Global perspective: Introducing the Transboundary Wetlands Database

Zoe Rosenblum (rosenblz@oregonstate.edu)
PhD Student, Geography
Oregon State University

3 Nov 2022
SWS PNW Conference

Research Themes

- *Managing transboundary water resources*
- *Balancing livelihoods with ecological preservation*
- *Preserving wetlands*

The Okavango Delta

- Where is the water?
- Who uses it?
- What laws apply to it?
- How is it managed?
- Why is this important?

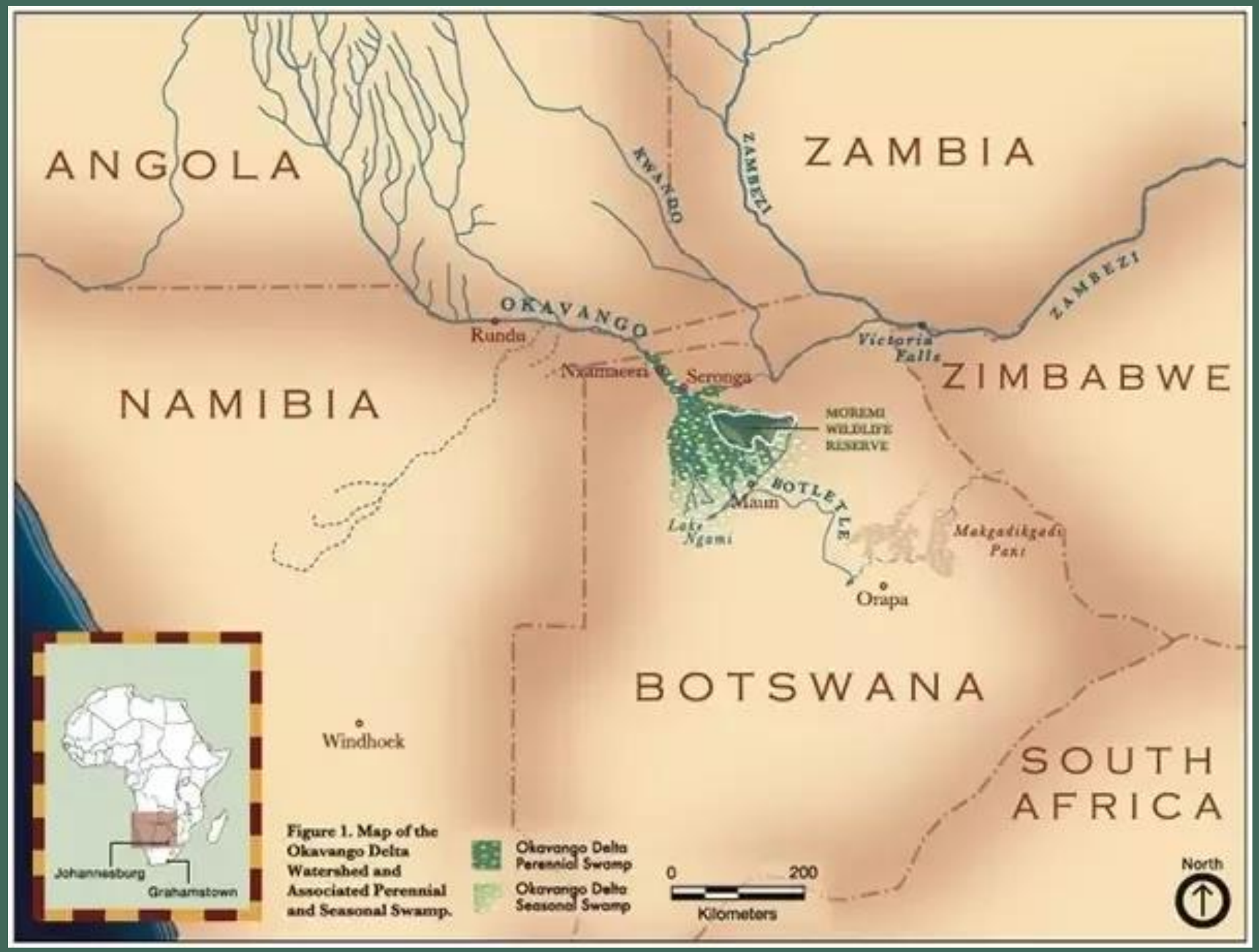


Figure 1. The Okavango Delta system.

