

WRRC 2025
ANNUAL CONFERENCE



**SHARED BORDERS
SHARED WATERS**

Working Together in Times of Scarcity

Translating knowledge

Elia M. Tapia-Villaseñor

May 21, 2025



**WATER RESOURCES
RESEARCH CENTER**



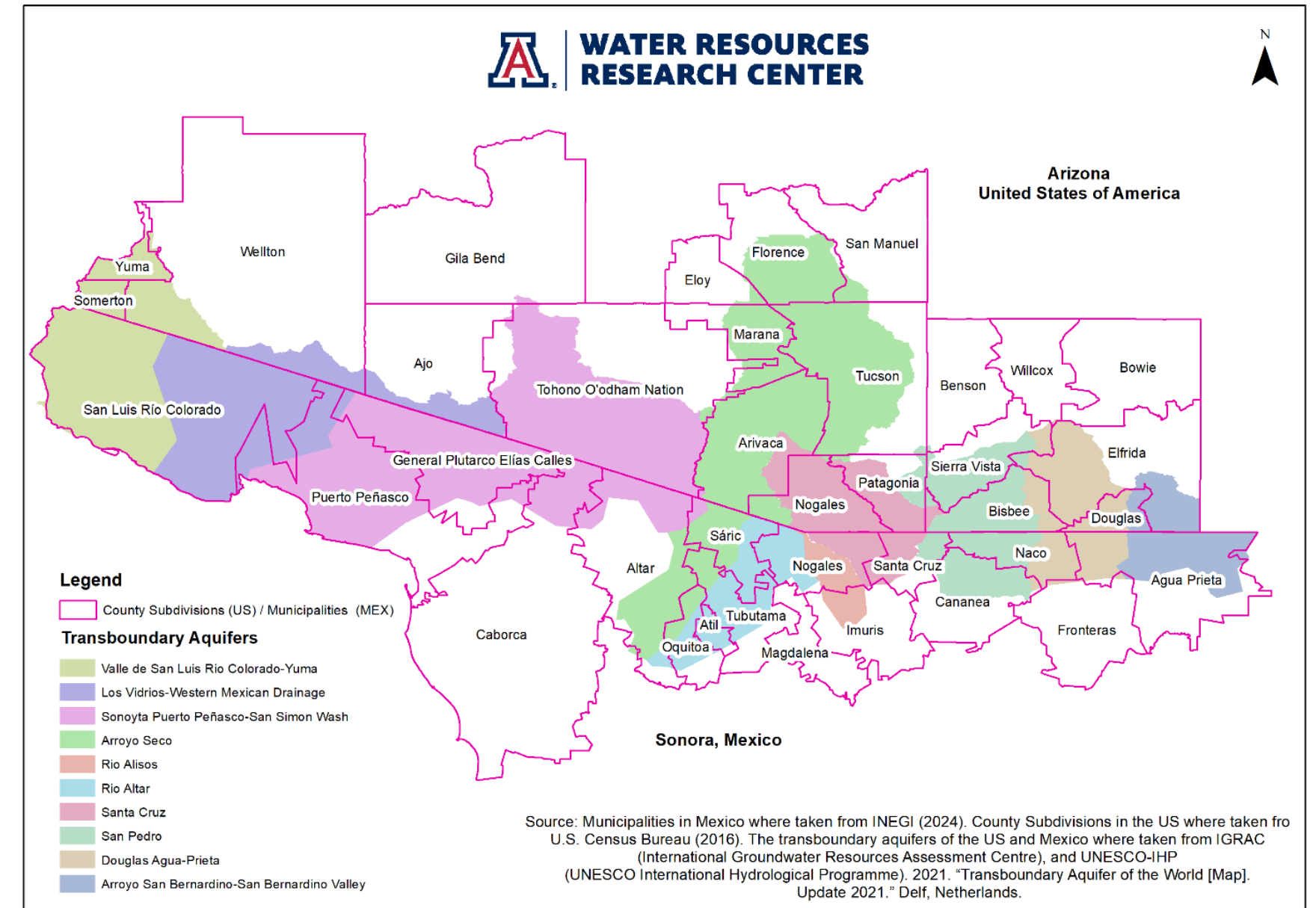
UNIVERSIDAD DE SONORA
"El Saber de mis Hijos hará mi Grandeza"

- Translating science is not just about changing language; it's about conveying technical knowledge into local contexts, bridging disciplines, and building connections between science, policy, and communities.
- In transboundary regions like Arizona–Sonora, this becomes especially relevant due to shared challenges, differing scales, and distinct institutional contexts.



