2018 ANNUAL REPORT

Alabama Water Watch

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Program Director

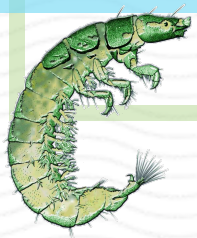
Sergio RuizCórdova
Data Coordinator

Sydney Smith
Volunteer Monitor Coordinator

Rachel McGuire
Research Associate

Carolina Ruiz
Administrative Assistant

AWW 2018 ANNUAL REPORT



A Message from our Director

This was my first full year as Director, and I can't express how proud I am to be part of AWW. Almost daily, I come across an article or project touting the important role "citizen scientists" can play in conservation. Thankfully, for more than 26 years AWW has recognized that by providing citizens with knowledge, appropriate tools, training, and support they will be empowered to protect and restore Alabama's precious water resources. (It's nice that the rest of the world is finally catching up!)

In 2018, both the number of water records and workshops conducted increased from the previous year. This demonstrates a continued commitment from our dedicated monitoring groups, and an increased interest from the public. Individual monitors, groups, and outside entities used AWW data to bring about change in their watersheds. Other highlights of the year included one of most energy filled Annual Meetings we've had in years, the addition of five new citizen trainers and one new AWW Staff, updated water chemistry and bacteriological monitoring manuals, and the continued growth of our 4-H AWW Program.

In 2019, the AWW Staff will continue to provide the highest level of support possible to volunteer water monitors. In addition, we are launching initiatives that aim to encourage involvement of different audiences with AWW, provide monitors with new tools for communicating the meaning of AWW data in their watersheds, and developing partnerships that will increase the use of AWW data in resource management.

There are always challenges to our efforts, whether it is a change to monitoring equipment, funding needs, or meeting the demand for workshops. However, because of the strength of the AWW team, which includes our volunteer monitors, trainers, staff, supporters at Auburn University and the Alabama Cooperative Extension System, members of the AWW Association Board, and countless others, AWW can address these challenges so that we are able to meet the greater calling to watershed stewardship in Alabama.

Thanks to all of you for making 2018 a great year for AWW!

Mona Dominguez

AWW Program Director

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Alabama Water Watch

The AWW Program is part of the Auburn University Water Resources Center (AUWRC) in the Alabama Agriculture Experiment Station (AAES) and receives support from AAES , Alabama Cooperative Extension System (ACES), and external funding.

ABOUT AWW...

Alabama Water Watch (AWW) is a citizen volunteer, water quality monitoring program covering all of the major river basins of the state. The mission of AWW is to improve water quality and water policy through citizen monitoring and action. With a "data-to-action" focus, AWW helps volunteers collect, analyze, and understand their water monitoring data to make positive impacts.

Established in 1992, AWW is a national model for citizen involvement in watershed stewardship, largely because of its three interrelated components: citizen monitoring groups, a university-based program, and a non-profit association.

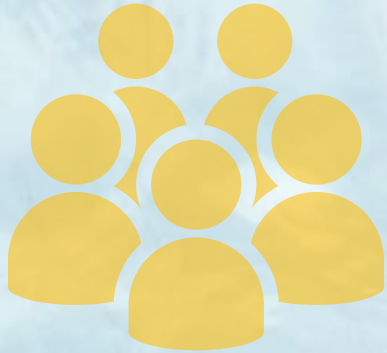
AWW follows EPA-approved quality assurance monitoring plans with a community-based, science-based approach to train citizens to monitor water quality conditions and trends of their local waterbodies.

AUBURN UNIVERSITY
ALABAMA AGRICULTURAL EXPERIMENT STATION
Water Resources Center

extension
ALABAMA A&M & AUBURN UNIVERSITIES

Alabama Water Watch

THE AWW **VISION**



The AWW vision is **to have a citizen monitor on every stream, river, lake and coast in Alabama.**