The Okavango Delta

Basics

- Angola, Namibia, Botswana
- One of the least-developed rivers in Africa

Social

- 2nd largest source of income for Botswana

Ecological

- East African Rift – spreading + sediment deposition

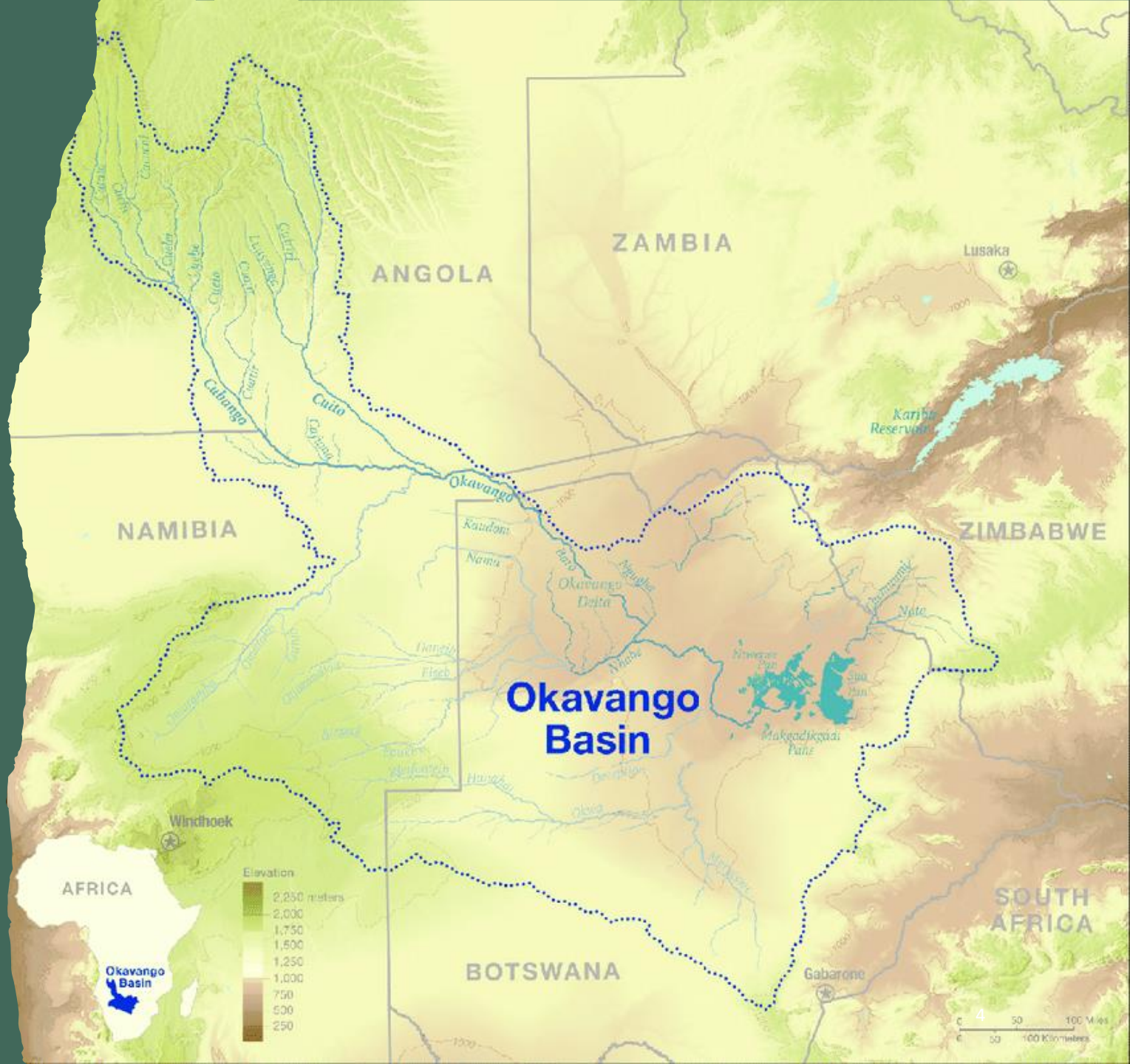


Figure 2. The Okavango River Basin.