“Science is not enough unless it is understood, trusted, and used.”

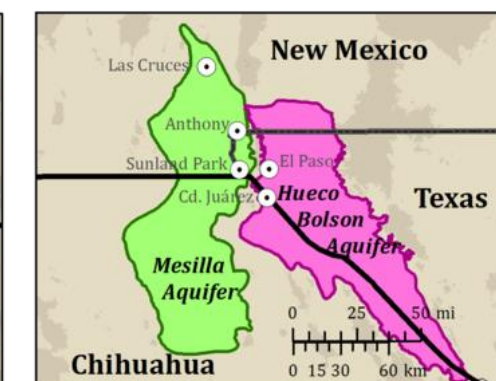
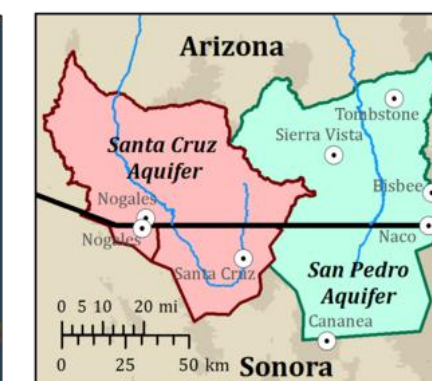
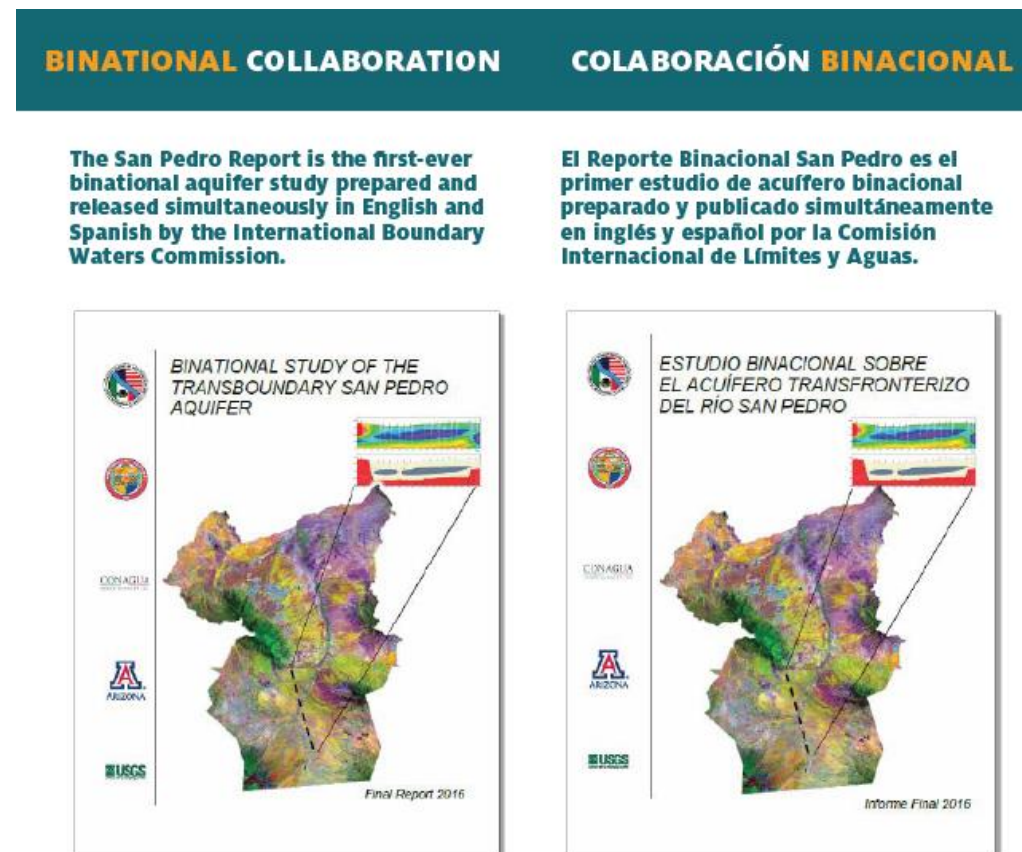
- Groundwater is the main source of water for many U.S.-Mexico border communities.
- Water issues cross borders—so must our understanding.
- Stakeholders need usable, timely information.
- Shared aquifers mean shared responsibility.
- “Groundwater knows no borders—our research shouldn’t either.”



