



WRRC 2024
ANNUAL
CONFERENCE

IMPLEMENTING
WATER
SOLUTIONS
THROUGH
PARTNERSHIPS

TRANSBOUNDARY AQUIFER ASSESSMENT PROGRAM, ARIZONA-SONORA

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March 13, 2024

 WATER RESOURCES
RESEARCH CENTER





-WATER IS LIFE.

-WATER IS KEY TO ECONOMIC DEVELOPMENT.

-WATER IS SCARCE IN SOME PLACES AND
OVEREXPLOITED IN OTHERS.

-FRESHWATER CAN BE FOUND IN RIVERS, LAKES,
RESERVOIRS, PONDS AND WETLANDS, IN
GLACIERS AND ICECAPS, AND STORED BENEATH
THE EARTH'S SURFACE.

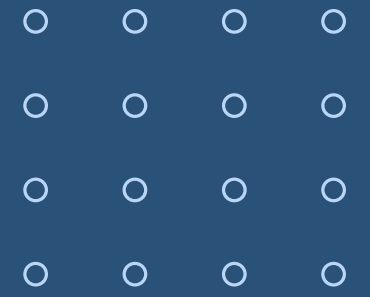
-GROUNDWATER REPRESENTS 30% OF THE MASS
OF FRESH WATER RESOURCES.

68% - GLACIERS AND ICECAPS.

2% - SURFACE WATER.

-AROUND 50% OF THE WORLD'S POPULATION
DRINKS GROUNDWATER DAILY.



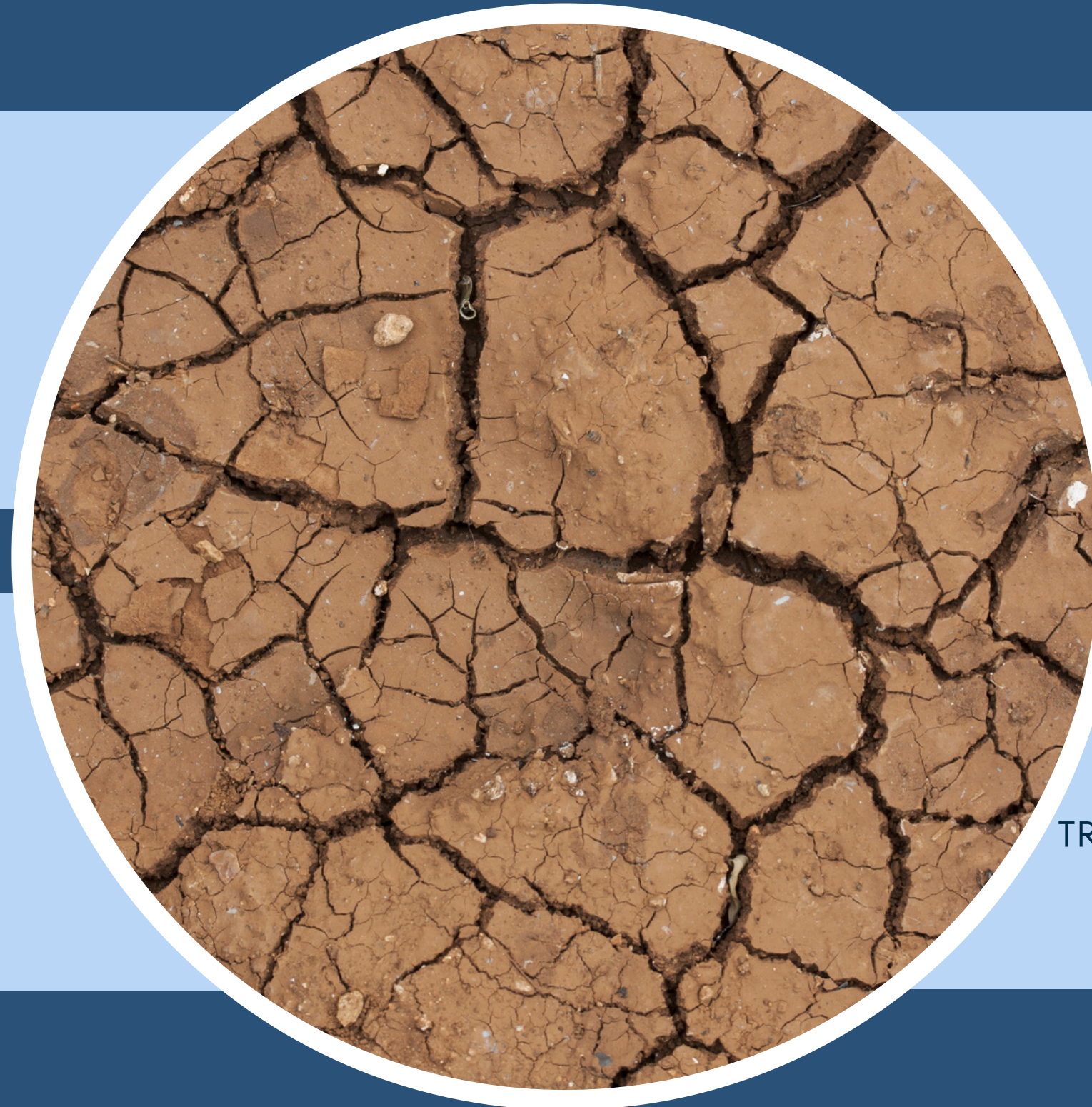


GROUNDWATER IS AN INVISIBLE RESOURCE

WE STILL DON'T KNOW ENOUGH ABOUT THE STATE OF AQUIFERS.

