

# WEEKLY WAVE



THE UNIVERSITY OF ARIZONA  
COOPERATIVE EXTENSION

## WATER RESOURCES RESEARCH CENTER



September 15, 2023 / Volume 11, Issue 24

The Water Resources Research Center - a research unit of the [College of Agriculture, Life and Environmental Sciences](#) and an Extension unit in [UA Cooperative Extension](#) within the Division of Agriculture, Life & Veterinary Sciences & Cooperative Extension. [Land Acknowledgement.](#)

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**IN THIS ISSUE:** 2023 Photo Contest, Webinar Recaps, Groundwater, Factsheet, Women of Impact, Cover Crop Research

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WRRC 2023 Photo Contest

WATER SCARCITY & EXTREME WEATHER

Calling All Photographers!

The WRRC is excited to announce our 2023 Photo Contest! This year, the theme is *Water Scarcity & Extreme Weather in Arizona*. We invite you to showcase your talent by capturing the essence of Arizona's climate challenges — from floods to droughts and

microbursts to wildfires — in compelling images. Focus your unique vision on illuminating Arizona's paradoxical water landscape and its astonishing weather extremes. The categories will focus on the *Water Scarcity & Extreme Weather* theme, featuring people, the built environment, nature, or arid/semi-arid lands outside of Arizona. There will also be a category for general photos of Arizona water, which are not necessarily required to fit into the *Water Scarcity & Extreme Weather* theme. One winner, one runner-up, and one honorable mention will be chosen from each category. Each entrant may submit up to three photos. Winners will be announced during the 2024 Chocolate Fest in February (date TBD), and winning photographs will be featured on the WRRRC website. Photo Contest images will be used in WRRRC publications and other outreach materials. All submissions must be received on or before December 15, 2023.

[More Info](#)

[Last Year's Winners](#)

## EVENTS

### ENVS Colloquium Series Featuring Dr. Abe Springer – Co-sponsored by the WRRRC

**Date:** Monday, October 2, 2023  
**Time:** 3:00 pm – 4:00 pm Arizona Time  
**Location:** TBD

**Speaker:**  
Abe Springer, *Professor, School of Earth and Sustainability, Northern Arizona University*



[More Info](#)

### NVIS Fall 2023 Seminar: Merging Western Science and Traditional Knowledge of Produce Safety Within Arizona's Tribal Lands – Co-sponsored by the WRRRC

**Date:** Tuesday, October 3, 2023  
**Time:** 12:00 pm – 1:00 pm Arizona Time  
**Location:** [Webinar Only](#)

**Speaker:**  
Valerisa Gaddy, *Post-doctoral Researcher, Water Resources Research Center, UArizona*



[More Info](#)

[Zoom Link](#)

### Upcoming WRRRC Events

Oct 12: [WRRRC Water Webinar: Solar River, Covering and Powering Canals with Photovoltaic Energy](#)

Oct 30: [ENVS Colloquium Series Featuring Dave White, Director, Global Institute of Sustainability and Innovation, Arizona State University – Co-sponsored by the WRRRC](#)

Nov 7: [NVIS Fall 2023 Seminar: From Metal Mining to Data Mining: How Indigenous Data Governance Supports Indigenous Sovereignty Within an Open Science Ecosystem – Co-sponsored by the WRRRC](#)

Dec 5: [NVIS Fall 2023 Seminar: Culture, Education, and Water Sovereignty in Southern California Tribal Communities – Co-sponsored by the WRRRC](#)

## Other Events

Nov 6–7: [Tribal Water Law Conference](#)

## NEWS

### WRRRC Kicks Off Fall Water Webinars

This month marked the return of the WRRRC Water Webinars, our series of presentations from experts and professionals on a wide range of water-related topics. On September 7, Helen Dahlke, Professor in Integrated Hydrologic Sciences at the University of California, Davis, kicked off our fall series with her presentation, *Agricultural Managed Aquifer Recharge (Ag-MAR) — A Method for Sustainable Groundwater Management*. She explained the practice and feasibility of using agricultural land for intentional groundwater recharge, including the use of flood waters for this purpose. Dahlke also provided an overview of ongoing research regarding the environmental impacts of Ag-MAR on water quality and crop health.