By the Numbers | 2018 HIGHLIGHTS

58
Active Monitoring Groups

137
Certification Workshops Conducted

221
Waterbodies Monitored

416
Sites Monitored

510
Volunteer Monitors Certified

>1500
Individuals Reached by Educational Programs

3,434
Data Records Submitted

7,338
4-H AWW Youth Participants

19,224
Volunteer Monitor Hours Contributed

WHAT'S THE **VALUE** OF A **DATA RECORD?**

3,434
data records

=

$645,000

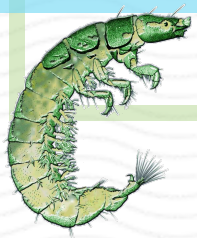
In 2018, a total of 3,434 water quality data records were submitted by volunteer monitors to the AWW online water quality database, providing the State over $645,000 in savings for collection of water data.*

Volunteers contributed more than 19,224 hours to AWW as water monitors, workshop participants, and volunteer trainers, which is valued at $474,641 .**

*Calculated based on cost analysis conducted during the USDA/CSREES-funded study, "A Transferable Model of Stakeholder Partnerships for Addressing Nutrient Dynamics in Southeastern Watersheds" (Deutsch et al 2007), modified with cost adjustments to 2018 values.

** Calculated at 7 hours per workshop and $24.69/hour for volunteer trainer time for AL, from www.independentsector.org/resource/the-value-of-volunteer-time-2018

CITIZEN TRAINING & DATA



CITIZEN TRAINING & DATA

2018 Certification Summary

80
Biomonitoring Certifications

42
Exploring Our Living Streams Certifications

98
Recertifications

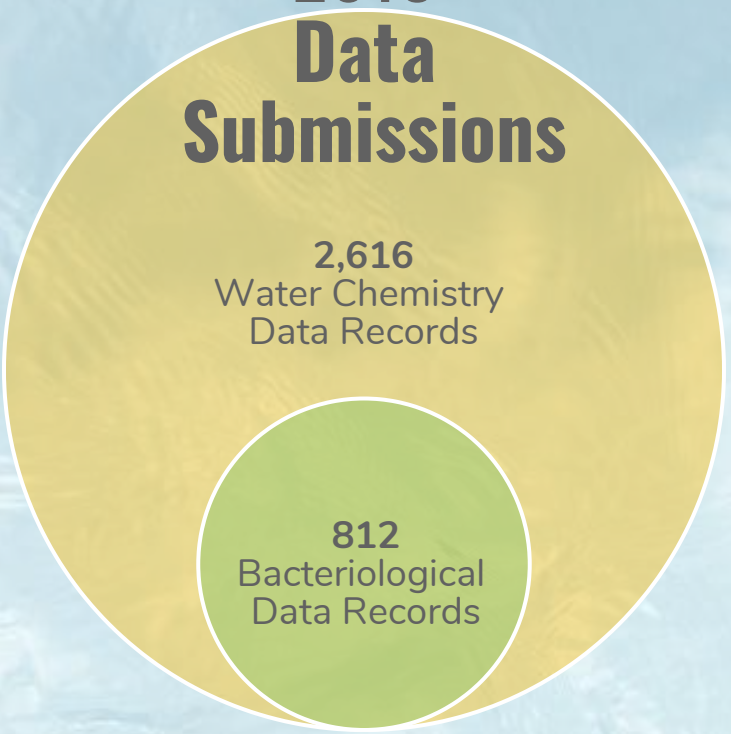
257
Water Chemistry Certifications

193
Bacteriological Certifications

670
Total Certifications

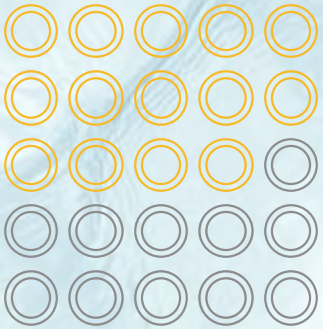
CITIZEN TRAINING & DATA

2018 Data Submissions



3,434 Total Records!

Volunteer Trainers conducted **over half** of the workshops held in 2018!



New Groups Established

4-H AWW Calhoun County
4-H AWW Escambia County
4-H AWW Etowah County
AHS AWW
Cahaba Environmental Center
Cove Creek Watchers
Green Citizens United
Mobile Bay National Estuary Program
USA Marine Science Student Association
Waxahatchee Watcher

Thank you to the AWW Volunteer Trainers who conducted workshops in 2018.

