



AUBURN  
UNIVERSITY

Water Resources Center

# 2022 ANNUAL REPORT



**BRINGING SCIENCE TO PEOPLE & PEOPLE TO SCIENCE**

WHO WE ARE  
OUR MISSION  
EXTENSION  
RESEARCH  
INSTRUCTION  
MOVING FORWARD

# WHO WE ARE

## WATER RESOURCES TEAM



**EVE BRANTLEY**  
DIRECTOR



**MONA DOMINGUEZ**  
AWW DIRECTOR



**SERGIO RUIZCORDOVA**  
DATA COORDINATOR



**SYDNEY ZINNER**  
AWW VOLUNTEER  
MONITOR COORDINATOR



**RACHEL MCGUIRE**  
COMMUNICATIONS  
COORDINATOR



**CAROLINA RUIZ**  
ADMINISTRATIVE  
ASSISTANT



**JESSIE CURL**  
EXTENSION WATER  
PROGRAM COORDINATOR



**LAURA BELL**  
EXTENSION WATER  
PROGRAM COORDINATOR



**ADAM NEWBY**  
WATER RESOURCES  
RESEARCH ASSOCIATE

# OUR MISSION

To facilitate interdisciplinary collaboration among Auburn University faculty, staff, and students on water-related research, outreach, and instruction; conduct innovative research to find practical solutions for current and future water issues; and empower private citizens to become active stewards of water resources.

## OUR VISION

Is a world where water resources are used, managed, and protected in a more scientifically-informed and sustainable manner, resulting in resilient ecosystems and thriving communities.

## OUR OBJECTIVES

**To provide** research-based information to environmental professionals and policy makers for improved management and protection of Alabama's water resources.

**To promote** holistic management of water resources that supports multiple uses (agricultural, industrial, ecological, recreational, etc.).

**To facilitate** interdisciplinary, multi-institutional collaboration among Auburn University faculty, staff, and students on water-related research, education, and community engagement.

**To empower** private citizens to be better stewards of local, regional, national, and international water resources through water quality monitoring training.

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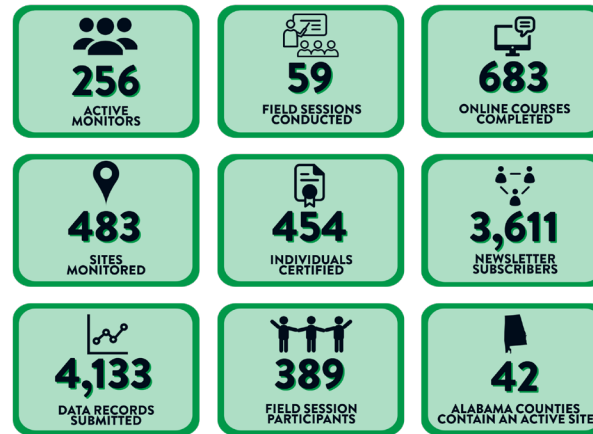
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# EXTENSION

## ALABAMA WATER WATCH

Alabama Water Watch (AWW) is a citizen volunteer water quality monitoring program. The mission of AWW is to improve both water quality and water policy through citizen monitoring and action. AWW uses EPA-approved monitoring plans with a community-based approach to train citizens to monitor conditions and trends of their local waterbodies. With a “data-to-action” focus, AWW helps volunteers collect, analyze, and understand their data to make positive impacts.