- TAAP produces binational assessments of shared aquifers using harmonized data, maps, and indicators.
- Translated knowledge enables:
 - Binational consensus (via the IBWC Cooperative Framework)
 - Publicly available bilingual reports (e.g., San Pedro)
 - Knowledge co-production

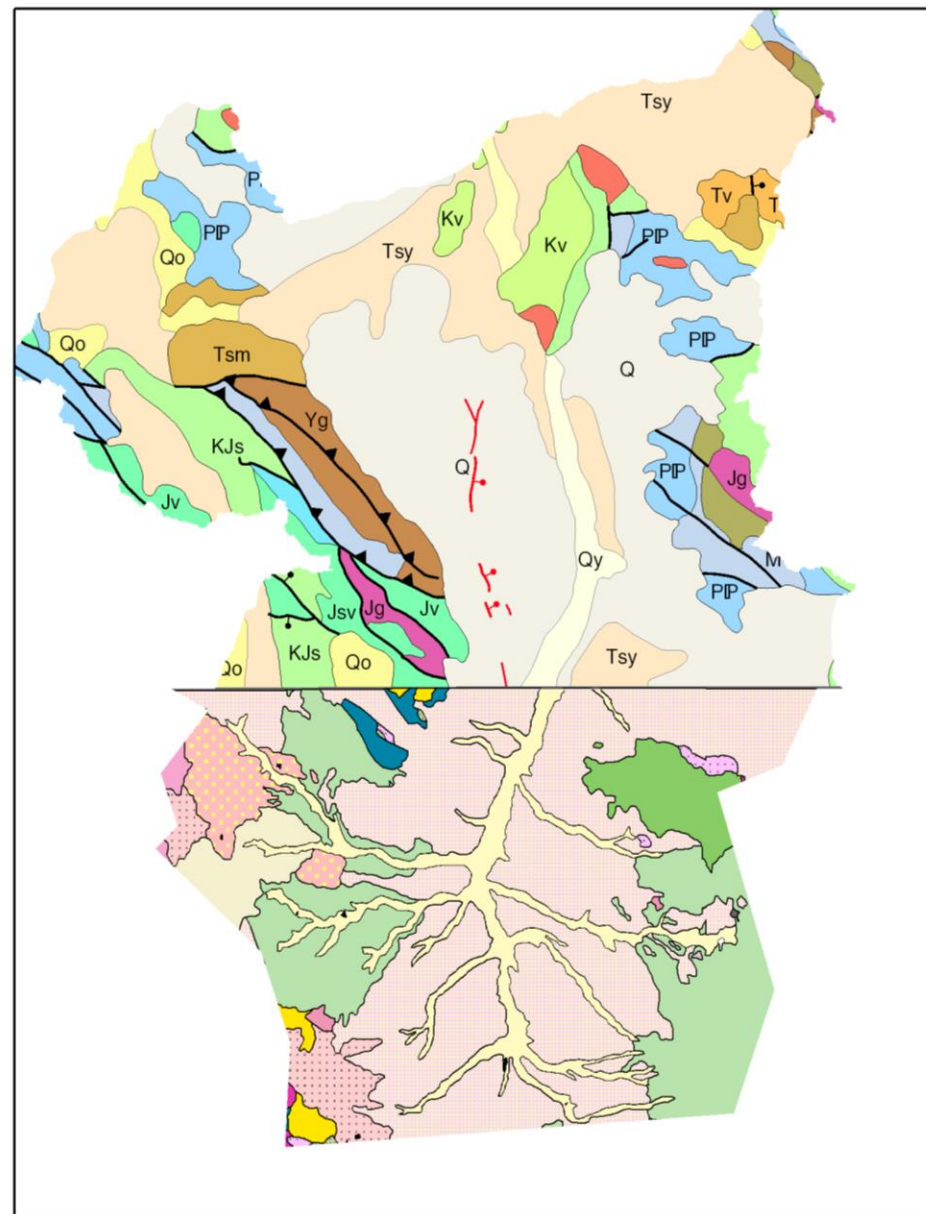


Principal Engineers of IBWC/CILA signing the *Joint Report* in August 2009.