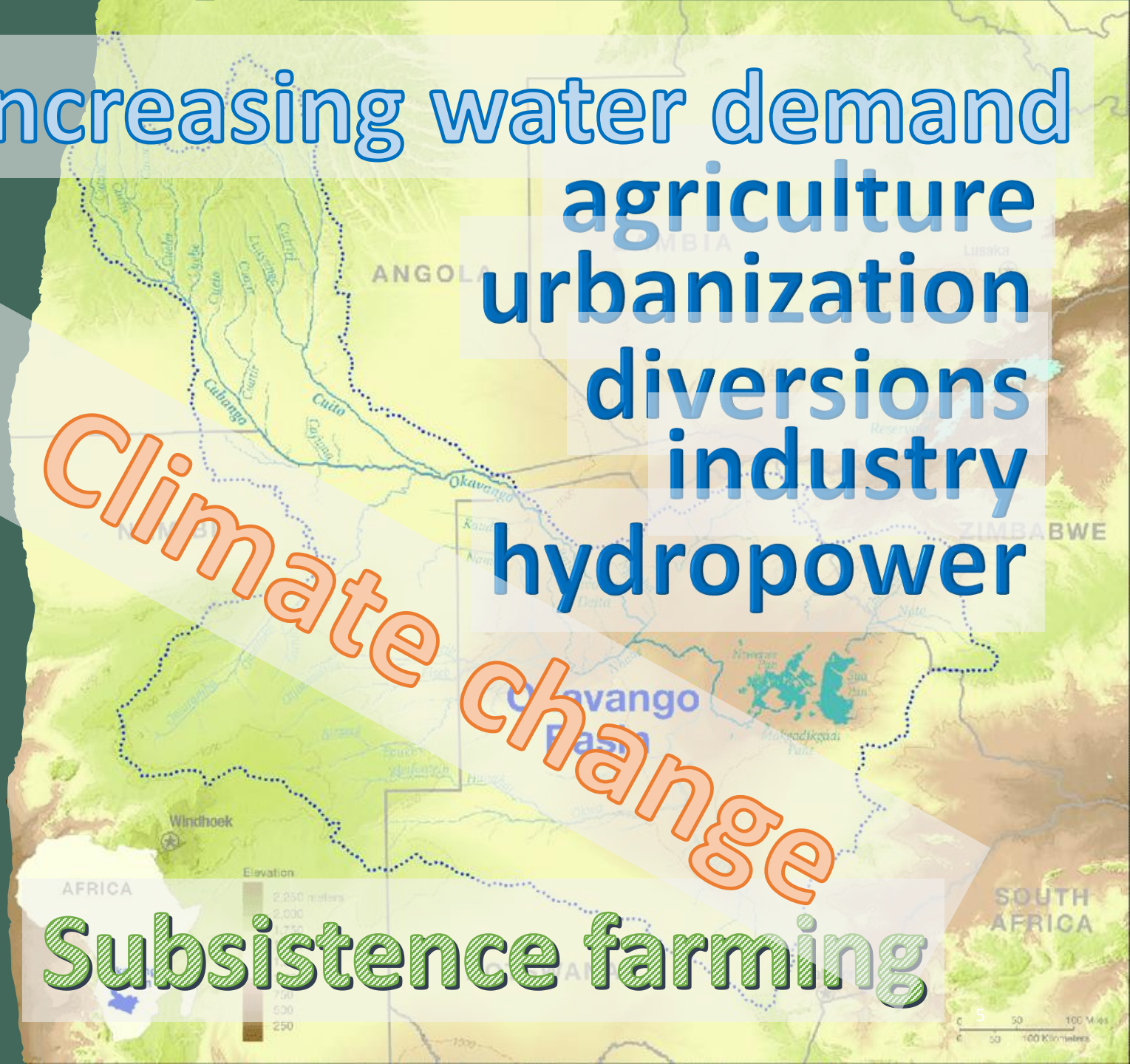
Competing Water Uses

Social

- Domestic water use
  - Angola dev; diversions
- Irrigation for agriculture
- Maintaining livelihoods

Ecological

- Minimum flows to sustain WLs
- Biotic connectivity source to sink
- Water temperature