### ALABAMA WATER WATCH 2022 | BY THE NUMBERS



IN 2022, AWW VOLUNTEERS CONTRIBUTED  
18,866 HOURS MONITORING,  
A VALUE OF \$565,037



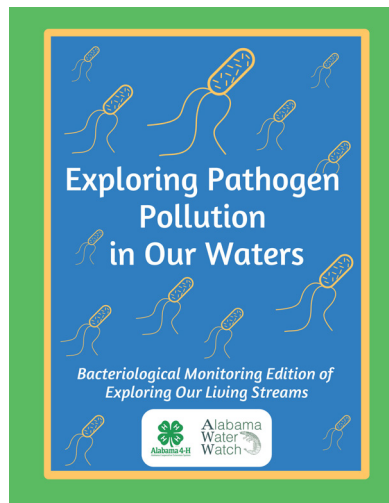
# EXTENSION

## 4-H ALABAMA WATER WATCH

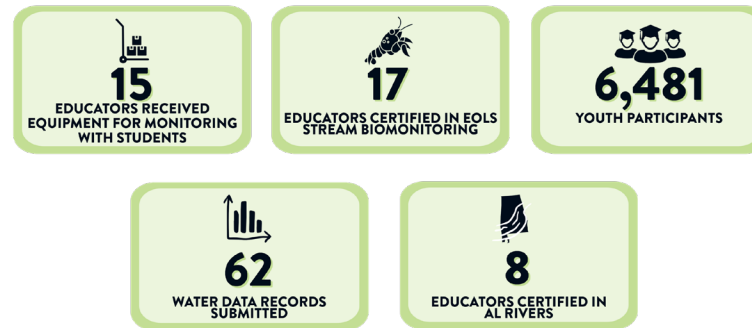
4-H Alabama Water Watch (4-H AWW) is the statewide youth water quality monitoring program created through a partnership between Alabama Water Watch and Alabama 4-H, the youth development program of the Alabama Cooperative Extension System (ACES).

4-H AWW increases environmental literacy by building capacity in volunteer trainer and educators to provide youth with awareness and understanding of watershed issues and tools that cultivate the critical thinking skills students need to identify and solve problems related to water quality.

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### 4-H AWW IN 2022

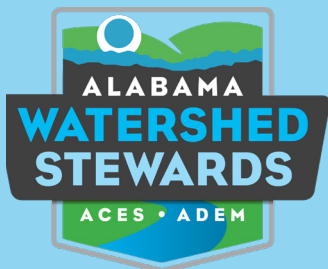
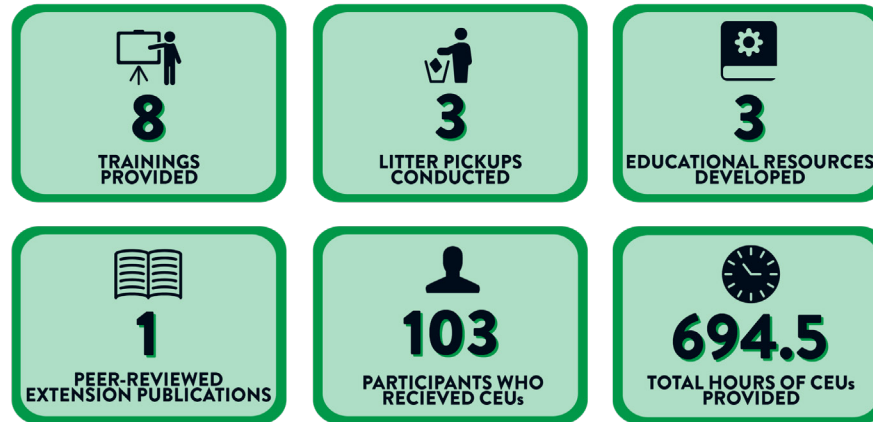


# EXTENSION

## ALABAMA WATERSHED STEWARDS

Alabama Watershed Stewards (AWS) is a statewide science-based educational program that promotes healthy watersheds, increases understanding of water pollution, and provides the knowledge and tools needed to prevent and resolve local water quality problems. The goal of the AWS program is to increase citizen awareness and knowledge about the function of watersheds, their potential impairments, and local watershed protection strategies. The program includes practical information about local watersheds, provides opportunities to connect with local community groups, and presents engaging tools for encouraging individuals to take leadership roles in improving their local water quality.

