

WEEKLY WAVE



COLLEGE OF AGRICULTURE & LIFE SCIENCES
COOPERATIVE EXTENSION

**WATER RESOURCES
RESEARCH CENTER**



April 7, 2023 / Volume 11, Issue 14

The Water Resources Research Center - a research unit of the [College of Agriculture and Life 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: Presidential Advisory Commission, Transboundary Aquifer Article, UN Water Takeaways Recap, Seminar Recap, APW, NFA Student Showcase



Input Invited by Commission on the Future of Agriculture and Food

UArizona President Robert C. Robbins has formed the **Presidential Advisory Commission on the Future of Agriculture and Food Production in a Drying Climate**.

You can read about the commission at <https://president.arizona.edu/news/2022/12/presidential-advisory-commission-future-agriculture-and-food-production-drying-climate>. On behalf of the Commission, WRRRC Director Sharon B. Megdal invites you to share your thoughts, perspectives, and ideas through a survey. The following six survey questions are designed to help develop actions to include in our report to President Robbins.



1. What are the threats of a changing climate to Arizona's agricultural production systems?
2. Given these threats, how do you expect agriculture and food producers will respond?
3. What big-picture ideas would have the most impact on agriculture and food producers in the short and/or long term?
4. What expertise and resources (i.e., specific research, innovations, technologies, infrastructure, practices) can UArizona provide to help agriculture and food producers be as productive as possible in the face of these challenges?
5. What actions by UArizona can bring these resources to bear on the threats to agriculture and food production systems?
6. What funding and partnering opportunities are there to support these actions?

While the Commission invites input on all six questions, we will appreciate receiving your response to as many as you would like to answer. The deadline for survey responses is April 27, 2023. Access the survey at the link below or by scanning the QR code. Please take a few moments to respond to the survey and kindly circulate it to others.

Image: Sharon B. Megdal

[Take the Survey](#)
[More Info](#)

EVENTS

WRRRC Seminar Series: Severe Sustained Drought in the Colorado Basin Revisited

Date: Wednesday, April 12, 2023
Time: 12:00 pm – 1:15 pm Arizona Time
Location: [Webinar Only](#)

Moderator:

George Frisvold, *Professor & Extension Specialist, Department of Agricultural & Resource Economics, UArizona*

Speakers:

- Bonnie G. Colby, *Professor, Department of Agricultural and Resource Economics, UArizona*
- Dari Duval, *Economic Impact Analyst, Department of Agricultural & Resource Economics, UArizona Cooperative Extension*
- Kathy Jacobs, *Director, Center for Climate Adaptation Science and Solutions, Arizona Institute for Resilient Environments and Societies; Professor, Environmental Science, UArizona*



- Pamela Nagler, *Research Physical Scientist, US Geological Survey*
- Connie Woodhouse, *Regents Professor, School of Geography, Development, and Environment and Laboratory of Tree-Ring Research, UArizona*

Image: Adobe Stock, Sunken boat on mud bed in Lake Mead

The JAWRA Featured Collection, *Severe Sustained Drought Revisited: Managing the Colorado River System in Times of Water Shortage 25 Years Later*, follows up on a series published more than 25 years ago to present collaborative research studies supported by the Powell Consortium. That original special issue, “Severe Sustained Drought: Managing the Colorado River System in Times of Water Shortage,” and the publications that arose from it have “shaped thought and encouraged multi-disciplinary research on drought and water scarcity in the United States Southwest.” The 2022 JAWRA Featured Collection was published in two issues and highlights the work of researchers throughout the region. This WRRRC webinar will feature presentations from a panel of authors who contributed papers to the Collection.

[Register Here](#)
[More Info](#)

WRRC Seminar Series: Golf Course Water Usage: Effective Policy and Effective Water Efficiency Strategies

Date: Wednesday, April 19, 2023
Time: 12:00 pm – 1:15 pm Arizona Time
Location: [Webinar Only](#)



Speaker: Tim Cloninger, *Golf Course Agronomist*

This WRRC Seminar presentation will provide an overview of golf course water use in the southwest, looking at three different regulatory agency policies for golf course water usage and discussing which policies have been the most effective for establishing efficient water usage. The presentation will also cover the current technologies and trends in the golf course industry that will continue to improve water use efficiency.