The Okavango Delta: An International River Basin

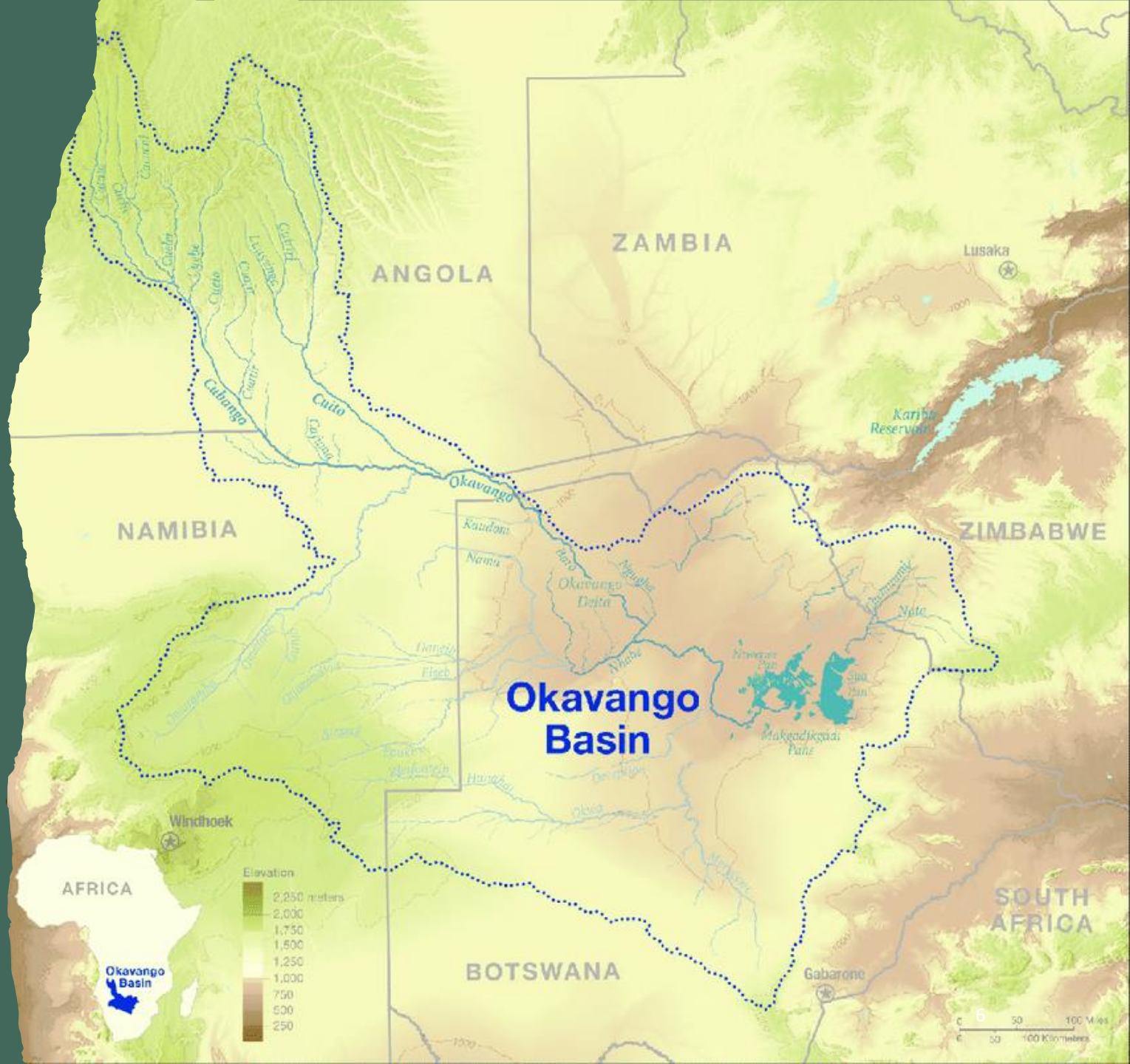
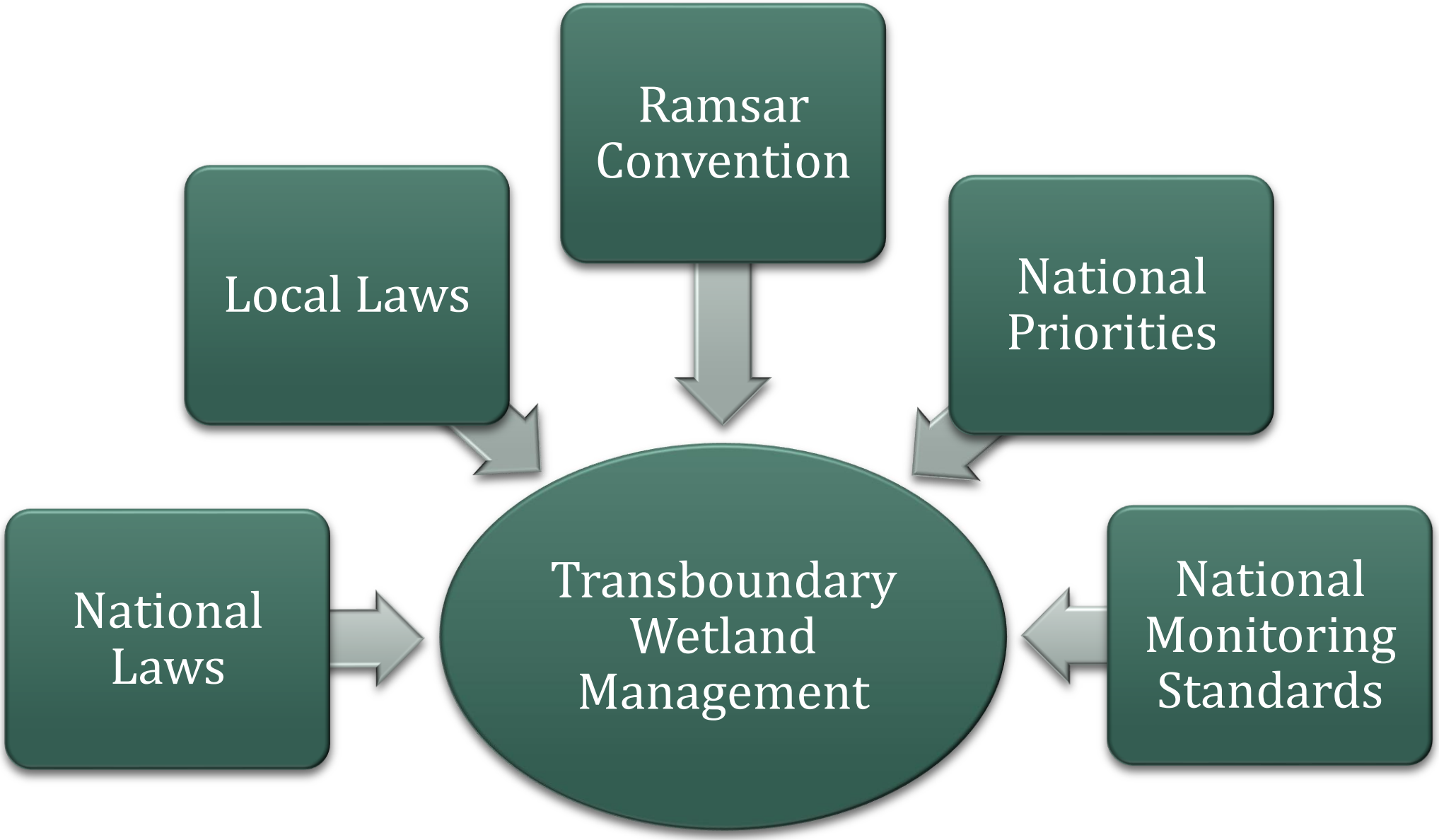


Figure 2. The Okavango River Basin.