## ALABAMA WATERSHED STEWARDS 2022 | BY THE NUMBERS



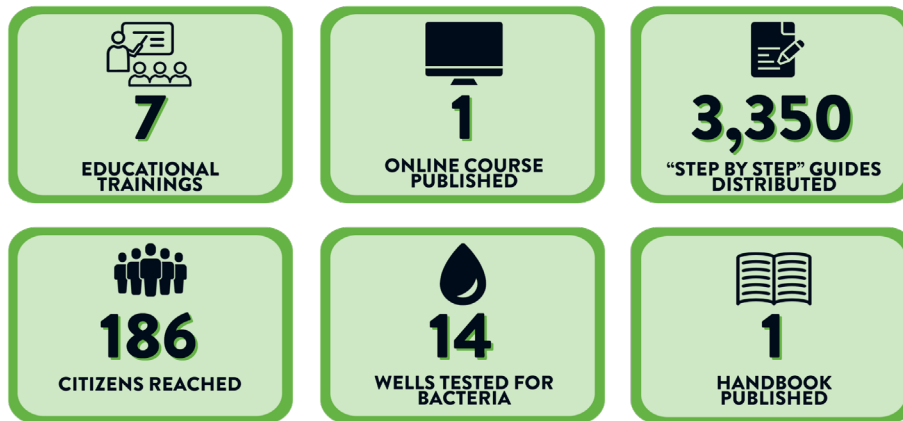
# EXTENSION

## ALABAMA PRIVATE WELL PROGRAM

The Alabama Private Well Program was established in 2020 and has since become a highly valued and referenced resource to both Alabama Cooperative Extension System (ACES) clients and staff across the state. This program increases access to private well educational materials to empower, engage, and equip well users with the resources needed to protect their water systems.

The core values of the program are to deliver meaningful information to homeowners with private wells, educate well owners on the importance of proper well stewardship, and serve as a resource for well owners and Extension personnel to obtain answers and information about small-water systems.

## ALABAMA PRIVATE WELL PROGRAM 2022 | BY THE NUMBERS



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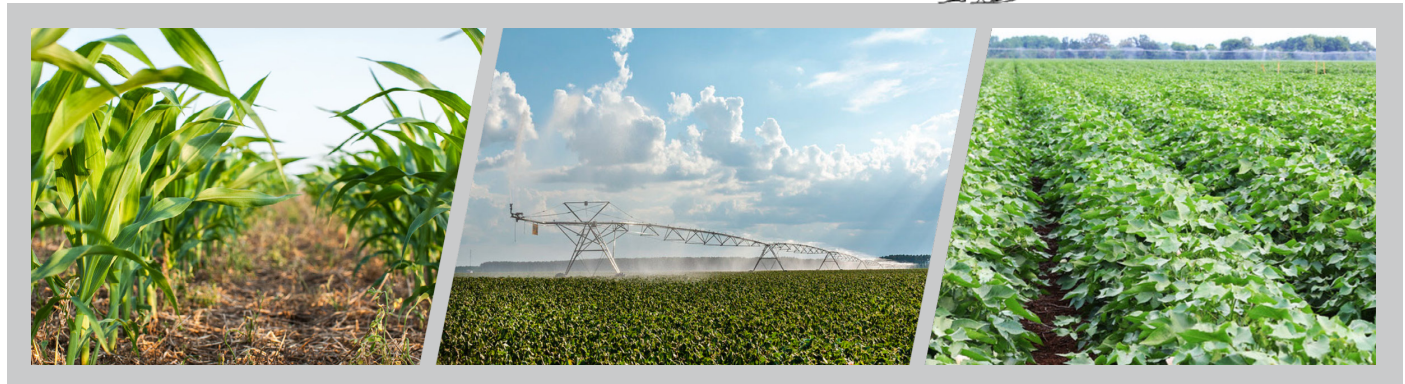
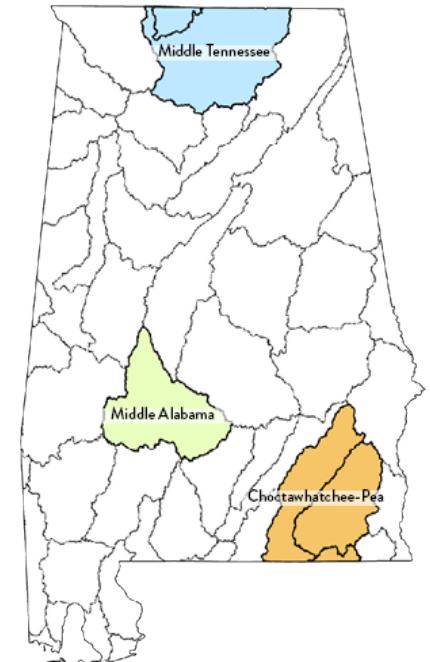
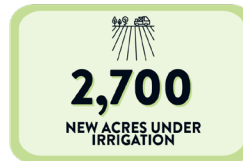
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# EXTENSION

## IRRIGATION WATERSHED PLANNING

The ACES Water Program partners with the USDA Natural Resources Conservation Service (NRCS), Alabama Soil and Water Conservation Committee, and University of Alabama in Huntsville to prepare watershed plans that inform the sustainable expansion of irrigation in selected watersheds. Two Watershed Plan - Environmental Assessments have been authorized as of January 2023, and a Plan-EA for the Middle AL River Basin is currently in review. Funds have been dispersed for irrigation expansion in the Middle Tennessee River Valley and the Choctawhatchee - Pea Watersheds. A preliminary investigation has begun for the Pickwick Lake Watershed.