[Register Here](#)
[More Info](#)

Upcoming WRRC Events

May 2 at 12:00 pm: [WRRC Seminar Series: Arizona Water Banking Authority](#)

May 3 at 12:00 pm: [NVIS Seminar Series: Indigeponics: Indigenizing Controlled Environment Agriculture and Off-Grid CEA Greenhouse for Food Production](#)

May 17 at 12:00 pm: [WRRC Seminar Series: Green Infrastructure in Tucson, AZ](#)

External Events

May 18-19: [CLE International's Law of the Colorado River 23rd Annual Conference: The Next Century of River Policy](#)

Aug 3-4: [31st Annual Arizona Water Law Conference](#)

MARK YOUR CALENDARS!



NEWS

Transboundary Aquifers Featured in Special Issue of Water Journal

On March 20, 2023, the editorial paper “Advances in Transboundary Aquifer Assessment,” written by USGS Hydrologist Anne-Marie Matherne and WRRC Director Sharon B. Megdal, was published as part of a Special Issue of *Water* with the same title. The paper introduces the Special Issue as intending to “highlight both recent work to advance the physical understanding of transboundary aquifers and factors relevant in successful collaboration on transboundary groundwater resource use.” The Special Issue focuses primarily on aquifers shared by the US and Mexico and includes papers on the work of the Transboundary Aquifer Assessment Program (TAAP) along with other studies. In their editorial paper, Matherne and Megdal identified three main themes in the fifteen subsequent Special Issue papers: transboundary governance and stakeholder engagement, aquifer characterization and assessment, and integration of stakeholder input into model development. The authors conclude: “These efforts suggest that characterization of the complexities of the physical systems and consideration of binational stakeholders and governance can inform development of sustainable management strategies.” All articles in the Special Issue are open-access and are available to read or download.



Image: Elia Tapia-Villaseñor, A section of the map from Figure 1.

[Read the Editorial Paper](#)

[Read the Special Issue](#)

WRRC-Hosted Webinar Discusses UN Water Conference Takeaways

On Tuesday, March 28, the WRRC held a special webinar featuring impressions and takeaways from the United Nations 2023 Water Conference. The discussion included

scheduled speakers: WRRRC Director Sharon B. Megdal, Udall Center Director and UArizona Professor Andrea K. Gerlak, and graduate student Wilzave Quiles Guzmán. In addition, special guests, including Colorado River Indian Tribes Chairwoman Amelia Flores, Gila River Indian Community Governor Stephen Roe Lewis, Colorado River Basin Water & Tribes Initiative Co-Director Daryl Vigil, Lincoln Institute Internet of Water Associate Director of Stakeholder Engagement Faith Sternlieb, and UArizona alumna Elia Tapia, shared their perspectives.

Each speaker took several minutes to talk about their experiences and takeaways from the UN Water Conference, mentioning various sessions they attended, interesting people they met, and exciting opportunities for future collaboration. Governor Lewis said, “seeing the commonalities globally was just an amazing experience.” A recording of this webinar is available on the WRRRC website and at the link below.



[View the Recording](#)
[More Info](#)

Seminar Describes Using Geophysical Imaging to Inform Groundwater Recharge

On Wednesday, March 29, the WRRRC welcomed Dr. Rosemary Knight, professor of Geophysics at Stanford University, for a seminar on using geophysical imaging to inform groundwater recharge projects in California. Dr. Knight provided an accessible overview of her ongoing research that uses electromagnetic surveys to map electrical resistivity down to a depth of 300–400 feet below land surface. These data are then used to determine where there is sand, gravel, or clay — information that helps locate areas where groundwater can be most effectively recharged. Dr. Knight shared some of the extensive data already collected and described a web-based application in development to make the data and model easily accessible to users. The airborne electromagnetic data have enabled geological mapping of much of the Central Valley in California. In a nod to the 2022 UN Water Day campaign, “Making the Invisible Visible,” Dr. Knight shared how these geophysical data truly make “visible” what is below the ground surface.