Ramsar Convention
Local Laws
National Priorities
National Laws
Transboundary Wetland Management
National Monitoring Standards

Ramsar Convention

- Convention on Wetlands of International Importance especially as Waterfowl Habitat
- International Treaty with 171 contracting parties
- Individual Sites
- Transboundary Sites – "an ecologically coherent wetland extends across national borders and… authorities on both or all sides of the border have formally agreed to collaborate in its management, and have notified the Secretariat of this intent" *(Ramsar Manual, 2013)*
- 250 million hectares (15% of global wetlands) designated

Joint Management

- Formal institution: OKACOM
- Communication: Annual meeting
- Management: 2008 Okavango Delta Management Plan
- Data sharing: Improving

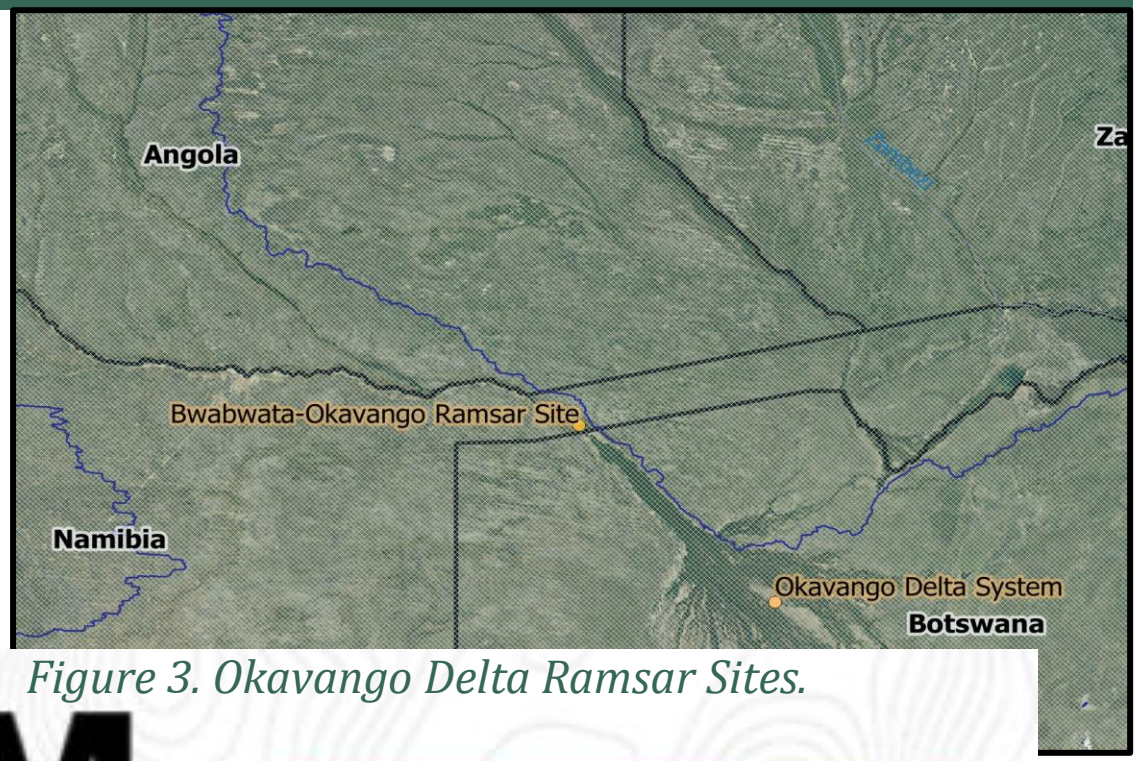


Figure 3. Okavango Delta Ramsar Sites.