### 2022 | BY THE NUMBERS



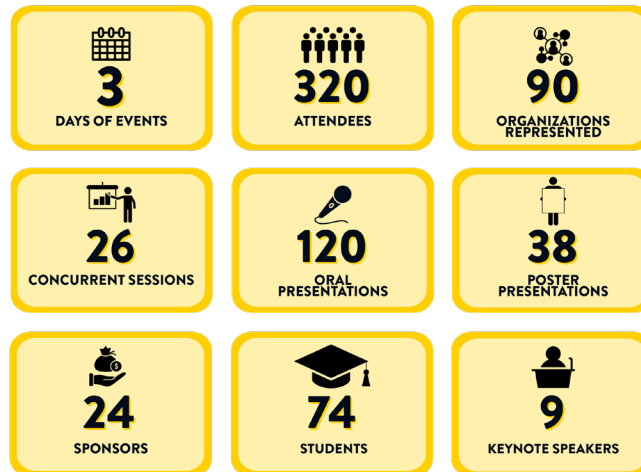


# EXTENSION

## ALABAMA WATER RESOURCES CONFERENCE

AUWRC staff facilitates the Annual Alabama Water Resources Conference (ALWRC). This conference is a forum for all participants of our water resources community, that provides opportunities for conversation about the many multidisciplinary aspects of water resources as well as a space to make connections that will improve how we understand the complex water issues that are of importance to this state, the region, and the nation. The ALWRC is traditionally held the week following Labor Day at the Perdido Beach Resort in Orange Beach, Alabama. The first day included the American Water Resources Association (AWRA) Alabama Chapter Symposium with a 2022 theme of “Ecological Infrastructure”.

### ALABAMA WATER RESOURCES CONFERENCE 2022 | BY THE NUMBERS



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# EXTENSION

## APALACHICOLA-CHATTAHOOCHEE-FLINT RIVER BASIN PROJECTS

The AUWRC, in partnership with the National Integrated Drought Information System (NIDIS), strives to better inform and prepare Alabama and the Southeast for the many challenges of periodic droughts. Since the inception of the Apalachicola-Chattahoochee-Flint (ACF) River Basin Drought Early Warning System (DEWS) in 2009, the AUWRC has been a key partner in the watershed in the dissemination of drought-related information. In 2020, the ACF DEWS became part of the expanded Southeast DEWS that includes the states of Alabama, Georgia, Florida, North Carolina, South Carolina, and Virginia.

### ACF BASIN DROUGHT & WATER WEBINARS

One of the primary forms of information dissemination in the ACF Basin was the monthly ACF Basin Drought & Water Webinars hosted by the AUWRC for over a decade. Speakers presented information on current climate conditions and outlooks, real-time streamflow forecasts, real-time groundwater ACF Basin reservoir conditions, and Apalachicola Bay salinity levels. Following each webinar, the AUWRC sends a digital ACF Basin Drought Update newsletter to more than 750 subscribers. In May 2022, the webinar series came to a close and was succeeded by the ACF Basin Drought & Water Dashboard.

### ACF BASIN DROUGHT & WATER DASHBOARD

Officially released in January 2022, the ACF Basin Drought & Water Dashboard was a collaborative project between the AUWRC, NIDIS, NOAA's National Centers for Environmental Information (NCEI), and the Albany State University Water Planning and Policy Center. Its primary purpose is to further enhance planning and preparedness of drought at regional levels, including in the Southeast. The resources provided via the Dashboard will improve the public's ability to view real-time information with interactive, shareable, and easy-to-understand graphics on current and predicted drought conditions, and assist decision-making at the basin and local level. The Dashboard includes an ArcGIS StoryMap to enhance public education about drought and water-related issues and context for the ACF Basin.