[View the Recording](#)
[More Info](#)



AZ Project WET Offers Summer Professional Development for Teachers

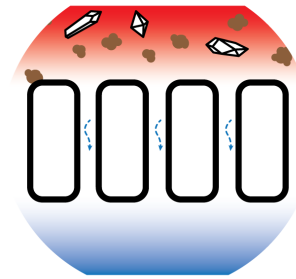
It's the most wonderful time of the year! As summer in Arizona approaches, not many people are singing that song, but Arizona Project WET (APW) is excited to be jumping into a season of teacher professional development academies. As educators, APW aims to empower teachers to bring the best in water science, policy, and conservation into their classrooms with excellent classroom-ready lessons and to inspire



teachers' own sense of wonder at our water systems by sharing the work of water professionals around the state. This summer, APW is excited to be offering [Salt River](#) (June 19–23) and [Colorado River STEM](#) (June 8–9) Academies, as well as reviving the in-person [Arizona Water Festival](#) workshop for 4th grade TUSD teachers (June 8–9 and 21–22). APW will also be offering a workshop for teachers of 4th–12th-grade Exceptional Education and Special Needs students to integrate adaptations and accommodations for these students into the water curriculum. Stay tuned for more information or email Josh Ruddick at jruddick@arizona.edu with inquiries.

WRRC's Luke Presson Presents at NFA Student Showcase

WRRC student assistant Luke Presson recently presented a summary of his research as part of the Native FEWS Alliance Student Showcase organized by the UArizona Indigenous Resilience Center. Luke's work focuses on membrane distillation (MD), a water treatment technology that can turn highly concentrated brine streams into purified water. MD works by flowing a heated brine stream across a specialized membrane. The warm water (40 – 80 °C) evaporates, travels through the membrane pores, and condenses on the other side as high-quality distilled water. While heating water for this process can be energy intensive, waste heat can be used as the primary energy source if an MD unit is located near a process, such as air chilling, that generates unwanted heat. Luke's project applies MD to turn treated wastewater into potable water. Find the recording of Luke's presentation below and tune in to the virtual Student Showcase on Thursdays at 1:00 pm for the presentations of other students affiliated with the Indigenous Resilience Center.



[View the Recording](#)
[IRes Events Calendar](#)

WATER JOBS

WRRC Student Communications and Outreach Assistant (Hourly)

The WRRC is seeking a student employee with interest and experience in writing about water and/or environmental topics to assist with outreach communication. Applicants are encouraged to visit the WRRC website for more information on WRRC programs and activities. Accepting applications until the position is filled. [More Info](#)

- AMWUA [Conservation Coordinator](#)
- Montgomery & Associates [Hydrogeologist](#)
- Montgomery & Associates [Senior Hydrogeologist](#)
- The Nature Conservancy [Water Program Policy Specialist](#)
- Udall Center [Postdoctoral Res Assoc Indigenous Environmental Governance & Policy](#)