Different classification systems for the same units.

Geology

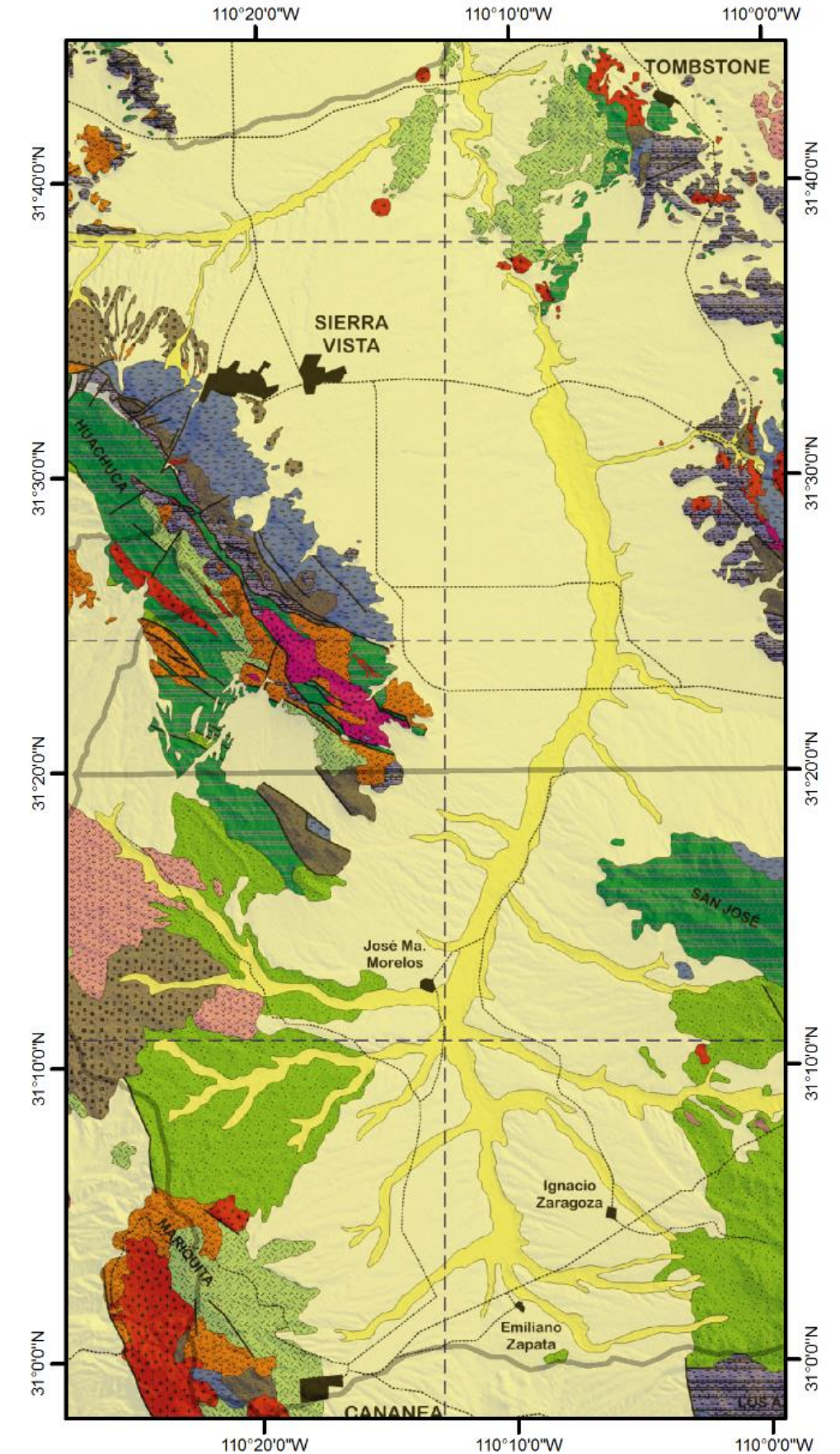


- | |
|------------------|
| QptCgp |
| Tmpl(?)Cgp |
| Qhoal |
| Agua |
| PdpCz-Ar; PCz-Ar |
| TmCgp-Ar |
| JmGr |
| EimCz-Ar |
| JimR-Ar |
| KsVs |
| ToA-Ig |
| ToPR |
| TmB |
| TmCgp-B |
| TmR-Rd |
| TmTR-R |
| KsTpaA-TA |
| KsTpaGr-Gd |
| ToTR-R |
| pTmGr |
| pTmE-Gn |
| Qptgv-ar |
| KaCz-Lu |
| TeMz-qMz |
| Poblados |
| TmCgp-TR |
| TpaPDa |
| KsAr-TR |
| Qal |

