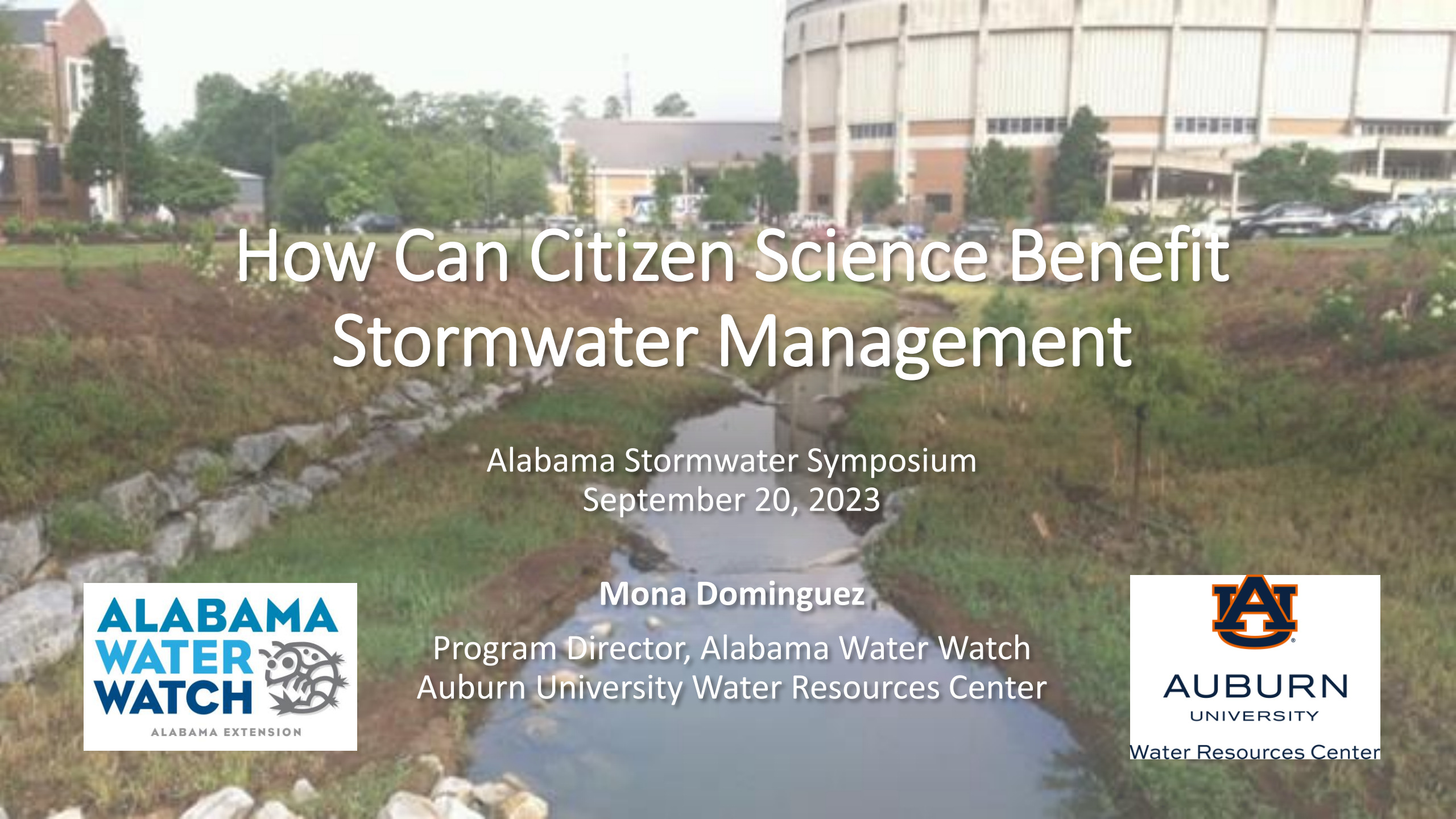


How Can Citizen Science Benefit Stormwater Management

Alabama Stormwater Symposium
September 20, 2023

Mona Dominguez

Program Director, Alabama Water Watch
Auburn University Water Resources Center

ALABAMA WATER WATCH
ALABAMA EXTENSION

AUBURN UNIVERSITY
Water Resources Center

Overview

What is Citizen Science?

What is Alabama Water Watch?