[Read More](#)

### Arizona Groundwater Scarcity Focus of New York Times

In August, the New York Times (NYT) published an [in-depth article](#) on the state of dwindling groundwater supplies nationwide. Through analyzing groundwater level data from more than 84,000 monitoring wells, the NYT found that in nearly half the sites, groundwater levels have declined significantly over the past 40 years and 40% have hit all-time lows in the last 10 years. The article looks at the connection between declining groundwater and agricultural production and discusses the implications for worldwide food production and regional development. On September 1, *The Daily*, a podcast produced by the NYT, published an [episode](#) discussing some of the issues raised in the article, focusing on Arizona. The podcast highlights the proposed project to bring desalinated seawater from the Sea of Cortez to Arizona and discusses some of the challenges the project faces. *Weekly Wave* readers may find additional, complementary resources on the topic informative. For example, some news articles relating to the proposed desalination project provide additional details on some of the [political, diplomatic, environmental, and cost](#) challenges raised in the podcast. In October 2022,



the *Weekly Wave* published a [short article](#) addressing desalination as a potentially valuable component of Arizona's water supply portfolio. As national and international news organizations shed light on the opportunities and challenges associated with Arizona's water future, context and nuance are valuable for all water stakeholders to understand and weigh. The additional articles linked below offer additional information on the topics raised in the NYT pieces.

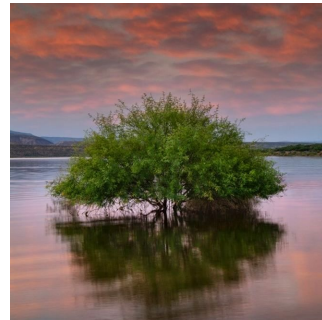
*Image: Ted Wood/The Water Desk, Morelos Dam, Mexico.*

- [NYT Groundwater Article](#)
- [The Daily Podcast](#)
- [Tony Davis Desalination Project Article](#)
- [2022 Weekly Wave Desalination Article](#)
- [The Future of Agriculture and Food Production in a Drying Climate Report](#)
- [Sharon B. Megdal Interview on Our Water Future in Arizona](#)



## Did You Know?

Audubon Arizona estimates that Gila County generates \$387 million annually from water-related recreation. Some of this recreation takes place in Tonto National Forest, the largest national forest in the state and sixth in the nation. Spanning nearly 3 million acres, the Tonto National Forest was established to conserve the watersheds of six reservoirs along the Salt and Verde Rivers. These reservoirs, including Roosevelt Lake in Gila County, have a combined storage capacity of 2 million acre-feet. This water storage not only bolsters municipal water supplies but also invites visitors to the county and state. Popular recreation activities in the Forest's waterways include powerboating, sailing, swimming, rafting, tubing, and fishing. The Tonto National Forest draws nearly three million visitors annually.



For more information on how water shapes economic sectors within Gila County, check out the Gila County Water Factsheet [here](#).

*Image: Dave Wilson. WRRC 2022 Photo Contest*

## [Gila County Water Factsheet](#) [Tonto National Forest](#)

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## WRRC Director Megdal Honored as Woman of Impact

WRRC Director Sharon B. Megdal was among the 30 University of Arizona women honored this year as "Women of Impact" by the Office of Research, Innovation & Impact. Nominees were evaluated within the context of the university's "purpose, mission and values" for their "unique skills in driving discovery and innovation, community impact, and



willingness to empower others.” Also among the 30 honorees were friends and associates of the WRRRC, including Bonnie Colby, a professor of Agricultural and Resources Economics who focuses on water-related issues, and Laura Condon, an associate professor in the Department of Hydrology and Atmospheric Sciences. Honoree Ofelia Zepeda, Regents' Professor of Tohono O'odham Language and Linguistics, spoke at the WRRRC's 2021 Conference, “Tribal Water Resilience in a Changing Environment.”

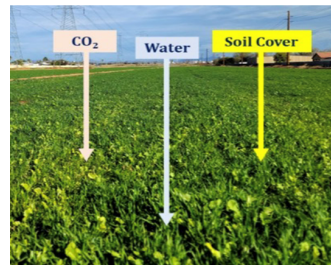


### [2023 Women of Impact](#)

[2021 Reading by Ofelia Zepeda](#) [begins at 2:48:37]