Mike Shelton
Whitney Henson
Mimi Fearn
Jason Kudulis
Jim Woodrow
Florence Peters
Homer Singleton
Jacqueline McGonigal
Jean Ann Moon
Dana Herren
Marshall Carter
Hana Berres
Linda Ruethmann
Isabella Trussell
Stephen Morros
Judy Palfrey
Whitney Flynn
Taylor Steele
Rita Grub

CITIZEN TRAINING & DATA

AWW Program (Total)	2018	Cumulative (Since 1993)
Water Quality Records	3,434	92,487
Water Chemistry Records	2,616	73,976
Bacteriological Records	812	18,192
Stream Bioassessment Records	6	319
Monitors Certified	670	8,016
Sites Monitored	416	2,399
Training Sessions	137	2,358
Waterbodies Monitored	221	907
Monitoring Groups	58	327

2018 was an excellent year for water quality data submissions. We surpassed the 90,000 cumulative water data records mark!

Fifty eight groups (248 active monitors) collected and submitted water quality data from all 10 major river basins in AL in 2018. A total of 3,434 water data records (2,616 water chemistry and 812 bacteriological) collected in 2018 were received at the AWW Office.

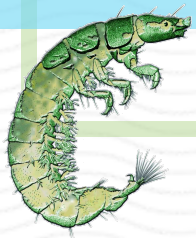
CITIZEN TRAINING & DATA

26 Years of Data from Alabama's Major Watersheds

Watershed	Active Monitors	Active Sites	Total Chemistry Records	Total Bacteria Records
Alabama	4	2	1,397	126
Cahaba	4	8	1,777	417
Chattahoochee	6	25	1,248	358
Coastal Plain	19	79	12,418	5,399
Coosa	60	53	12,531	1,356
Mobile	46	44	9,234	2,641
Tallapoosa	45	93	12,630	3,433
Tennessee	41	57	13,459	1,968
Tombigbee	5	5	116	36
Warrior	18	36	9,130	2,458

Data over the years... take a look at the table above for total data submissions from each of Alabama's major river basins since 1992. That's a lot of data! Well done, monitors!

4-H ALABAMA WATER WATCH



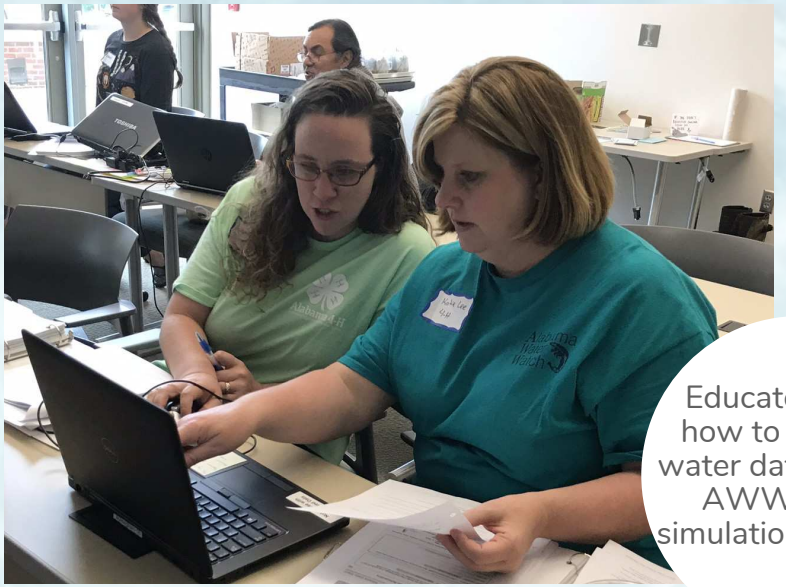
4-H ALABAMA WATER WATCH

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 trainers 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.

In 2018, 45 educators were certified as 4-H AWW Educators during three professional development workshops.

Thanks to Legacy, Inc. Partners in Environmental Education for sponsoring the EOLS workshop at the Cahaba Environmental Center.



Educators learn how to interpret water data through AWW's data simulation exercise.

Alabama 4-H
Alabama Cooperative Extension System

Alabama Water Watch

4-H ALABAMA WATER WATCH

2018 4-H AWW Groups of the Year:
4-H AWW Auburn Unitarian Universalist Fellowship (left) and
4-H AWW Clarke County (right)

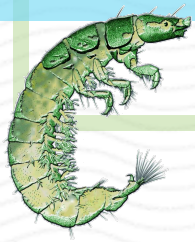
In 2018, more than **7,300** youth were reached through 4-H AWW activities and **77** youth were certified as 4-H AWW water quality monitors. 4-H AWW has provided 55 monitoring kits to 26 counties.