OKACOM

The Permanent Okavango River Basin Water Commission

Comissão Permanente das Águas da Bacia Hidrográfica do Rio Okavango

Transboundary Waters: River Basins

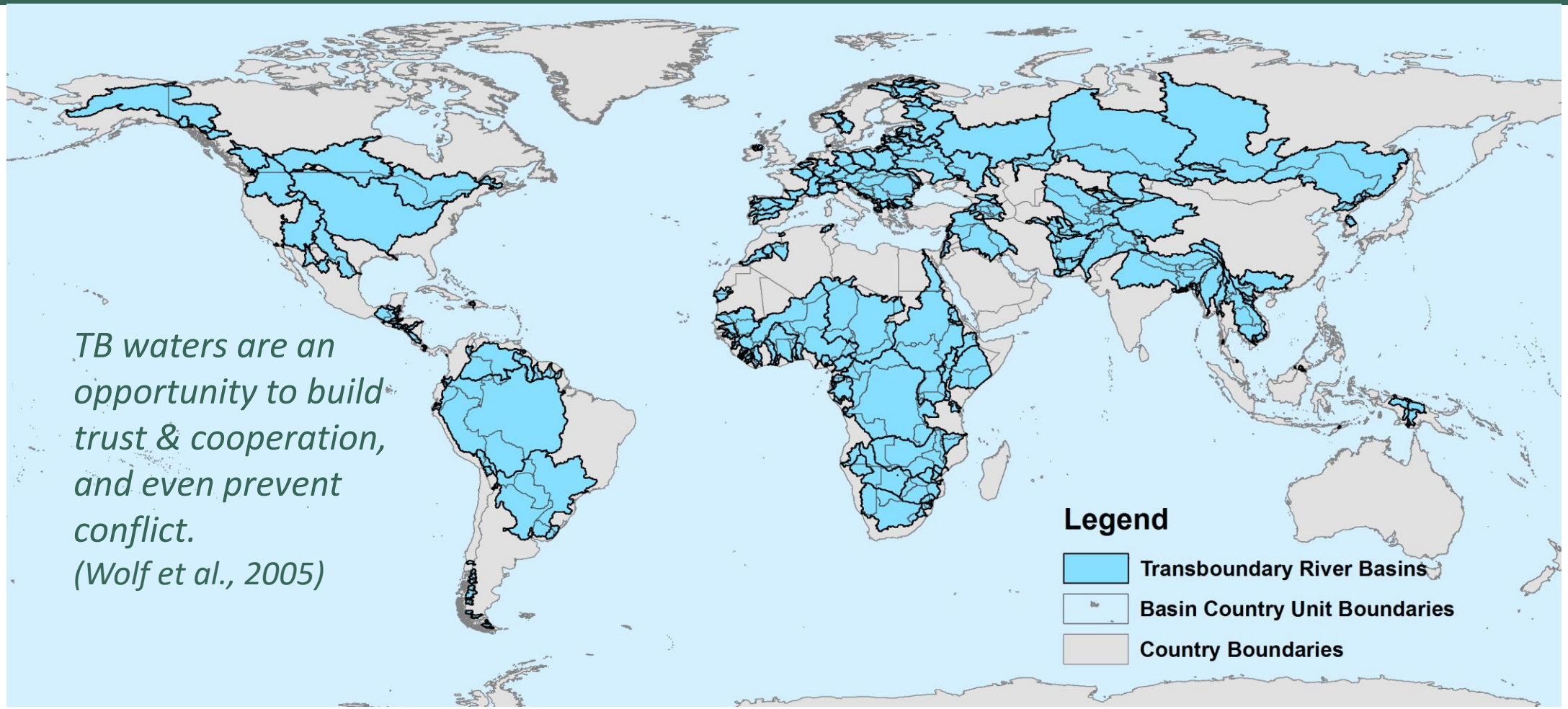


Figure 4. International River Basins (Transboundary Freshwater Diplomacy Database)