## Extension Publication Evaluates Water-Saving Cover Crop Strategies

A recent publication from the University of Arizona Cooperative Extension, authored by Debankur Sanyal, Charles Stackpole, and WRRRC Director Sharon B. Megdal, shares the results of a study conducted by the UArizona Soil Health Research and Extension team to “evaluate different compositions of forage cover crop mixes for warm and cool growing seasons.” As water scarcity forces farmers to be more strategic in their water use, traditional “green manure” cover crops may no longer be a viable option. Cover crops offer many benefits, including protection against erosion and soil nutrient cycling. They can also be used as livestock feed. The research team conducted on-farm trials of “custom-designed” cover crop mixes with both grasses and broadleaf species, collecting and analyzing soil samples from before and after the growing seasons to measure soil health. They also surveyed forage cover crop biomass to assess forage quality, and “preliminary data showed that the values were very much comparable to the traditional forage crops grown in the southwest such as corn, barley, alfalfa, etc.” These trials will continue, with the goal of optimizing cover crop species compositions for growers in the Southwest. This research is part of a larger sustainability project in which UArizona is partnering with the University of California, Davis, and others to conduct research on creating modern sustainable irrigated agriculture systems. The project is partially funded by a US Department of Agriculture National Institute of Food and Agriculture (USDA-NIFA) grant.



*Image: Evaluating Forage Cover Crop Mixes for the Desert Southwest, Figure 1*

[View the PDF](#)

[USDA-NIFA Project Info](#)

## WATER JOBS

### WRRRC Seeks Associate Director/Specialist

The University of Arizona Water Resources Research Center (WRRRC) is actively seeking candidates for its Associate Director / Extension Specialist position to work closely with the Director, providing center administration, program direction, and leadership for WRRRC. In this position, the successful candidate will also conduct applied research and engagement, pursue scholarly activities, and establish and maintain extramural funding. The minimum qualifications include a Doctorate or equivalent terminal degree, a minimum

of five years of work experience related to Arizona's and regional water management, a strong record of scholarly accomplishments, and a record of collaborative projects and programs. The WRRC is administratively located within the University of Arizona's Division of Agriculture, Life and Veterinary Sciences, and Cooperative Extension and is also part of the National Institutes for Water Resources, a national network of federally authorized institutes/centers that address unique water-related concerns of the individual states and the nation. The academic home of the position will depend on the candidate's specialization and the rank will depend on the candidate's record and experience.

Please visit [UA Talent req14913](#) for additional information on the position and to apply.

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- ADEQ [Environmental Justice Coordinator](#)
  - ADEQ [Community and Intergovernmental Engagement Section Manager](#)
  - University of Alaska Fairbanks [Term Research Assistant Professor for Hydrology](#)
  - University of Minnesota [Water Quality and Soil Health Extension Educator](#)

Please visit [WRRC's website](#) for a complete listing of water jobs & opportunities.

## ANNOUNCEMENTS

- [Sep 16: ¡Agua es Vida! Celebration of Water in the Desert and Short Film Showcase](#)
- [Sep 16: AHS Symposium Fieldtrip: Hoxworth Springs, Lake Mary, and Montezuma Well](#)
- [Sep 18: Tucson AMA Groundwater Users Advisory Council \(GUAC\) Meeting](#)
- [Sep 18: Integrated Hydrologic Verde River Basin Model Informational Session](#)
- [Sep 20: Arizona Riparian Council Speaker Series: Bringing Home the Wild: A Riparian Garden in a Southwest City](#)
- [Sep 20: CAP University Virtual Learning](#)
- [Sep 21: CAP Board Meetings](#)
- [Sep 27–28: Southwest Drought Learning Network 2023 Annual Meeting](#)
- [Sep 28: CNRS International Emerging Actions – Proposal Submission Deadline](#)
- [Sep 29: AWRA 2024 Geospatial Water Technology Conference – Abstract Deadline](#)
- [Sep 30: Water Resources Management & Sustainability: Solutions for Arid Regions 2nd International Conference – Abstract Submission Deadline](#)
- [Sep 30: Sonoran Institute: Guided Dragonfly Tours](#)
- [Oct 1: RiversEdge West 2024 Conference – Oral Presentation Abstract Deadline](#)
- [Oct 2: BIO5 Postdoctoral Fellowship – Application Deadline](#)
- [Oct 2: ENVIS Colloquium Series Featuring Dr. Abe Springer, Professor, School of Earth and Sustainability, Northern Arizona University – Co-sponsored by the WRRC](#)
- [Oct 3: NVIS Fall 2023 Seminar: Merging Western Science and Traditional Knowledge of Produce Safety Within Arizona's Tribal Lands – Co-sponsored by the WRRC](#)
- [Oct 3–5: AWWA WaterSmart Innovations 2023 Conference](#)
- [Oct 6: AWRA 2024 Spring Conference – Abstract Deadline](#)
- [Oct 7: Urban Wildlife Conservation Day: Rio Reimagined Salt River Clean-Up](#)
- [Oct 9: New Regional Leader for Rio Reimagined – Proposal Submission Deadline](#)
- [Oct 12: CAP Briefing & Updates on 2024-2025 Budget](#)
- [Oct 12: WRRC Water Webinar: Solar River, Covering and Powering Canals with Photovoltaic Energy](#)
- [Oct 19: Imagine a Day Without Water](#)
- [Oct 19-20: Upper Gila Watershed Forum - CANCELED](#)