Madison Younge, of Washington County, won first place in the Freestyle Showcase at the 4-H State Competitive Events Day.

Zoe Nye was named 4-H Ambassador for Limestone County

Limestone students test for dissolved oxygen

OUTREACH & RELATED PROJECTS



2018 AWW ANNUAL MEETING

Nearly 100 people (*almost record attendance!*) participated in the 2018 AWW Annual Meeting held on Auburn University's campus in June. The event was covered by the local news syndicate, the *Opelika-Auburn News*.

The 2018 keynote speakers included two Global Water Watch (GWW) leaders: Abby Braman of the Pearl Riverkeeper in Mississippi and Eric Adman of the Sno-King Watershed Council in Seattle, Washington. Dr. Bill Deutsch gave a special presentation officially launching his new book, *Alabama Rivers: A Celebration and Challenge*.

Join us for the 2019 AWW Annual Meeting at Historic Blakeley State Park in Spanish Fort on June 22nd!

2018 Awards

Trainer of the Year
Mimi Fearn

Lifetime Achievement Award
Jean Ann Moon

Water Spirit Award
Eric Reutebuch

4-H Groups of the Year
AUUF
Clarke County

Mullen Award
Janne Debes

AWW Volunteer Monitor presentations included:

Isabella Trussell and Linda Ruethemann of the Logan Martin Lake Protection Association

Anne Mathews of Friends of Turkey Creek Nature Preserve.

4-H AWW - Auburn Unitarian Universalist Fellowship represented by Julie Meadows and Shawn Jacobsen

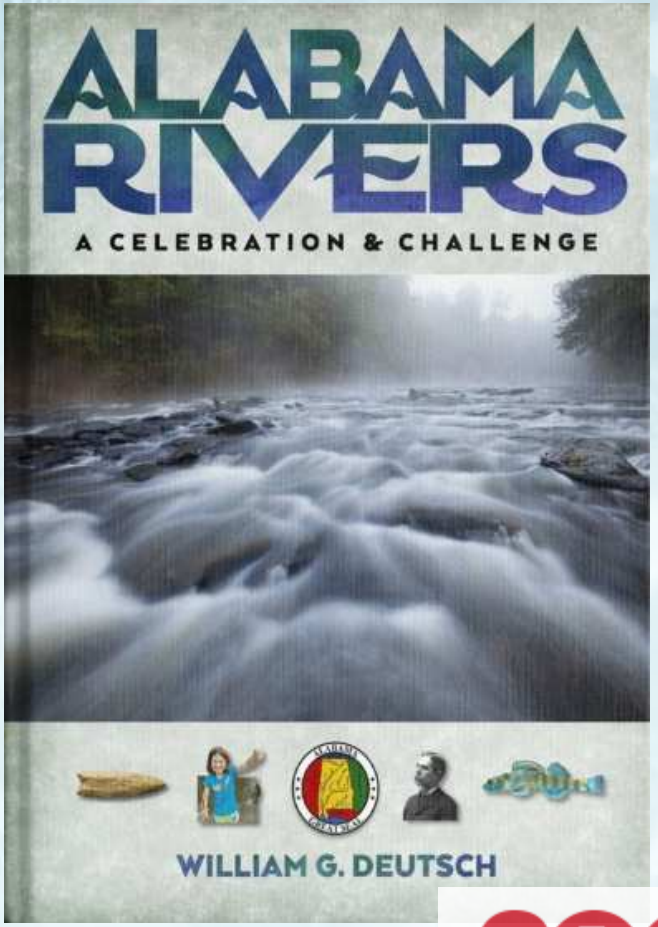
4-H AWW - Limestone County represented by Chloe Wilson and Starr Weems.

ALABAMA RIVERS

In 2018, Dr. Bill Deutsch, former AWW Director, published his much anticipated book, *Alabama Rivers,* which is a mix of the human history and natural history surrounding the state's rivers, interspersed with Bill's personal stories acquired over 30 years of learning and teaching about these rivers. It is a call to celebrate the geology, hydrology and biodiversity of Alabama rivers that have provided so many benefits to people, and a challenge to protect and restore rivers for present and future generations, using a personal, science-based, and practical river ethic.