Transboundary Waters: Aquifers

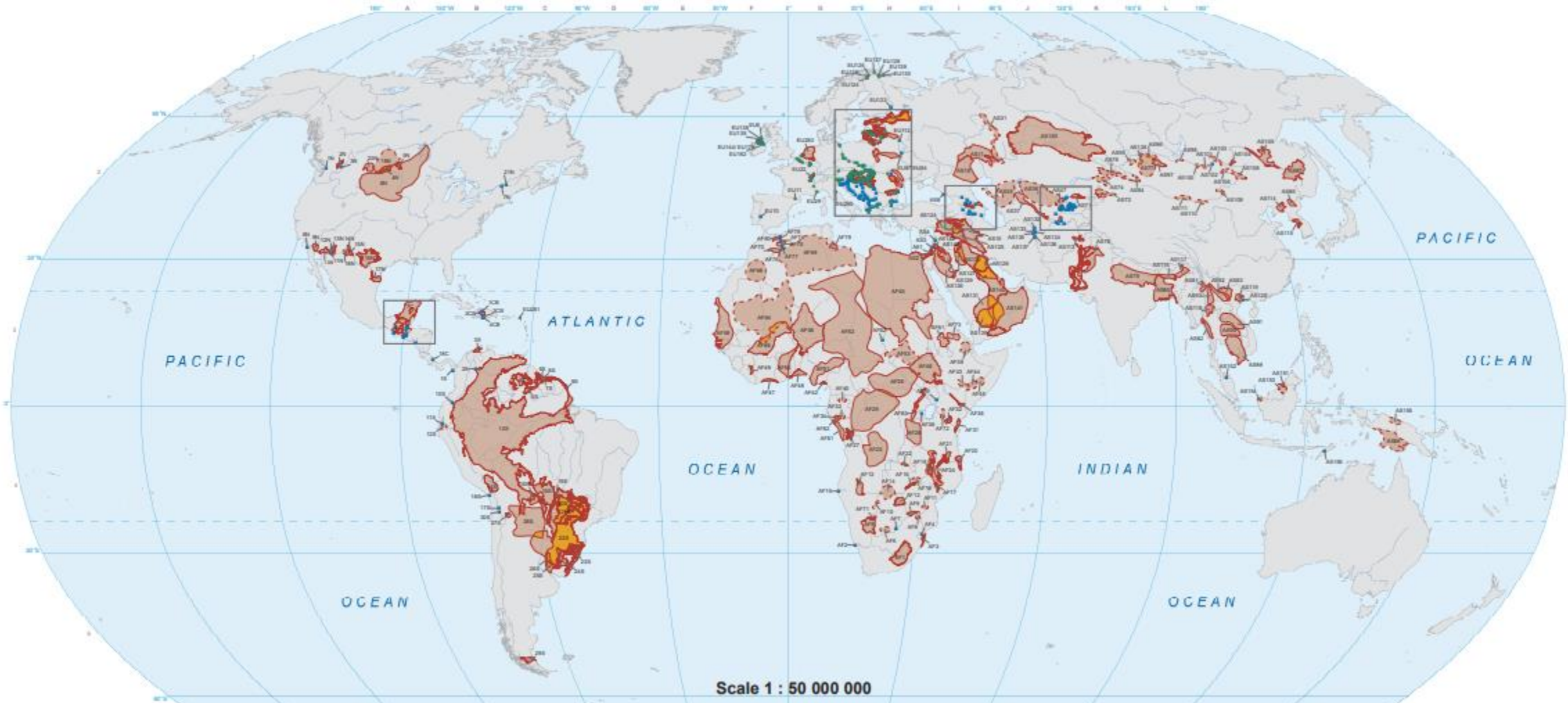


Figure 5. Transboundary Aquifers of the World. IGRAC, UNESCO-IHP (2015).

Transboundary Waters

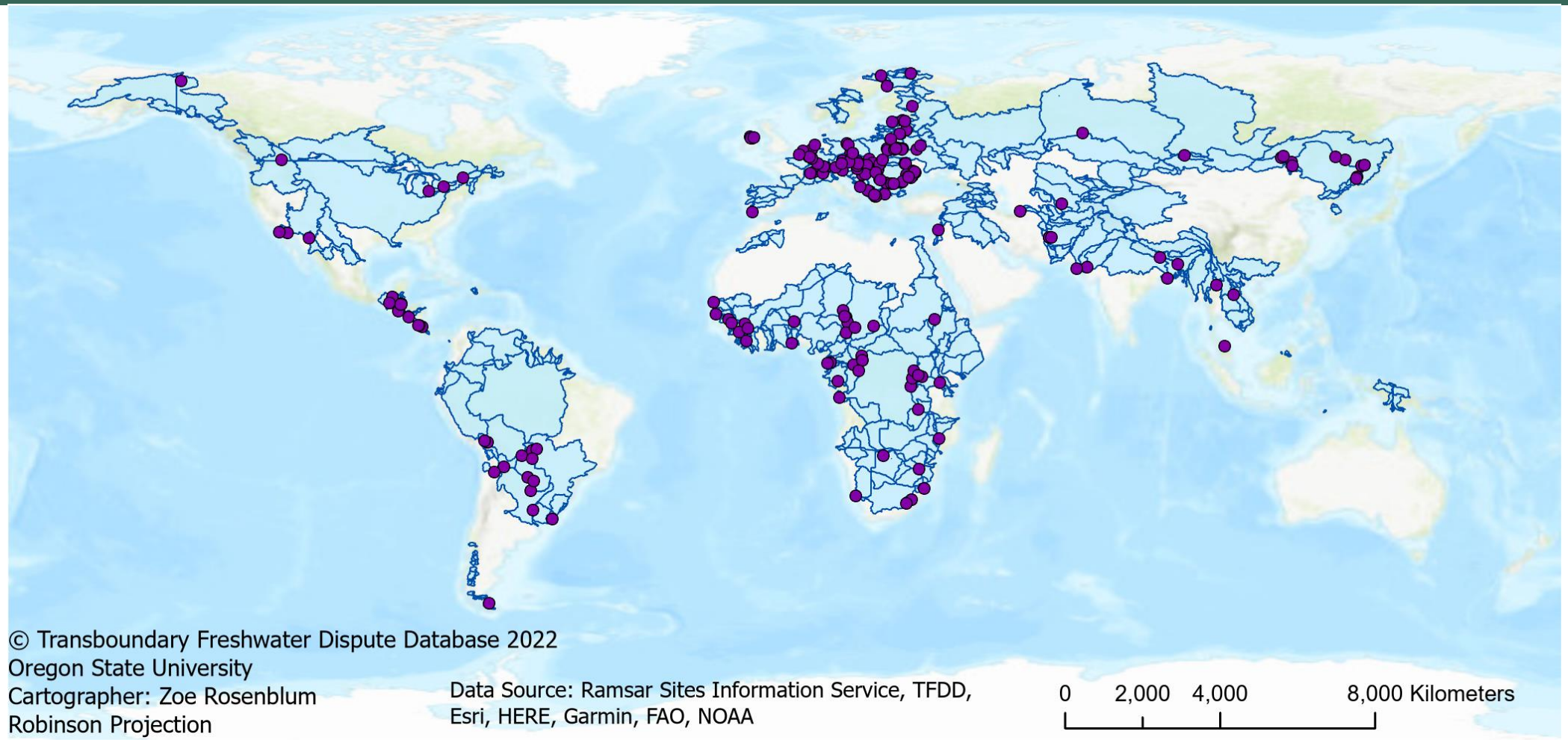


Figure 6. Ramsar Sites that extend across 2+ countries (purple points), international river basins (blue shading and outline).