SCAN TO VIEW  
THE ACF BASIN  
DASHBOARD

# EXTENSION

## ALABAMA DROUGHT REACH

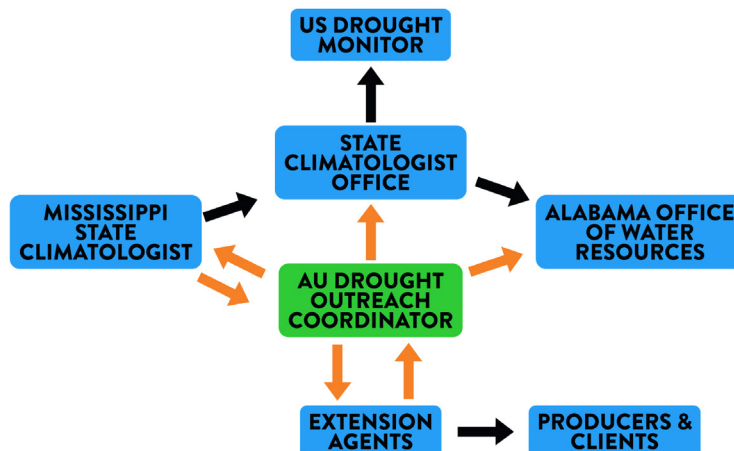
Alabama Drought Reach is a new partnership between the Auburn University Water Resources Center, the Alabama Cooperative Extension System, the Alabama Agricultural Experiment Station, and the Alabama State Climatologist Office at the University of Alabama in Huntsville.

### FLASH DROUGHT & AG IMPACTS

The Alabama Drought Reach Program will focus on agricultural drought and its impacts. Agricultural impacts are often the first noticeable drought symptoms. This is especially so during times of rapid onset of drought conditions, otherwise known as “flash drought.” The Southeast is particularly susceptible to flash drought due to high temperatures, high evapotranspiration rates (plant water demands), and low soil moisture retention. These climactic conditions coupled with the relatively unirrigated ag lands of Alabama, create the potential for devastating economic losses in the sector.

This program will be a two-pronged approach: 1) the development of a statewide drought impacts monitoring system conducted by Alabama Cooperative Extension System (ACES) personnel trained by the AUWRC and 2) the development of drought outreach materials for producers and the greater public regarding drought impacts on agricultural, forestry, and the landowner landscape. In 2023, the AUWRC will hire a Drought Outreach Coordinator to assist and strengthen the flow of information on Alabama agricultural drought impacts between the US Drought Monitor, State Climatologist Office, Alabama Extension Agents, the Alabama Office of Water Resources, and you, the producers and clients of Extension.

### FLOW OF INFORMATION



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## GLOBAL WATER WATCH

Global Water Watch (GWW) is a world-wide network of water monitoring groups that fosters watershed stewardship through the development of citizen volunteer monitoring of surface waters for the improvement of both water quality and public health. The GWW program is housed at Auburn University and is coordinated through the AUWRC.