Alabama Rivers was officially premiered during the Alabama Water Watch Annual Meeting in June 2018.

AWW has been funded by the Alabama Bicentennial Commission to create a educational curriculum to accompany the *Alabama Rivers* book in 2019. Bill and AWW Staff will train Alabama educators of grades 4-12 on how to incorporate the curriculum into their classrooms through professional development workshops beginning in Summer 2019.



200 ALABAMA BICENTENNIAL

GLOBAL WATER WATCH

GWW assists in promoting, fostering, and supporting community-based, science-based watershed stewardship through the development of long-term citizen monitoring of surface waters in other countries and other US states. GWW activities were launched in the state of Mississippi in April 2018.

15,000 total data records submitted

1,200 volunteer citizen monitors

500 sampling sites

200 waterbodies monitored

GWW is currently active in Argentina, Bolivia, Kenya, Mexico, Peru, and Seattle (USA).

GWW-Mexico has become the model to follow for citizen science and environmental monitoring; as scores of individuals, in half of all Mexico states, are now certified water monitors. In addition to the traditional AWW biomonitoring, bacteriological, and chemical monitoring, they monitor for stream flow, total suspended solids and rain.

PEPPERELL BRANCH

The goal of the Pepperell Branch Watershed Partnership is to develop a plan to establish and implement best management practices that will improve the water quality in Pepperell Branch by reducing pollution sources throughout the watershed. The ultimate goal is for the creek to meet water quality standards all year long.

This citizen directed project will result in the production of a watershed management plan (WMP) that will identify implementable best management practices that are based on the goals of water quality improvement and watershed protection.

AWW's Role

Conduct 4-H AWW & Citizen Workshops

Organize 4-H AWW Activities at Opelika Middle School, Opelika High School, and Northside Elementary

Contribute water monitoring data records

Participate in the Executive Planning and Steering Committees

Pepperell Branch
Watershed Partnership

FRESHWATER FISHING PARTICIPATION

AWW Staff assisted with focus group facilitation and translation of materials into Spanish for the project, "Use of R3 Recommended Actions in Strategic Planning to Address Minority Freshwater Fishing Participation" led by Emily Nichols, an Extension Specialist with Alabama 4-H and Ph.D. Candidate at Auburn University. The project is funded by the Alabama Department of Conservation and Natural Resources, and continues in 2019.

VAMOS A PESCAR™

The George H. W. Bush Vamos A Pescar Education Fund supports the Recreational Boating & Fishing Foundation's (RBFF) Hispanic initiative, Vamos A Pescar, by supporting state and local efforts to educate and engage families in high-density Hispanic communities through programs, classes, and fishing activities.

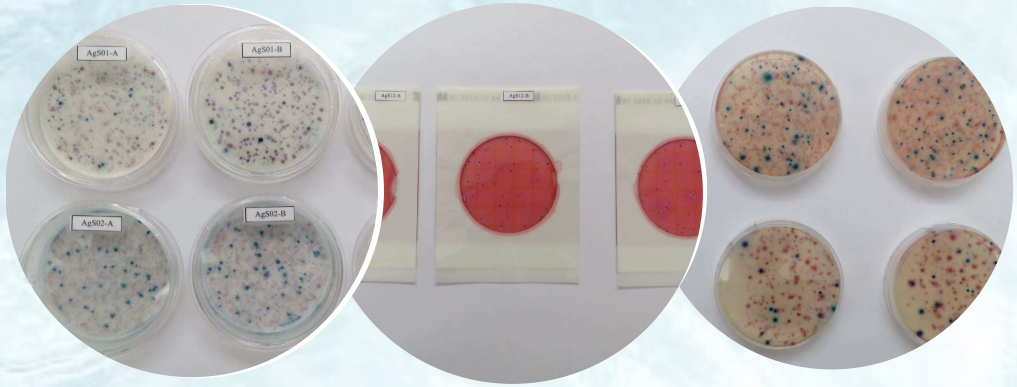
In 2018, Alabama 4-H and the AWW Program were selected to implement a "Vamos a Pescar" project that will provide education and outreach services focused on water quality and recreational fishing that target Hispanic audiences in Alabama. Project activities including four field days for families, will take place in 2019.