Final
Product



- | | |
|--|--|
| Aluvium (Qal, Qhoal) | Late Jurassic - Early Cretaceous Sedimentary Unit (KapaCz-Ar, Kb, Kb?, Jbg, Kbu, Kbu?) |
| Plio-Quaternary Sedimentary Unit (QptCgp, Qg, Qtg) | Jurassic Intrusive Complex (Jri, Jg) |
| Tertiary Volcano-sedimentary Unit (TmCgp-Ar, Tc) | Jurassic Felsic Volcano-Sedimentary Unit (Jim R-Ar, JRvs) |
| Tertiary Felsic Volcanic Unit (TmTR-R, Tv, Tva, Tlc) | Late Paleozoic Sedimentary Unit (PdpCz-Ar, Ps, PPs, PPs?, PPn, PPn?, Ph, Mds) |
| Tertiary-Cretaceous Intrusive Complex (KsTpaGr-Gd, TeMz-qMz, Kg, TKp, Klq) | Early Paleozoic Sedimentary Unit (EmsCz-Ar, Cs) |
| Cretaceous-Paleocene Volcano-sedimentary Unit (KsA-TA, Klvs, Kr, Ka, Tlv) | Precambrian Igneous-Metamorphic Complex (TmGr, Yg, Xp) |
| Late Cretaceous Sedimentary Unit (KsVs, Ks) | |





Transboundary Assessment Framework Published in MDPI Water Journal

Feb. 13, 2025

The February 2025 issue of the journal *Water* features an article by Professor Elia M. Tapia-Villaseñor of the Universidad de Sonora Departamento de Geología, WRRRC Director Sharon B. Megdal, and Hydrologic Research Center Chief Research Scientist Eylon Shamir.

[Read more](#)



Read a Prepublication Chapter by Dr. Megdal in the Upcoming Water Diplomacy Handbook

Dec. 2, 2024

This case study provides insights regarding factors that contribute to successful cross-boundary diplomatic outcomes in the Colorado River Basin. The highlighted factors are based on the author's study of and participation in water policy and management within the Colorado River Basin, along with observations of other areas.

[Read more](#)



TAAP Presented in SNRE 50th Anniversary Webinar

Oct. 17, 2024

A presentation on the Transboundary Aquifer Assessment Program (TAAP) by WRRRC Director Sharon B. Megdal was featured at the 50th anniversary celebration of the U of A School of Natural Resources and Environment (SNRE) on October 9. The presentation covered the history of TAAP, its accomplishments since authorizing legislation was passed by the US Congress in 2006, and lessons learned through the years.

[Read more](#)



TAAP Workshop in Hermosillo: Participatory, Positive, and Productive

Sept. 20, 2024

Last week, WRRRC Director Sharon B. Megdal and Associate Director Jamie McEvoy traveled to Hermosillo, the capital of the Mexican state of Sonora, to participate in a Transboundary Aquifer Assessment Program (TAAP) workshop.

[Read more](#)



Summer Wave: In-Person TAAP Meeting Held in Arizona

June 23, 2023

On June 6, 2023, US team members from the Transboundary Aquifer Assessment Program (TAAP) met at the WRRRC to talk about past, current, and future research and collaborative efforts.

[Read more](#)



Dr. Elia M. Tapia Sheds Light on Transboundary Aquifers at WRRRC 2023 Annual Conference

June 12, 2023

Last June 12th, Dr. Elia M. Tapia delivered a compelling presentation at the WRRRC 2023 Annual Conference, focusing on the critical issue of transboundary aquifers.