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

ANNOUNCEMENTS

- **Apr 7:** [2023-2024 NRWD Fellowship – Application Deadline](#)
- **Apr 8:** [Friends of Sonoita Creek Annual Meeting: Watershed Restoration Ecology](#)
- **Apr 11:** [UArizona Sustainability and Climate Action Plan Kick-Off Event](#)
- **Apr 11:** [AHS Tucson Chapter Meeting: Restoring Watershed Function to Address Fatal Dust Storms on the Lordsburg Playa](#)
- **Apr 12:** [Water Irrigation Efficiency Program](#)
- **Apr 12:** [WRRC Seminar Series: Severe Sustained Drought in the Colorado Basin Revisited](#)
- **Apr 13:** [EPA Region 9 PFAS Community Engagement Session](#)
- **Apr 13:** [Desert Laboratory Lecture – Sonoran Desert Plants in a Changing Climate: What Do Long-Term Data Tell Us?](#)
- **Apr 13:** [CAP Stakeholder Rate Briefing](#)
- **Apr 15:** [Rio Reimagined Earth Day Salt River Cleanup](#) **POSTPONED – New date will be shared soon!**
- **Apr 15:** [City of Glendale Water Awareness Day](#)
- **Apr 17-20:** [90th Annual Western Snow Conference](#)
- **Apr 19:** [WRRC Seminar Series: Golf Course Water Usage: Effective Policy and Effective Water Efficiency Strategies](#)
- **Apr 20:** [Flood Justice Symposium](#)
- **Apr 20-21:** [Santa Cruz River Research Days: Raising All Voices in Conservation](#)
- **Apr 21:** [2023 AHS Symposium – Call for Abstracts Deadline](#) **EXTENDED!**
- **Apr 21:** [AHS 2023 Herman Bouwer Intern Scholarship – Application Deadline](#) **EXTENDED!**
- **Apr 21:** [AHS 2023 Halpenny Intern Scholarship – Application Deadline](#) **EXTENDED!**
- **Apr 22:** [Earth Day w/ Cooper Center for Environmental Learning](#)
- **Apr 23-25:** [American Society of Irrigation Consultants 2023 National Conference](#)
- **Apr 24-25:** [NGWA Conference: Managed Aquifer Recharge: Unleashing Resiliency, Protecting Groundwater Quality Conference](#)
- **Apr 25:** [Arizona Water Innovation Initiative Kick-off Event](#)
- **Apr 25:** [Rocky Mountain Research Station Webinar: Using an Understanding of Stream and Riparian Geomorphic Sensitivity and Ecological Resilience to Guide Management: Part 1 – Watershed Processes and Traits](#)
- **Apr 26:** [Southwest Tribal Drought Conversation](#)
- **Apr 27:** [Rocky Mountain Research Station Webinar: Using an Understanding of Stream and Riparian Geomorphic Sensitivity and Ecological Resilience to Guide Management: Part 2 – Meadow Hydrology and Traits](#)
- **Apr 27-28:** [Law Seminars International 10th Annual Comprehensive Conference on Tribal Water in the Southwest](#)
- **Apr 30:** [AHS Academic Scholarships – Application Deadline](#)
- **Apr 30:** [AHS 2023 Avery Intern Scholarship – Application Deadline](#) **EXTENDED!**
- **May 2:** [WRRC Seminar Series: Arizona Water Banking Authority](#)
- **May 3:** [NVIS Seminar Series: Indigeponics: Indigenizing Controlled Environment Agriculture and Off-Grid CEA Greenhouse for Food Production](#)
- **May 5:** [32nd Desert Horticulture Conference](#)
- **May 7-10:** [National Association of Environmental Professionals \(NAEP\) 2023 Conference](#)
- **May 8-11:** [Water for Food Global Conference: Cultivating Innovation: Solutions for a Changing World](#)
- **May 8-12:** [Arizona Water Professionals Appreciation Week](#)
- **May 9-10:** [2023 Corridors, Connectivity, and Crossings Conference](#)
- **May 9-11:** [96th Annual AZ Water Conference & Exhibition](#)
- **May 17:** [WRRC Seminar Series: Green Infrastructure in Tucson, AZ](#)
- **May 18-19:** [CLE International's Law of the Colorado River 23rd Annual Conference: The Next Century of River Policy](#)
- **May 18-20:** [Climate Change Preparedness Conference](#)

- **May 19:** [NAMWUA Water Utility Leadership Forum \(WULF\)](#)
- **May 23-25:** [Rural Water Association of Arizona 2023 Annual Spring Conference](#)
- **May 31:** [US Water Prize 2023 – Application Deadline](#)
- **May 31:** [NWRI Fellowship Program 2023-24 – Application Deadline](#)
- **Jun 13-15:** [UCOWR/NIWR 2023 Annual Water Resources Conference](#)
- **Jun 15-16:** [2023 Next Generation Water Summit](#)
- **Jul 11-12:** [WRRC 2023 Annual Conference: What Can We Do? Solutions to Arizona's Water Challenges](#)
- **Jul 17-19:** [AWRA 2023 Summer Conference: Connecting Land & Water for Healthy Communities](#)
- **Jul 23-25:** [Arizona Water Reuse 2023 Symposium](#)
- **Aug 3-4:** [31st Annual Arizona Water Law Conference](#)
- **Sep 13-16:** [Arizona Hydrological Society 35th Annual Symposium](#)
- **Nov 6-8:** [AWRA 2023 Annual Water Resources Conference](#)

PUBLICATIONS & MEDIA

Guayule Cultivation and Irrigation Methods for the Southwestern United States

As water becomes scarce in Arizona there is a desire by growers to grow crops that use less water. With hundreds of acres already planted across the state and the plan to scale to 10,000 acres over the course of three years, guayule has become a more water wise crop than traditional desert row crops like silage corn, alfalfa, and cotton. In this guide, cultivation and irrigation methods will be discussed to increase area under guayule across the state. [More Info](#)

OTHER NOTICES

March 30, 2023, CAWCD Board Meeting Recap

The Board convened for its annual Pinal County meeting in Casa Grande, beginning by honoring late colleague Marie Pearthree. [More Info](#)

AHS Now Accepting Applications for Academic Scholarships

AHS will award up to three \$2,500 student scholarships for the academic year. The deadline for submitting is April 30. [More Info](#)

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

[Contact us here](#)