

WEEKLY WAVE



COLLEGE OF AGRICULTURE & LIFE SCIENCES
COOPERATIVE EXTENSION

**WATER RESOURCES
RESEARCH CENTER**



April 21, 2023 / Volume 11, Issue 16

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](#).

[WRRC Office Update](#)

[Subscribe to the Weekly Wave](#)

[View as Webpage](#)

IN THIS ISSUE: New DEIJ Article, AZ Water Professionals, Federal Funding, APW, New Plant Study

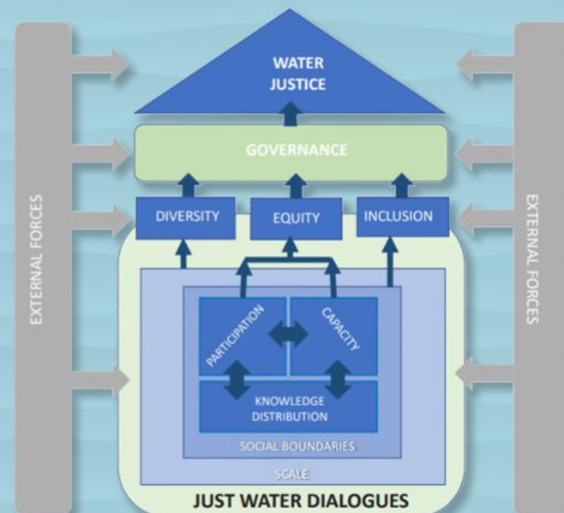
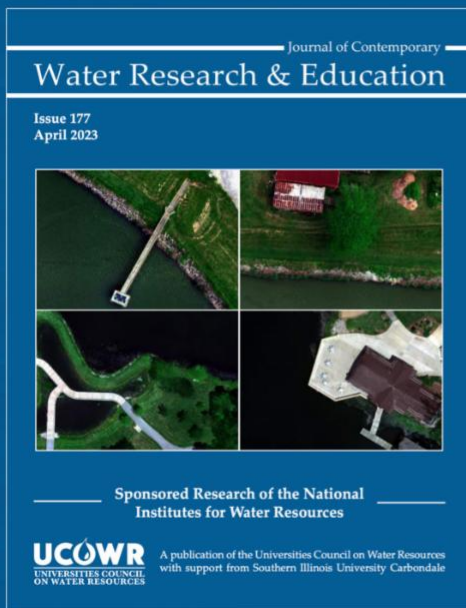


Figure 4. Conceptual framework of Just Water Dialogues.

UCOWR Publishes New Article on DEIJ in Water Dialogues

The current issue of the *Journal of Contemporary Water Research & Education*, a publication from the Universities Council on Water Resources (UCOWR), contains a

groundbreaking article titled “Diversity, Equity, Inclusion, and Justice in Water Dialogues: A Review and Conceptualization.” Lead author Simone A. Williams, a recent WRRC graduate research assistant and current PhD student in the UArizona Arid Lands Resource Sciences Graduate Interdisciplinary Program, carried out the first systematic literature survey encompassing a range of literatures relevant to DEIJ in water resources. Flowing from a WRRC research initiative led by Director Sharon B. Megdal, the article goes beyond a review of the available literature to articulate a conceptual framework for engaging and enabling diverse voices to participate effectively in water dialogues. A concept of “just water dialogues” emerged from the analysis, along with concepts of how such dialogues can support just water resource decision-making. Williams and co-authors Susanna Eden, Valerisa Joe-Gaddy, and Sharon B. Megdal describe how power imbalances, disparate individual and organizational capacities, and failure to recognize cultural identities and unique knowledge undermine effective engagement. They end by highlighting strategies to address these issues, such as building bridges with diverse, often underrepresented, groups and suggesting avenues for further research.