[Read more](#)



TAAP Team Members met to talk about past, current, and future collaboration on transboundary aquifers

June 7, 2023

On June 7, 2023, team members of the Transboundary Aquifer Assessment Program (TAAP) gathered in Nogales, Arizona for a productive meeting focused on past, current, and future research efforts and collaboration. The meeting brought together representatives from various institutions, including the Water Resources Research Center (WRRRC)

[Read more](#)



The 2023 UN Water Conference – Uniting the World for Water

March 24, 2023

This week in New York, the United Nations held their first UN Water Conference since 1977. The main outcomes of the conference will include a summary of its proceedings and the Water Action Agenda

[Read more](#)



The WRRRC-TAAP Team Participates in Transboundary Groundwater Resilience (TGR) Town Hall Event in New York

March 23, 2023

Dr. Sharon B. Megdal and Dr. Elia Tapia were among the distinguished attendees at the Transboundary Groundwater Resilience (TGR) Town Hall breakfast event on March 23, 2023.

[Read more](#)



Dr. Sharon B. Megdal Participates at the Water Diplomacy Symposium 2023 in New York

March 21, 2023

Last March 21, Dr. Megdal attended the 2023 Water Diplomacy Symposium. The symposium was convened by the Women in Water Diplomacy Network in partnership with the Environmental Law Institute, the Stockholm International Water Institute, the International Joint Commission, the Lincoln Institute of Land Policy, and the University of Arizona as a side event of the 2023 UN Water Conference in New York City.



Updates on Transboundary Activities

Oct. 5, 2020

The WRRRC recently held a Zoom meeting to discuss issues related to water use and climate uncertainties in the Transboundary Santa Cruz Aquifer. The meeting, held on September 17, 2020, was organized by the WRRRC as part of the Transboundary Aquifer Assessment Program (TAAP).

[Read more](#)



June 07, 2024

Reflections: On Participating in the 10th World Water Forum

Water for shared prosperity was the theme of the 10th World Water Forum, which was held May 18–25 in Bali, Indonesia. My work has taken me to Europe and the...

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March 22, 2024

Update on the Transboundary Aquifer Assessment Program

Update on the Transboundary Aquifer Assessment Program, with a focus on the Arizona-Sonora Components

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October 27, 2023

Reflections: Testifying on Reauthorization of the Transboundary Aquifer Assessment Program

On October 25, 2023, I had the honor of presenting testimony on H.R. 5874 at the U.S. House of Representatives Committee on Natural Resources, Subcommittee on...

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March 02, 2023

Advances in Transboundary Aquifer Assessment

Groundwater serves the drinking water needs of about 50% of the global population and contributes to over 40% of the global production of irrigated crops. Over...

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February 14, 2023

Project Title: Transboundary Aquifer Assessment Program (TAAP): Arizona Water Resources Research Center Effort

In 2017, the University of Arizona Water Resources Research Center started working on a Five-Year Transboundary Aquifer Assessment Program (TAAP) effort funded...

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November 07, 2022

Transboundary Aquifers: Challenges and the way forward

Groundwater is vital to the sustainability and survival of human communities in the U.S.-Mexico border region, a nearly 2000 mile-long, arid zone in North...

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March 01, 2022

Hydrogeomorphologic Mapping of the Transboundary San Pedro Aquifer: A Tool for Groundwater Characterization

Abstract Hydrogeomorphology is an emerging discipline that studies the relationship between landforms and hydrology, focusing on groundwater and surface...

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February 04, 2022

WATER MANAGEMENT ON THE U.S.-MEXICO BORDER: ACHIEVING WATER SUSTAINABILITY AND RESILIENCE THROUGH CROSS-BORDER COOPERATION

Contributing Authors: Christopher Brown (New Mexico State University), Paul Ganster (San Diego State University), Hilda Garcia (El Colegio de la Frontera...

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January 12, 2022

Assessing Groundwater Withdrawal Sustainability in the Mexican Portion of the Transboundary Santa Cruz River Aquifer

The impact of climate uncertainties is already evident in the border communities of the United States and Mexico. This semi-arid to arid border region has...

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- Translating science in transboundary contexts means aligning methods, terms, and outputs across institutions and countries.
- It involves co-developing frameworks that make data usable and relevant for decision-makers on both sides of the border.
- The TAAP demonstrates that sustained collaboration can lead to technically sound, binationally agreed outcomes.

For more information please visit:

<https://wrrc.arizona.edu/programs/taap-transboundary-aquifer-assessment-program>

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