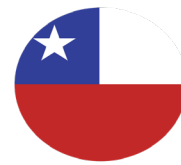
### CURRENT GWW AFFILIATES



USA



ARGENTINA



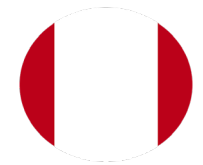
CHILE



COSTA RICA



MEXICO



PERU

### HISTORICAL AFFILIATES



BRAZIL



BOLIVIA



ECUADOR



KENYA



PHILIPPINES



THAILAND



# EXTENSION

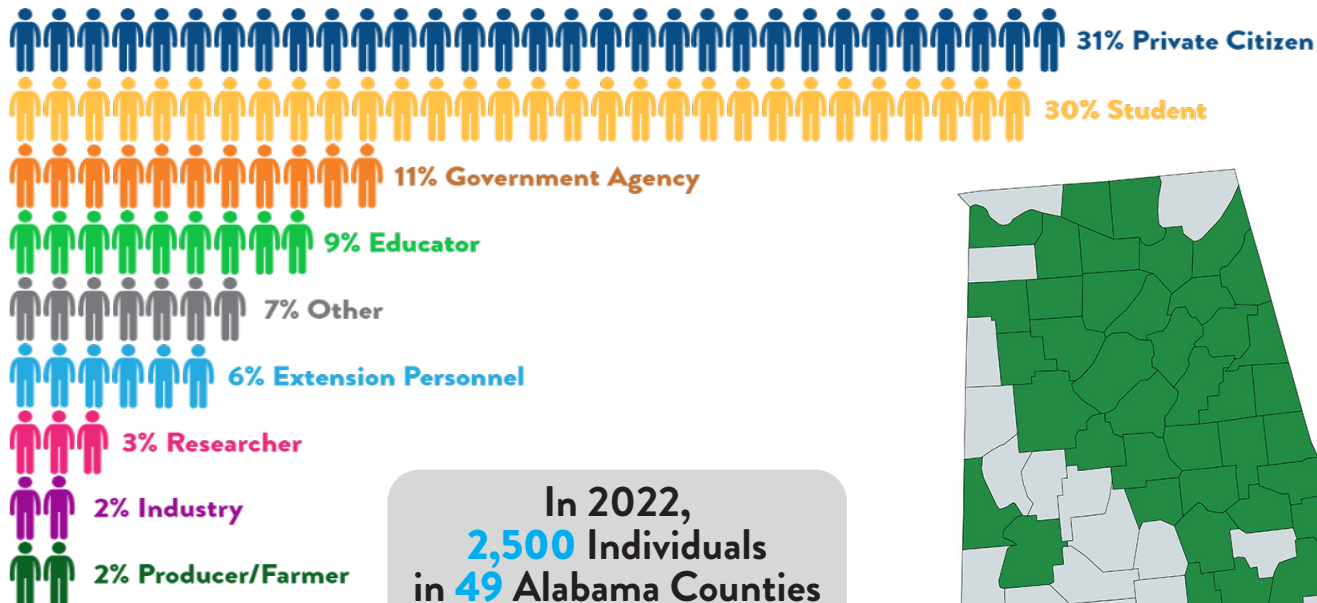
## IMPACTS + TESTIMONIALS

The AUWRC's Outreach and Extension Programs, namely, Alabama Watershed Stewards (AWS), Alabama Water Watch (AWW), and Alabama Private Well Program (APWP) continue to grow together as they search for creative ways to meet the water needs of Alabama's citizens.

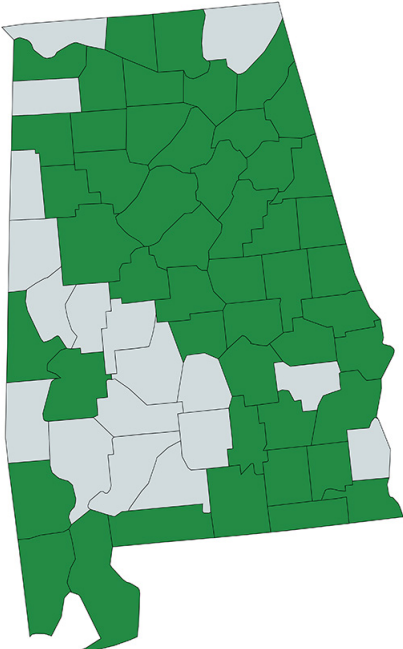
In 2022, **75%** of our Outreach and Extension Program were brand new to AUWRC Programming!

Following their completion of a WRC Training, 59% of the participants stated that they intended to educate others about water quality in the future. 15% reported that they were already doing so.

## WHO ATTENDS AUWRC OUTREACH AND EXTENSION WORKSHOPS?



In 2022,  
**2,500** Individuals  
in **49** Alabama Counties  
participated in AUWRC  
Outreach and Extension  
Workshops!



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*"I learned how important it is for me, as an individual, to take action daily on keeping our water clean. I learned that I can make a difference in my household alone. I have a better understanding on how the quality of our water can be affected so now I know where I can begin helping."*

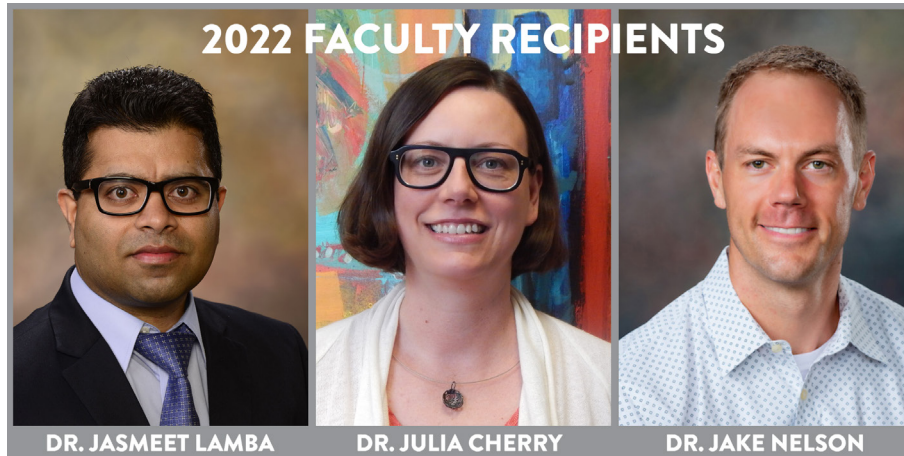
-Workshop Participant

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# RESEARCH

## USGS ALABAMA WATER RESOURCES RESEARCH INSTITUTE (AWRRI)

The AWRRI (housed within the AUWRC) is one of 54 WRRRI's nationwide authorized by the Federal Water Resources Research Act, administered by the U.S. Geological Survey. The state-based WRRRI's are located at land grant universities and promote research and information dissemination on the state's and nation's water resources problems. The AWRRI administers an annual grants program to faculty statewide funding up to \$25,000. In 2022, the AWRRI was proud to offer grants to Auburn University doctoral students as well, funding up to \$7,500 per student.