[Read the Article](#)

EVENTS

WRRC Seminar Series: Preparing for Shortages on the Colorado River: The Activities of the Arizona Water Banking Authority



Date: Tuesday, May 2, 2023

Time: 12:00 pm – 1:15 pm Arizona Time

Location: [Webinar Only](#)

Speaker: Rebecca Bernat, *Water Resources Specialist Associate & Technical Administrator, AWBA*

Established in 1996 to store an unused portion of Arizona's Colorado River entitlement, the Arizona Water Banking Authority (AWBA) provides backup supplies in times of shortages for certain fourth-priority Colorado River users (through a process called firming) and Nevada. With the first-ever Colorado River shortage declaration by the Secretary of the Interior in 2022, the AWBA transitioned to its next phase, making its stored water supplies available to meet its responsibilities. In this WRRC webinar, Dr. Bernat will talk about the ways in which the Water Banking Authority is preparing for shortages, from firming the Gila River Indian Community to recovery planning with partners in the Phoenix, Pinal, and Tucson active management areas.

[Register Here](#)

[More Info](#)

NVIS Seminar Series: Indigeponics: Indigenizing Controlled Environment Agriculture *and* Off-Grid CEA Greenhouse for Food Production: A Collaborative Pilot Project between Diné College and the University of Arizona

Date: Wednesday, May 3, 2023

Time: 12:00 pm – 1:00 pm Arizona Time

Location: ENR2 - N604 and [Zoom](#)

Speakers:

Chantel Harrison, *UArizona Grad Student, Controlled Environment Agriculture PSM Program*

Jaymus Lee, *UArizona Grad Student, Controlled Environment Agriculture PSM Program*



Chantel Harrison, (Diné), is a graduate student at the University of Arizona's

Controlled Environment Agriculture PSM program. She is a UArizona IndigeFEWSS Fellow, UArizona Sloan Scholar, and Native Pathways Fellow. Her current work focuses on sustainable food systems in Indigenous communities utilizing controlled environment agriculture (CEA) from an Indigenous perspective. She is currently leading an Indigenous greenhouse research project which aims to respectfully cultivate Indigenous plants in partnership with Indigenous growers and organizations. Additionally, her work with Indige Planted LLC aims to empower Tribal communities to reconnect with plant relatives through garden education and indigenizing STEM curriculum. Long-term, her interests include contributing solutions that address food sovereignty and food accessibility in urban and rural Indigenous communities.

Jaymus Lee is a graduate student at the University of Arizona's Applied Biosciences PSM program in Controlled Environment Agriculture within the Department of Biosystems Engineering. He is Diné, a member of the Navajo Nation whose family comes from the Four Corners area. He completed the IndigeFEWSS NSF Fellowship and most recently worked as a Sustainable Agriculture & Water Futures Intern with the Babbitt Center. He is finalizing a pilot project between UArizona and Diné College to develop a novel and sustainable solution for off-grid food production within controlled environment agriculture (CEA) systems. His current scope of work focuses on off-grid greenhouse and hydroponic system design, and indigenizing STEM curriculum, and he would like to further study the role of CEA systems on Tribal lands to address issues in the food-energy-water nexus and food sovereignty.

[Register Here](#)

[More Info](#)

Upcoming WRRC Events

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

Jun 1 at 12:00 pm: WRRC Seminar Series: Homeowners Associations – An Overlooked Water Sustainability Opportunity in the Desert: 2023 Update – Save the Date!

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](#)



WRC 2023
Annual Conference

WHAT CAN WE DO?
SOLUTIONS TO ARIZONA'S WATER CHALLENGES

REGISTRATION OPENING NEXT WEEK

JULY 11 – 12, 2023
University of Arizona Student Union
Grand Ballroom, Tucson, AZ