AgRSEED

The AgR Seed project was funded by the Alabama Water Resources Research Institute with a focus on evaluating practical approaches for on-farm water testing to meet the Food Safety Modernization Act (FSMA) Produce Safety Rules. A requirement of FSMA is to test for generic *E.coli* in agricultural water, which is any water that may be exposed to produce or food surfaces during or after growing and harvesting.

Alternative methods for bacteriological testing - Coliscan Easygel (1 mL and 5 mL sample volume), Coliscan MF, and 3M Petrifilm - were compared against the EPA standard modified mTEC method (EPA 1603) for determining *E.coli* levels in surface waters of varying chemical characteristics.

From September 2017 through August 2018, AWW Program staffers Sergio RuizCórdova and Carolina Ruiz collected a total of **144 water samples from 12 sites** - including lakes, ponds, and streams - in Lee County, AL. In situ water chemistry variables measured included air and water temperature, total alkalinity, total hardness, pH, dissolved oxygen, and turbidity.

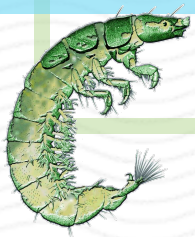


From left to right: Coliscan MF, 3M Petrifilm, Coliscan Easygel

Casey Nowell led the EPA 1603 Standard Method analyses in the Soil Microbiology Laboratory located at the Auburn University Department of Crop, Soil, and Environmental Sciences.

The practicality of the alternative methods is promising for farmers, especially for their initial screenings of potentially contaminated water sources. The simplicity and low cost of the methods along with the strong correlations to standard methods also make them favorable for volunteer monitoring programs. Preliminary results were presented at the 2018 Alabama Water Resources Conference.

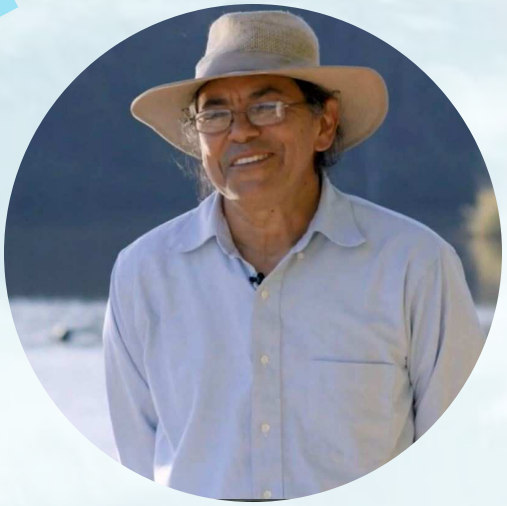
PROGRAM STAFF



Mona Dominguez, Program Director

Mona has worked with AWW since 2009 in various roles including Watershed Management Coordinator, AWW Volunteer Coordinator and 4-H AWW Program Coordinator. In Fall 2017, she became Director of the AWW Program after the retirement of former Director Eric Reutebuch. In addition to overseeing the operations of AWW, she develops training materials, facilitates workshops, and seeks out opportunities for collaboration and growth.

Sergio Ruiz Cordova, Associate Director, GWW and AWW Data Coordinator



Sergio oversees the activities of the Global Water Watch program including the implementation of all global projects, the development and maintenance of the database for the GWW projects in other countries through the Water Resources Center. His work with AWW primarily involves data management and reporting. He also develops training materials and facilitates workshops.

Sydney Smith, Volunteer Monitor Coordinator

Sydney started working as AWW's Volunteer Coordinator in 2017. She has a B.S. in Environmental Science from Auburn University. She began volunteering as a water quality monitor with AWW in 2014 and became a Volunteer Trainer in 2015. Her work with AWW involves communicating and coordinating with volunteer monitors and trainers, preparing for workshops and helping the other program staff where needed.

Carolina Ruiz, Administrative Assistant

Carolina started working for AWW in 2017. Her primary responsibilities with AWW include data processing and management, workshop preparation, volunteer coordination, lab and monitoring kit maintenance, and assisting other program staff with daily operations.