# RESEARCH

## AUBURN UNIVERSITY WATER NETWORK

The Auburn University Water Network is a group of faculty who are affiliated with the AUWRC. The AUWRC strives to facilitate successful collaboration among faculty, staff and students on multi-disciplinary water-related research. University faculty are engaged in a wide variety of projects to address local, regional, national, and global water issues.

## MONTHLY AUWRC FUNDING OPPORTUNITIES

AU Water Network members received a monthly, digital Funding Opportunities newsletter curated by AUWRC staff for water resources and adjacent academic fields.

## AU WATER ALERTS

AU Water Network members are also included on an email listing for special, periodic email announcements from the AUWRC regarding relevant on and off-campus seminars, webinars, RFP's, conferences, graduate student and professional development opportunities. Members of the AU Water Network can also request information to be shared to this list by contacting the AUWRC Communications Coordinator.

## AUWRC NEWSLETTER

The AUWRC releases a quarterly, digital newsletter to the AU Water Network and external stakeholders and partners. In 2022, 4 newsletters were published that included 3 student features, 1 spotlight video, 3 faculty/staff blog features, and several specialty blog features.

## AUWRC VIDEO SPOTLIGHTS

In 2021, the AUWRC established a Video Spotlight series to highlight water-related research conducted by faculty, staff, and students across Auburn's campus. One video was released in 2022 featuring Dr. Jessica Davis and the Auburn University Soil Testing Lab.

SCAN  
TO VIEW  
SPOTLIGHT  
VIDEOS

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# RESEARCH

## AUWRC WATER WEBINARS

Outreach and research collide with the AUWRC Water Webinar Series which feature recent and ongoing research, outreach, and Extension topics from AU faculty and staff that are experts in water resource fields. In 2022, webinars featured presenters from the College of Agriculture, College of Science and Mathematics, College of Forestry, Wildlife, and Environment, and external presenters from the Geological Survey of Alabama and Tall Timbers.

<b>2022 AUWRC WATER WEBINAR SPEAKERS</b>			
<b>DR. SUSHIL ADHIKARI</b>	<b>DR. YANIV OLSHANSKY</b>	<b>DR. KEVIN WANG</b>	
			
<b>DR. ALVARO SANZ-SAEZ</b>	<b>ELIZABETH BRADLEY</b>	<b>JIM COX</b>	<b>DR. REBECCA BEARDEN</b>



# RESEARCH

## AUWRC WATER WEBINARS

The webinars are open to the public and have covered topics from pathogenic pollution in Alabama surface waters, microplastics on the Coast, bass ecology, precision agriculture, wetland ecology, restoration of carnivorous plants, and more. These webinars have fostered countless interdisciplinary connections within Auburn University and beyond. In 2022, AUWRC facilitated 8 Water Webinars with 14 invited speakers.



A graphic titled "2022 AUWRC WATER WEBINAR SPEAKERS" featuring three speakers: Dr. Steve Sammons (a man in a blue shirt holding a large fish), Dr. Katelyn Kesheimer (a woman with long brown hair), and Dr. Josh Weaver (a man with a beard). Below them, it says "AND A SPECIALTY PANEL WITH SPEAKERS FROM" followed by logos for the University of Alabama (Sandy Faulkner), ADECA (Tom Littlepage), ADEM (Chris Johnson), and a water drop logo (Sabra Sutton).

**2022  
AUWRC  
WATER  
WEBINAR  
SPEAKERS**

**DR. STEVE  
SAMMONS**

**DR. KATELYN  
KESHEIMER**

**DR. JOSH  
WEAVER**

**AND A SPECIALTY PANEL WITH SPEAKERS FROM**

**SANDY  
FAULKNER**

**TOM  
LITTLEPAGE**

**CHRIS  
JOHNSON**

**SABRA  
SUTTON**

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# INSTRUCTION

## AUWRC FIELD EXPERIENCES

Since 2018, the AUWRC has offered field-based experiences for Auburn University classes. The AUWRC recognizes the importance of experiential learning and is seeking to supplement traditional classroom education through outdoor experiences related to student coursework.