GROUNDWATER NEEDS TO BE UNDERSTOOD AND SUSTAINABLY MANAGED

WE CANNOT MANAGE WHAT WE DON'T SEE OR MEASURE!



GROUNDWATER KNOWS NO BORDERS

AROUND 600 TRANSBOUNDARY AQUIFERS HAVE BEEN IDENTIFIED AROUND THE WORLD.

TRANSBOUNDARY AQUIFER ASSESSMENT PLAYS A SIGNIFICANT ROLE IN ENSURING WATER SUSTAINABILITY

TRANSBOUNDARY AQUIFER ASSESSMENT CAN SERVE AS THE FOUNDATION FOR INFORMED DECISION-MAKING.

JOINT EFFORT BETWEEN MEXICO AND THE UNITED STATES TO EVALUATE SHARED AQUIFERS.

IT ORIGINATES FROM U.S. PUBLIC LAW 109-448, WHICH APPLIES TO THE STATES OF TEXAS, NEW MEXICO, AND ARIZONA (2006).

US-MX. TRANSBOUNDARY AQUIFER ASSESSMENT PROGRAM

MEXICAN INVOLVEMENT STARTED IN 2009, AFTER THE SIGNING OF THE JOINT REPORT OF THE PRINCIPAL ENGINEERS REGARDING JOINT COOPERATIVE PROCESS UNITED STATES-MEXICO FOR THE TRANSBOUNDARY AQUIFER ASSESSMENT PROGRAM (JOINT REPORT).

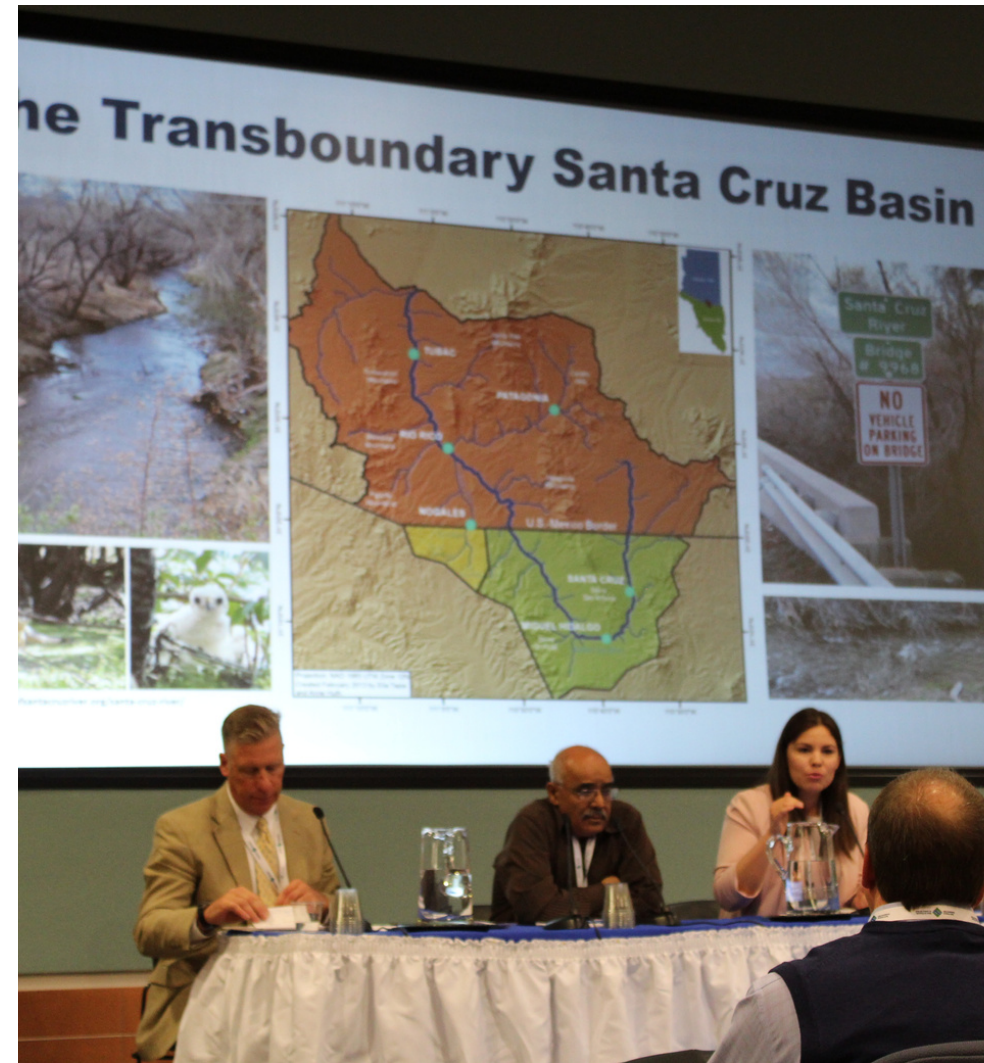
THE OBJECTIVE OF THE TAAP IS TO IMPROVE THE KNOWLEDGE BASE ON THE AGREED-UPON AQUIFERS OF FOCUS, THE SANTA CRUZ, SAN PEDRO, MESILLA, AND HUECO BOLSON, AND/OR ADDITIONAL TRANSBOUNDARY AQUIFERS IF DESIGNATED AND APPROVED BY THE TWO COUNTRIES.