- **Oct 21:** [19<sup>th</sup> Annual Research Insights in Semiarid Ecosystems \(RISE\) Symposium](#)
- **Oct 23:** [BSMAR18 — Abstract Submission Deadline](#)
- **Oct 25:** [Water Education Foundation's 39<sup>th</sup> Annual Water Summit: Taking on the Improbable in Western Water](#)
- **Oct 27:** [Arizona Water Protection Fund Fiscal Year 2024 Grant Applications – Deadline to Submit Public Comments](#)
- **Oct 30:** [ENVS Colloquium Series Featuring Dave White, Director, Global Institute of Sustainability and Innovation, Arizona State University – Co-sponsored by the WRRRC](#)
- **Nov 5–9:** [AWWA Water Quality Technology Conference](#)
- **Nov 6–7:** [Tribal Water Law Conference](#)
- **Nov 6–8:** [AWRA 2023 Annual Water Resources Conference](#)
- **Nov 6–9:** [Amsterdam International Water Week 2023](#)
- **Nov 7:** [NVIS Fall 2023 Seminar: From Metal Mining to Data Mining: How Indigenous Data Governance Supports Indigenous Sovereignty Within an Open Science Ecosystem – Co-sponsored by the WRRRC](#)
- **Nov 14–16:** [US Water Alliance One Water Summit 2023](#)
- **Dec 5:** [NVIS Fall 2023 Seminar: Culture, Education, and Water Sovereignty in Southern California Tribal Communities – Co-sponsored by the WRRRC](#)
- **Dec 5–7:** [AWWA North American Water Loss Conference & Exposition](#)
- **Dec 11–15:** [AGU23: Wide. Open. Science](#)
- **Jan 1, 2024:** [RiversEdge West 2024 Conference – Poster Presentation Abstract Deadline](#)
- **Jan 22–24, 2024:** [Growing Water Smart: Integrated Water and Land Use Planning Workshop](#)
- **Feb 11–13, 2024:** [AWWA/WEF Young Professionals Summit](#)
- **Feb 26–28, 2024:** [Water Resources Management & Sustainability: Solutions for Arid Regions 2nd International Conference](#)
- **Feb 27–29, 2024:** [2024 Southwest Adaptation Forum – Save the Date](#)
- **Mar 5–7, 2024:** [RiversEdge West 2024 Conference – Restoration for the Future: Promoting Resilience in Our Rivers and Communities](#)
- **Mar 11–14, 2024:** [AWWA WaterReuse 2024 Symposium](#)
- **Mar 25–27, 2024:** [AWRA 2024 Geospatial Water Technology Conference](#)
- **Apr 3–6, 2024:** [BSMAR18](#)
- **Apr 8–10, 2024:** [AWRA 2024 Spring Conference](#)
- **Jun 10–13, 2024:** [AWWA 2024 Annual Conference & Expo \(ACE24\): Transforming Our Water Future](#)

## PUBLICATIONS & MEDIA

### **Best Practices Guide: Water Circularity for Controlled Environment Agriculture Operations**

This guide produced by the Resource Innovation Institute seeks to support cultivators in: speaking the language of water circularity, understanding crucial water conservation principles, reviewing the available technology for treatment and recapture of multiple water streams involved in crop production, maximizing incentives for energy-efficient water treatment solutions, and protecting natural water resources while aligning with your business model. [View Guide](#)

### **Northern Arizona Water Study**

ASU's Kyl Center for Water Policy recently released a Northern Arizona Water Affordability Study, exploring financial obstacles to accessing safe, reliable water in the region. [Read the Study](#)

