to enable efficient and fair management of the risk of shortage that ensures water for essential uses?

**Check 6.** Are there adequate arrangements in place for dealing with exceptional circumstances (such as a drought or severe pollution events)?

**Check 7.** Is there a process for dealing with new entrants and for increasing or varying existing entitlements?

**Check 8.** Are there effective mechanisms for monitoring and enforcement, with clear and legally robust sanctions?

**Check 9.** Are water infrastructures in place in order for the allocation regime to function effectively?

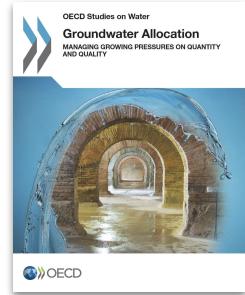
**Check 10.** Is there policy coherence across sectors that affect water resources allocation?

**Check 11.** Is there a clear legal definition of water entitlements?

**Check 12.** Are appropriate abstraction charges in place for all users that reflect the impact of the abstraction on resource availability for other users and the environment?

**Check 13.** Are obligations related to return flows and discharges properly specified and enforced?

**Check 14.** Does the system allow water users to reallocate water among themselves to improve the allocative efficiency of the regime?



## The OECD health check for water resources allocation: Groundwater guidance

This chapter sets out policy guidance for groundwater allocation. The guidance in this chapter should be used as a supplement to the OECD Health Check for Water Resources when assessing allocation arrangements of groundwater systems and in cases where surface and groundwater systems are managed conjunctively. The guidance in this chapter first reiterates some of the general principles that apply broadly to all allocation regimes, then describes how the specific features of groundwater can be considered.