Photo: Stephen Cumberworth - "Rainfall", Tucson, AZ
WRC 2022 Photo Contest



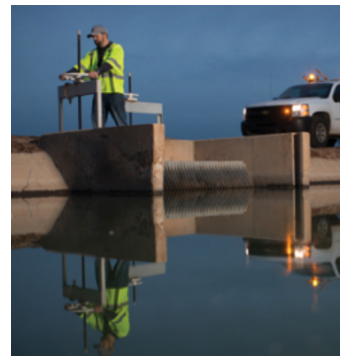
HAPPY EARTH DAY
2023

Sat. April 22

NEWS

Mark Your Calendars for AZ Water Professionals Appreciation Week

During the week of May 7-14, Arizona leaders from both within and outside the state's water community will take time during [Arizona Water Professionals Appreciation Week](#) to recognize the thousands of water professionals working to provide residents with clean and sustainable water supplies. The Appreciation Week also aims to highlight career opportunities in the water industry and increase awareness of the state's unique water resources. The kick-off of the fifth-annual Arizona Water Professionals Appreciation Week is scheduled for 5:00 pm on Monday, May 8, at the Hyatt Regency Phoenix as part of the AZ Water Associations' 96th Annual Conference Opening Reception. Sen. Rosanna Gabaldon (D-Sahuarita) and Rep. Stephanie Stahl Hamilton (D-Tucson) will read the Proclamation from the Arizona Senate and House floors, respectively, at 1:15 pm on Monday, May 8. The readings will be recorded and archived on the Arizona Legislature [website](#) under the Arizona Capitol Television tab. Arizona Water Professionals Appreciation Week is scheduled in conjunction with the AZ Water Conference, which will be held May 9–11 in Phoenix. Both events are organized by the AZ Water Association. Show your appreciation for Arizona Water Professionals by using the hashtag **#AZWaterProfessionals** on social media!



Biden Administration Announces Significant Investment in Water in the West

On April 5, the Biden Administration announced over \$580 million to “conserve community water supplies and revitalize water delivery systems” in the Colorado River Basin and across the West, according to a statement by Deputy Interior Secretary Tommy Beaudreau. The funding comes from the Bipartisan Infrastructure Law and will be allocated to 83 projects across 11 states. According to a Bureau of Reclamation press release, these projects include efforts to provide Tribal water treatment infrastructure, provide necessary maintenance for aging existing projects, increase canal capacity, and replace hydropower equipment. This funding builds on \$240 million allocated in fiscal year 2022 and over \$4.6 in funding from the Inflation Reduction Act. The Administration also announced up to \$233 million in funding and conservation agreements for the Gila River Indian Community, including \$83 million for a water reuse pipeline project.



Image: Jenell Biggs, WRRC 2022 Photo Contest

- [Investment Fact Sheet](#)
- [Funded Projects](#)
- [GRIC Funding](#)



APW AmeriCorps Members Finish Their Service Terms

In April and May, Arizona Project WET (APW) will be saying goodbye to several AmeriCorps Water Educators as their terms of service come to an end. AmeriCorps is a network of local, state, and national service programs that connect over 70,000 Americans each year in intensive service to meet community needs in education, the environment, public safety, and much more. AmeriCorps members are an integral part of APW's programming and are responsible for delivering its water-related content to K-12 students throughout the state. APW would like to give a huge thanks to Elias Avenente, Juliana Perez, Mia Silva-Catbagan, Monica Stoll, Lauren Slavic, Brad Gray, and Erin Olesiewicz for their service, and wish them the best in their future endeavors.



Image: Clay Lyon

Study Finds Drought-Stressed Plants Emit Sound

According to research published in March 2023, plants emit airborne, ultrasonic sounds when stressed by dehydration or cutting. The research article, titled “Sounds emitted by plants under stress are airborne and informative,” was published in the journal *Cell*, and is open access. The researchers studied tomato and tobacco plants in greenhouse conditions using a recording system and, “By training machine learning models, [they] were able to distinguish between drought-stressed, cut, and control plants, based only on the sounds they emit.”



These results have possible applications for agricultural monitoring in greenhouse or field conditions, although there would be challenges to implementation and additional investigation is still required. Identifying drought-stressed plants would allow for more precise irrigation, increasing crop yields and improving water efficiency. The research paper is free to read and a sample audio recording of tomato plants — down-sampled into audible ranges and with silent intervals compressed — is available for those curious to listen.