Faculty from several different departments have taken advantage of the program, including:

- Landform Hydrology and Landscape Architecture with the College of Design and Construction;
- Natural Resources Conservation Engineering with the Department of Biosystems Engineering;
- Introduction to Environmental Engineering with the Department of Civil and Environmental Engineering;
- Natural Resources Field Methods with the College of Forestry and Wildlife;
- Live Green Stay Green with the First Year Experience Office.

The AUWRC led a total of 8 Field Experiences in 2022.



# INSTRUCTION

## GRADUATE WATER RESOURCES CLUB

The Graduate Water Resources Club (GWRC) was established in January 2021 with 20 founding members. One of the founding ideas behind the GWRC was the benefit all students could gain from an interdisciplinary club. Throughout 2022, GWRC grew in members and was granted permanent status as an Auburn University organization.

The group members' demographics are quite diverse across academic disciplines (i.e. geography, geology, engineering, crop and soil sciences, fisheries, wildlife, forestry, etc.) with students from all over the US and international students from South America and Asia. The only exclusive aspect of GWRC is tailoring meetings to graduate students that are particularly interested in or researching water. In 2022, the GWRC facilitated monthly meetings, water trivia events, stream cleanup opportunities, native plant live stakings, invasive plant pulls, and a springtime paddling trip on the Alabama River.

### 2022 | BY THE NUMBERS



**3**  
WORKDAYS AT PARKERSON  
MILL CREEK



**3**  
WATER TRIVIA  
NIGHTS



**1**  
FLOAT TRIP ON THE  
ALABAMA RIVER



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# MOVING FORWARD

## A MESSAGE FROM THE DIRECTOR

“It’s good to see you.” That sentence was echoed many times in 2022. The Auburn University Water Resources Center team visited throughout Alabama forming new partnerships and connecting with valued colleagues to identify research priorities, conduct impactful Extension programs, and support opportunities for future scientists. We had record numbers at the annual Alabama Water Resources Conference, boosted participation in our community science programs, and facilitated interdisciplinary research connecting with faculty across the state and region. There is more to do. In 2023, we are actively reaching out to organizations and institutions that are less present in our research and Extension to invite participation. Our intent is to continually ask how we can help with Alabama’s water needs, build teams that conduct innovative science, and share findings with diverse audiences. We look forward to seeing you in 2023.

*Evie Brantley*



# 2023 PREVIEW

## HERE'S SOME OF THE CORE AND AFFILIATED PROJECTS AND INITIATIVES IN STORE FOR AUWRC IN 2023:

- Alabama Water Watch (AWW) Family Stream Biomonitoring Workshop
- Phase II of the NOAA BWET Program for 4-H AWW, “Exploring Pathogen Pollution in Our Waters” - statewide expansion
- AWW - R-CARD® Method Transition for Bacteriological Testing
- Alabama Private Well Program’s (APWP) Well Water Webinar Series
- Coastal Well Water Research and Stewardship with AU’s Dr. Ann Ojeda
- APWP - UGA Collaboration for Well Water Access
- Alabama Watershed Stewards (AWS) Nature-Based Stormwater Solutions Collaborative Workshop with Mobile Bay NEP
- AWS Watershed Management Planning Workshops
- NFWF Five Star Grant Project with AWS, AWW, City of Auburn, Westervelt Ecological Services, and AU-BEES
- AWS – Alabama Stormwater Association (ASA) Facilitated Conversation: Stormwater Obstacles and Opportunities in Birmingham
- Auburn University Mission Enhancement Fund (EPA-Certified Lab)
- AU-NRT Water and Climate Symposium
- Expanded Collaboration with Alabama Rivers and Streams Network in Connectivity (ARSNiC)
- ASA Auburn University Research Colloquium
- The launch of Alabama Drought Reach - a collaboration with the University of Alabama in Huntsville’s State Climatologist Office)

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FRONT COVER IMAGE | CHEWACLA CREEK AT CHEWACLA STATE PARK BY RACHEL MCGUIRE  
BACK COVER IMAGE | GREAT BLUE HERON AT ORANGE BEACH, AL BY RACHEL MCGUIRE