WRRC-TAAP HIGHLIGHTS



Transboundary aquifer reconnaissance work, characterization of selected border communities, stakeholder engagement, collaborative efforts identified through the TAAP Cooperative Framework.



Development of water balance modeling tools to characterize the effects of system changes, mainly related to climate uncertainties and changes in groundwater demand.



Participation in binational technical working meetings, publication of journal articles and reports, presentations at regional, national, and international conferences, and organization of forums and seminars for improving knowledge on transboundary aquifers.





Editorial

Advances in Transboundary Aquifer Assessment

Anne-Marie Matherne and Sharon B. Megdal

Special Issue
Advances in Transboundary Aquifer Assessment
 Edited by
 Prof. Dr. Sharon B. Megdal and Dr. Anne-Marie Matherne

March 02, 2023

Advances in Transboundary Aquifer Assessment

United States

Mexico

(based on Sanchez et al., 2016)
 Tapia-Villaseñor and Megdal, 2021)
 Colorado/Yuma)

March 21, 2023

Increasing the visibility of transboundary groundwater

Arizona

Sonora

Chil

August 10, 2021

Science and Binational Cooperation: Bidirectionality in the Transboundary Aquifer Assessment Program in the Arizona-Sonora Border Region

Legend

- Transboundary Aquifers of the World (ITACI, 2020)
- Country Boundary
- International Aquifers Studied
- 1. San Pedro Aquifer System
- 2. Franco-Oregonian Aquifer System
- 3. North American Aquifer System
- 4. Labrador Aquifer System
- 5. Arctic Transboundary Aquifer System
- 6. St. Lawrence Aquifer System
- 7. Santa Cruz
- 8. San Pedro
- 9. Mesilla
- 10. Huaco-Balton

TAAP Aquifers of Focus

United States

Mexico

February 18, 2021

The U.S.-Mexico Transboundary Aquifer Assessment Program as a Model for Transborder Groundwater Collaboration

ACHIEVING WATER SUSTAINABILITY AND RESILIENCE THROUGH CROSS-BORDER COOPERATION

White Paper

Trasema Coronado, Francisco Lara-Valencia, Stephen Mumme, Christopher Brown, Paul Ganster, Hilda García, Donna Lybecker, Sharon Megdal, Rosario Sanchez, Alan Sweedler, Robert G. Varady, and Adriana Zuñiga

FEBRUARY 4, 2022

February 04, 2022

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

ARIZONA, UNITED STATES

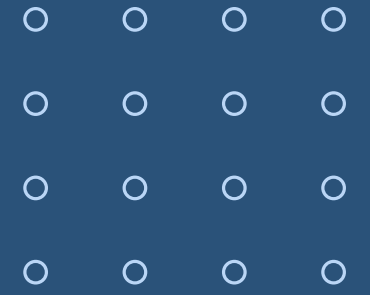
SONORA, MEXICO

Legend

- Towns
- Climate Stations
- Stream Gauges
- Santa Cruz River
- Upper Santa Cruz River Basin (USCRB)
- San Rafael Valley, USA
- Santa Cruz AVA, USA
- Nogales Aquifer, MX
- Santa Cruz River Aquifer, MX

May 01, 2021

A Review of Climate Change Impacts on the USA-Mexico Transboundary Santa Cruz River Basin



GROUNDWATER
IS FUNDAMENTAL
TO LIFE ON
EARTH

CHANGING PRECIPITATION
PATTERNS, RISING
TEMPERATURES, AND
GROWING DEMAND
REPRESENT CHALLENGES TO
GROUNDWATER
SUSTAINABILITY.



GROUNDWATER IS
EVERYWHERE BUT
INVISIBLE

THE SUSTAINABLE MANAGEMENT
OF TRANSBOUNDARY AQUIFERS
REQUIRES A COLLABORATIVE
APPROACH THAT INVOLVES
SHARED DATA AND INFORMATION
EXCHANGE.



THANK YOU!

For more information, please visit:

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

Spanish: <https://wrrc.arizona.edu/programs/programa-de-evaluacion-de-acuiferos-transfronterizos-taap>