Image: Liz Kemp, WRRC 2022 Photo Contest

- [Read the Paper](#)
- [Sample Recording](#)
- [News Article](#)

WATER JOBS

- ADWR [Water Resources Administrative Intern](#)
- ADWR [Water Resources Specialist 3 \(Council Coordinator\)](#)
- Arizona Forward [Paid Summer Internship](#)
- The Babbitt Center for Land and Water Policy [Executive Director](#)
- SRP [Water Conservation Coordinator](#)
- UArizona [Assistant/Associate Agent, Agriculture and Natural Resources](#)
- WateReuse [Technical and Regulatory Program Manager](#)

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

ANNOUNCEMENTS

- **Apr 21:** [Gila River Indian Community Earth Day Celebration](#)
- **Apr 21:** [Data-Enabled Agriculture Resilience Panel](#)
- **Apr 21:** [AHS 2023 Herman Bouwer Intern Scholarship – Application Deadline EXTENDED!](#)
- **Apr 21:** [AHS 2023 Halpenny Intern Scholarship – Application Deadline EXTENDED!](#)
- **Apr 21:** [2023 AHS Symposium – Call for Abstracts Deadline EXTENDED!](#)
- **Apr 22:** [Earth Day 2023: Invest in Our Planet](#)
- **Apr 22:** [Festival Fields Park Tree Planting and Park Clean Up Event](#)
- **Apr 22:** [City of Chandler Earth Day Celebration](#)
- **Apr 22:** [Maricopa County Lake Pleasant Earth Day Event](#)
- **Apr 22:** [Salt River Pima-Maricopa Indian Community 2023 Earth Day Celebration](#)
- **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:** [Water Irrigation Efficiency Program](#)
- **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:** [Grant Applications Workshop: Water Conservation Grants Fund](#)
- **Apr 26:** [AWRA 2023 Webinars: The UN Water Conference: What Just Happened?](#)
- **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 28:** [Ak-Chin Indian Community Earth Day Event – Save the Date!](#)
- **Apr 30:** [AHS Academic Scholarships – Application Deadline](#)
- **Apr 30:** [AHS 2023 Avery Intern Scholarship – Application Deadline](#) **EXTENDED!**
- **May 1:** [AWRA Awards Program – Nomination Deadline](#)
- **May 2:** [WRRRC Seminar Series: Preparing for Shortages on the Colorado River: The Activities of the Arizona Water Banking Authority](#)
- **May 3:** [NVIS Seminar Series: Indigeponics: Indigenizing Controlled Environment Agriculture and Off-Grid CEA Greenhouse for Food Production: A Collaborative Pilot Project between Diné College and the University of Arizona](#)
- **May 5:** [One Health 2023 Spring Symposium: Water is Life](#)
- **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:** [2023 Western Drought Webinar](#)
- **May 9-10:** [2023 Corridors, Connectivity, and Crossings Conference](#)
- **May 9-11:** [96th Annual AZ Water Conference & Exhibition](#)
- **May 12:** [AWRA 2023 Annual Water Resources Conference – Abstract Deadline](#)
- **May 17:** [WRRRC Seminar Series: Green Infrastructure in Tucson, AZ](#)
- **May 19:** [WIFA Water Conservation Grant Fund – Application Deadline](#)
- **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 1:** [WRRRC Seminar Series: Homeowners Associations – An Overlooked Water Sustainability Opportunity in the Desert: 2023 Update – Save the Date!](#)
- **Jun 13-15:** [UCOWR/NIWR 2023 Annual Water Resources Conference](#)
- **Jun 15:** [WaterReuse Arizona 2023 Scholarship – Application Deadline](#)
- **Jun 15-16:** [2023 Next Generation Water Summit](#)
- **Jul 11-12:** [WRRRC 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 12:** [AWRA 2023 Annual Water Resources Conference – Student Poster Deadline](#)
- **Sep 13-16:** [Arizona Hydrological Society 35th Annual Symposium](#)

PUBLICATIONS & MEDIA

Drought-Stressed Plants Emit Sound

Khait, Itzhak, et al. "Sounds emitted by plants under stress are airborne and informative." *Cell* Volume no. 186, Issue 7 (2023): 1328-1336.