Rachel McGuire, Research Associate

Rachel Joined AWW in May 2018. She has a B.S. in Fisheries, Wildlife, and Conservation Biology from N.C. State University and a M.S. in Wildlife Sciences from Auburn University. Her primary responsibilities with AWW include producing marketing and outreach publications, grant writing, and helping facilitate workshops.

Dr. Puneet Srivastava, Director, AUWRC

Dr. Srivastava received his Ph.D. degree from the Pennsylvania State University with a major in agricultural and biological engineering and a minor is computer science and engineering. In addition to being the Center Director, he is the Butler-Cunningham Eminent Scholar in the College of Agriculture and a Professor in the Department of Biosystems Engineering at Auburn University. At Auburn, he has been recognized for his research with seven awards, a Senior Faculty Research Award, a Junior Faculty Research Award, and five Grantsmanship Awards. In addition, he has received Distinguished Engineer Award from the Alabama Section of the American Society of Agricultural and Biological Engineers (ASABE). Recently, he has been named a Fellow of the ASABE and a Fellow of the Alabama Academy of Science.

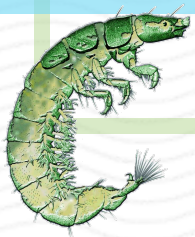
Billy Earle, Grants and Contracts, AUWRC (retired)

Billy retired from Auburn University in 2018 after more than 26 years of work focused on Research Administration and Human Resources. He was involved with the grants administration process that supplied funding for the Alabama Water Watch and the Global Water Watch programs for the duration of his career at Auburn. AWW wishes him well in his retirement!

Bill Deutsch, Founder and Former Director (retired)

Bill was a Research Fellow in the AU Department of Fisheries and Allied Aquacultures from 1988 to his retirement in 2014. He is now a Research Fellow, Emeritus in the AU School of Fisheries, Aquaculture and Aquatic Sciences, and works part-time with AWW and GWW. Bill also serves on the AWW Association, the Environmental Education Association of Alabama, and GWW, Inc. He retired as Program Director in 2013.

AWW ASSOCIATION



Alabama Water Watch Association

The Alabama Water Watch Association (AWWA) is a 501(c)(3) non-profit organization that exists to support and strengthen the efforts of the AWW Program. Volunteer training workshops and the production of associated publications is supported in part by AWWA.

2018 Board of Directors:

Michael Freeman
President

Michael Mullen
Vice President

Patti Hurley
Treasurer

James Lowery
Board Member

Francine Hutchinson
Board Member

Mike Shelton
Board Member

Bill Deutsch
AWW Founder

Mona Dominguez
AWW Program Liaison

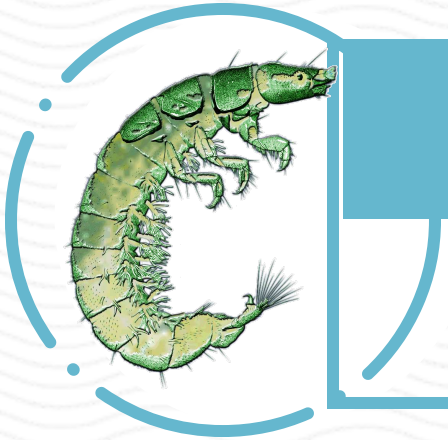
Alabama Water Watch Association

AWWA provided support for the printing of the newest edition of the Water Chemistry and Bacteriological Monitoring Manuals and continues to support citizen training workshops and AWW's Training of Trainer Program.

In 2018, you might have heard AWW on the air waves! AWWA sponsored several adds to run on Troy Public Radio to promote the 2018 Annual Meeting and the AWW Program.

Donations and memberships are the main source of funding for AWWA. Please consider making a contribution to the AWWA to ensure that they are able to provide support to the AWW Program for many years to come! Visit the Support AWW page on the AWW website for giving options.

Thank you!



Hydro*psyche

Water*spirit

The AWW logo is an aquatic insect called a caddisfly. This particular caddisfly is named Hydropsyche, and is an important member of stream communities throughout Alabama.

The caddisfly is, therefore, a fitting symbol of the growing spirit of involvement, enthusiasm and concern for Alabama's water resources that citizens have shown through Alabama Water Watch.

Alabama Water Watch

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