# OTHER NOTICES

## **Seeking New Regional Leader for Rio Reimagined**

The Request for Proposals to secure the Rio Reimagined Ambassador to the Urban Waters Federal Partnership is now open. This full-time position will work closely with the Rio Reimagined (RIO) team at ASU and a wide variety of community partners engaged in the revitalization of the river corridor. They will have direct responsibility for the [Urban Waters Federal Partnership](#) (UWFP) program at the EPA. Applicants should have experience with federal grants, funding cycles, federal agencies, and political awareness, as well as an ability to serve as a trusted partner to local governments, and non-profit and community-based organizations. This regional leader will be contracted through the Maricopa Association of Governments (MAG). Proposals will be accepted until 3:00 pm MST on October 9, 2023. [More Info](#)

## **Public Comment Period: Arizona Water Protection Fund Fiscal Year 2024 Grant Applications**

The Arizona Water Protection Fund Commission has received grant applications for its fiscal year 2024 funding cycle. These are available for public review at the [Arizona Water Protection Fund website](#). Written comments may be submitted during the 45-day public comment period, which ends on October 27 at 5:00 pm. Comments can be mailed, sent via email, or sent by fax. Please include application numbers and project titles with any comments. [More Info](#)

## **BIO5 Postdoctoral Fellowship Application**

The BIO5 Postdoctoral Fellowship is an internal funding mechanism and recognition for outstanding postdoctoral researchers at the University of Arizona who are engaging in multi-disciplinary research projects aligned with the foci of the BIO5 Institute. These grants are specifically designed to support and enhance independent research goals, showcase research at a BIO5 Research Symposium via short talks and/or poster sessions, and facilitate a “forward thinking” mindset by requiring each fellow to form a three-member mentoring committee that will help in grant applications, career advice, and job talk preparations by providing funds for additional research training or experience pertinent to their current postdoctoral appointments. Applications are due by 5:00 pm on October 2, 2023. [More Info](#)

## **Arizona Water Survey to Inform Water-Related Tools**

The ASU Water Innovation Initiative (AWII) team of ASU researchers and students is surveying people to ask people about their experiences with water, what things they are curious to know more about, and what questions they have about Arizona's water. The data will be used to improve the design and features of water-related tools.

[Take the Survey](#)

## **Call for Abstracts: BSMAR18**

Submit your abstract for BSMAR18! This year's symposium will be held April 3–6, 2024, in Tucson, AZ. We welcome talks and posters on virtually any topic related to managed aquifer recharge. Examples include, but are not limited to, the following: design, construction, development, and testing; operations and maintenance; economics and energy efficiency; governance and regulation; water quality and monitoring; modeling; tools and technologies; or climate change. The deadline to submit is October 23, 2023.

[More Info](#)

## **Call for Abstracts — Water Resources Management & Sustainability: Solutions for Arid Regions 2<sup>nd</sup> International Conference**

We cordially invite you to submit your abstract or full-length paper. The conference will be held February 26–28, 2024, in Dubai, United Arab Emirates. Papers may be submitted



under one of the following sub-themes: socio-economic water studies, climate change and water resources resilience, water resources and hydrological processes, advanced technologies in water resources management, non-conventional water resources and water quality management, or water resources sustainability. The deadline for submissions is September 30, 2023. [More Info](#)

#### **Integrated Hydrologic Verde River Basin Model Informational Session**

The Nature Conservancy in Arizona and the Yavapai-Apache Nation have partnered to develop the Integrated Hydrologic Verde River Basin Model (Verde Model) that incorporates groundwater, surface water, water quality, and climate. The Verde Model was developed over the past three years using the integrated modeling tool known as MIKE SHE and builds on the USGS Northern Arizona Groundwater Flow Model framework by adding atmospheric, land surface, and unsaturated zone hydrologic processes. TNC and YAN will be hosting an Informational Session on September 18, 2023, from 10–11:30 am. The meeting will be recorded for those who are unable to attend.

[Zoom Meeting Link](#)

#### **Wyland National Mayor's Challenge for Water Conservation 2023 Winners**

Tucson, AZ, was among the winners of this year's Wyland National Mayor's Challenge for Water Conservation. The other winners were Laguna Beach, CA; North Port, FL; Gainesville, FL; and Houston, TX. [More Info](#)

Do you have a story idea, water job announcement, or event to share?

[Contact us here](#)