<https://doi.org/10.1016/j.cell.2023.03.009>.

Open-Access Article on Diversity, Equity, Inclusion, and Justice (DEIJ) in Water Dialogues

Williams, Simone A., Susanna Eden, Sharon B. Megdal, and Valerisa Joe-Gaddy.

"Diversity, Equity, Inclusion, and Justice in Water Dialogues: A Review and Conceptualization." *Journal of Contemporary Water Research & Education*, no. 177 (April 2023): 113–139. https://ucowr.org/wp-content/uploads/2023/04/177_full_issue.pdf

OTHER NOTICES

WIFA Water Conservation Grant Program Now Open

The Water Conservation Grant Fund (WCGF) exists to provide financial resources to eligible entities for the purpose of conserving Arizona's water supply. A wide range of projects and programs may be eligible for WCGF funding. Eligible entities may apply for up to \$250,000 per project or \$3,000,000 per program. A 25% match is required. Cities, towns, counties, districts, commissions, authorities, or other public entities that are organized and exist under the statutory law of Arizona or a voter-approved charter or initiative of Arizona are eligible to apply. Additionally, non-governmental organizations (NGOs) may apply in partnership with one of the entities described above. This first round of applications will be open for four weeks and closes on May 18 at 5:00 pm. [More Info](#)

Registration Open for One Health Spring 2023 Symposium: "Water is life"

Faculty from across the University of Arizona will share their research and insights into water under the One Health umbrella. WRRC Director Sharon B. Megdal will give an opening address, "One Water, OneHealth, One Earth," which highlights the OneHealth idea of using and reusing water to meet human and environmental needs. Keynote speaker John H. Postlethwait, professor of biology at the University of Oregon's Institute of Neuroscience, will discuss integrating human, animal, and environmental health using fish as models. One Health is an approach that recognizes the interconnections in health and wellness among people, animals, plants, and our shared environment. It integrates expertise in human, animal, and environmental health to improve health outcomes, better respond to public health challenges, assure safe and healthy food and water, and protect global health security. [More Info](#)

Wyland National Mayor's Challenge for Water Conservation

My Water Pledge is a friendly competition between cities across the US to see who can be the most "water-wise." Mayors nationwide will challenge their residents to conserve water, energy, and other natural resources on behalf of their city through a series of informative, easy-to-use pledges online. Cities with the highest percentage of residents who take the challenge win. Last year, the challenge awarded more than \$50,000 in prizes to nearly 300 residents in US cities. [More Info](#)

AWRA Awards Program

Each year, AWRA recognizes individuals, organizations, projects, state sections, and student chapters for outstanding leadership and service in the water resources profession. Individuals and organizations have an opportunity to nominate candidates across different categories each spring, with awards presented during AWRA's Annual Water Resources Conference in the fall. [AWRA membership](#) is not required to make a nomination or receive an award except for the Fellow Member Award. Nomination applications must be submitted by May 1, 2023. [More Info](#)

WaterReuse Arizona 2023 Scholarships

WaterReuse Arizona will award two (2) scholarships of three thousand dollars (\$3,000) each to Arizona university and college students. The purpose of this award is to encourage full-time students with a focus on wastewater reclamation, water reuse, and/or desalination. The scholarships will be awarded July 24, 2023 at the Arizona Water Reuse Conference in Flagstaff, Arizona. Scholarship applications must be post-marked by June 15, 2023. [More Info](#)

Science Philanthropy Alliance Members Meeting Recap – Water: The Universal Solvent

At the March 28–29, 2023 meeting, WRRRC Director Sharon B. Megdal moderated a panel on “Managing Water Scarcity and Abundance.” [More Info](#)

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

[Contact us here](#)