Transboundary Wetlands

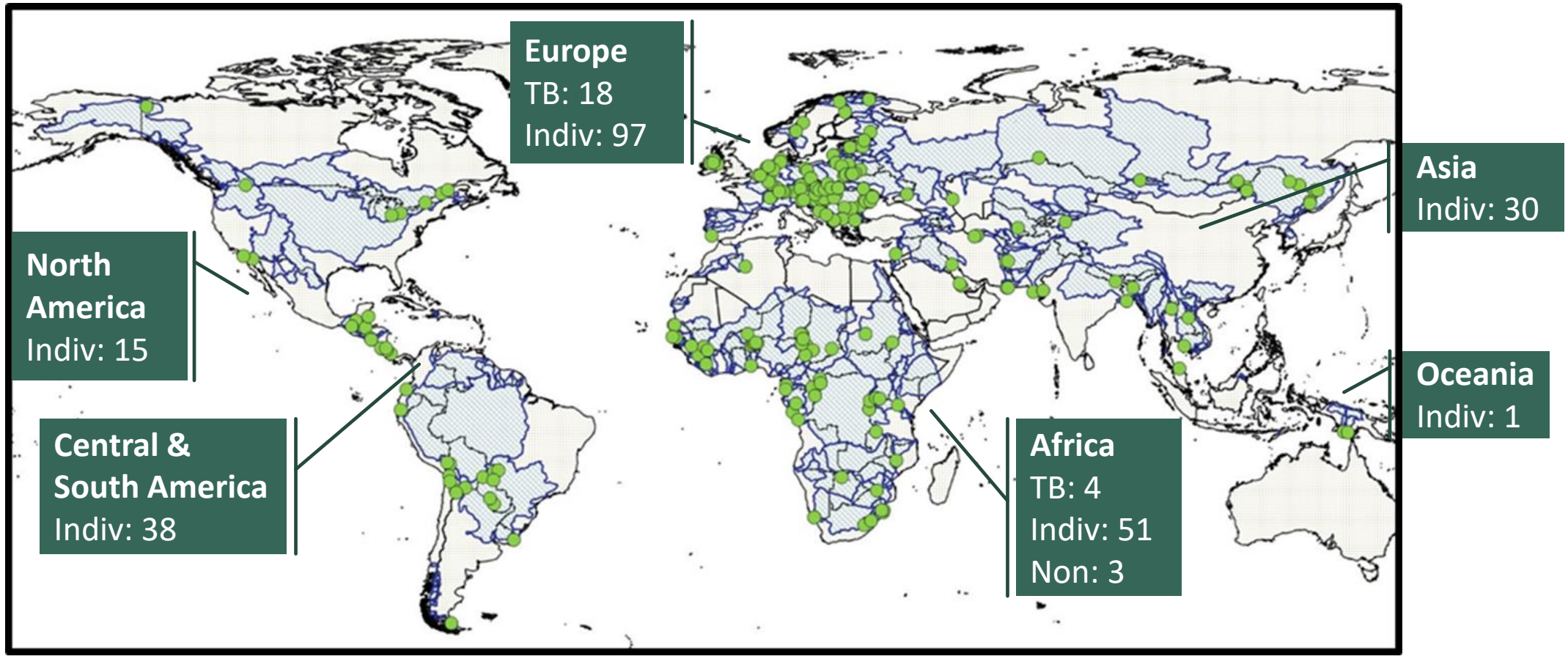


Figure 7. Map of transboundary river basins & Ramsar Sites (created is QGIS using map layers from the Ramsar Sites Information Service, Esri, TWAP, and Griffin, 2012).

Transboundary Wetlands Database

85% in IRB
70% with RBO

Category	None	Partial	Inclusive
Africa	11	2	45
Asia	16	0	14
Europe	29	18	68
Neotropics	19	0	19
North America	2	0	13
Oceania	1	0	0
Total	78	20	159

Figure 8. Table of details regarding transboundary wetlands in international river basins that have none, partial, or inclusive River Basin Organizations.

Wetlands

Cultural Value | Habitat | Food and Fuel | Aesthetic Value | Recreation | Biodiversity

Flood Protection | Carbon Sequestration | Water Purification | Local Climate Regulation

Wetlands are one of the most productive habitats on Earth

(Keddy, 2010)

Discussion

- *Managing transboundary water resources is complex*
- *The Ramsar Convention facilitates joint management*
  - *But, is it an underutilized tool? [171 parties, 22 TB sites)*
- *The Okavango is just one out of 300+ TBWLs*
- *Many US wetlands are also transboundary*

"Half the world's wetlands have been lost in just the last century"

"...half the world's population will live in water-stressed river basins by 2025" -Walker & Salt, 2006

Photo of sand dunes in the Dutch portion of the Wadden Sea.

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THANK YOU!

Zoe Rosenblum
(rosenblz@oregonstate.edu)

View the database at:
https://transboundarywaters.science.oregonstate.edu/content/data-and-datasets

Suggested Reading:

- Rosenblum, Z. & Schmeier, S. (2022) Global Wetland Governance: Introducing the Transboundary Wetlands Database. *Water*, *14.*
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