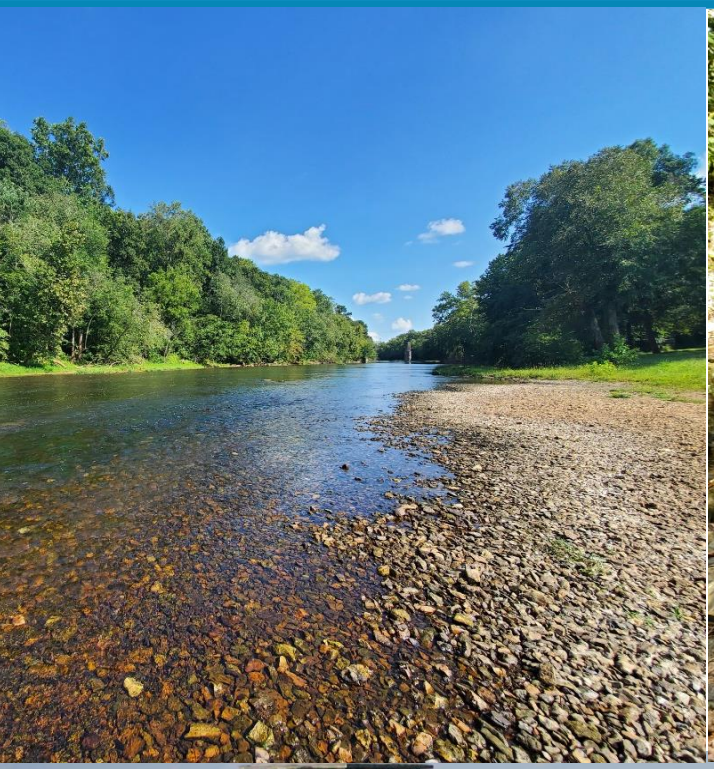
How can AWW help you meet your Minimum Measures?

What is Citizen Science?

Citizen science, also referred to as community science, is the involvement of the public in scientific research.

Guiding Principles of Community Science

Alabama Water Watch



ALABAMA WATER WATCH

ALABAMA EXTENSION

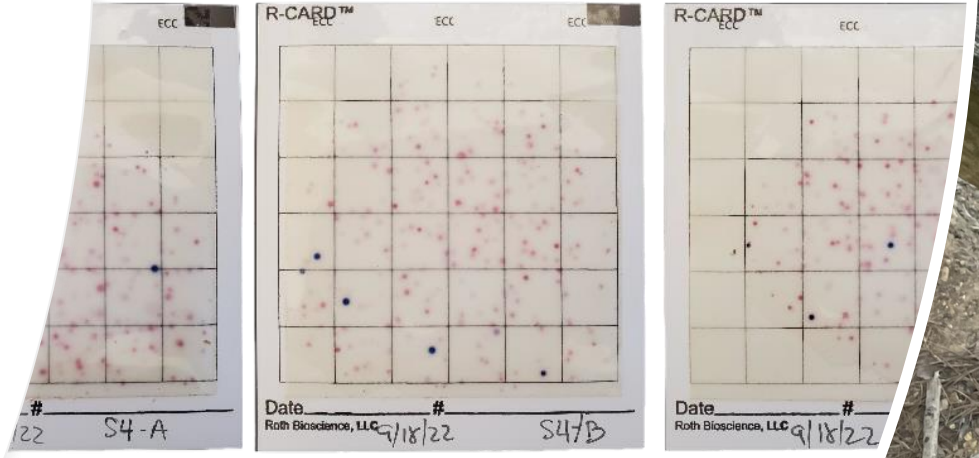
A program dedicated to facilitating community-based volunteer water monitoring of Alabama's lakes, streams and coasts.

Water Chemistry Monitoring

- Air Temperature
- Water Temperature
- pH
- Hardness
- Alkalinity
- Dissolved Oxygen
- Turbidity
- Secchi Disk Depth
- Salinity

Bacteriological Monitoring

Measure fecal contamination by testing for *E. coli* and other coliforms with the R-CARDS method.



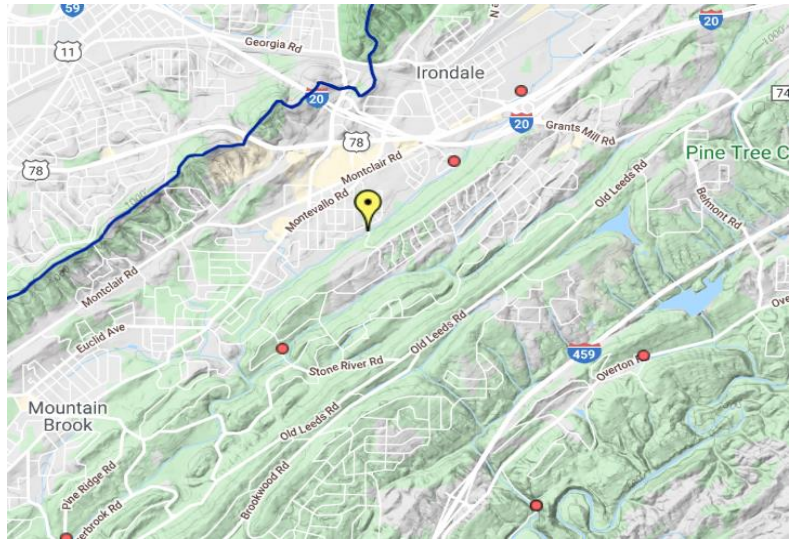
Stream Biomonitoring

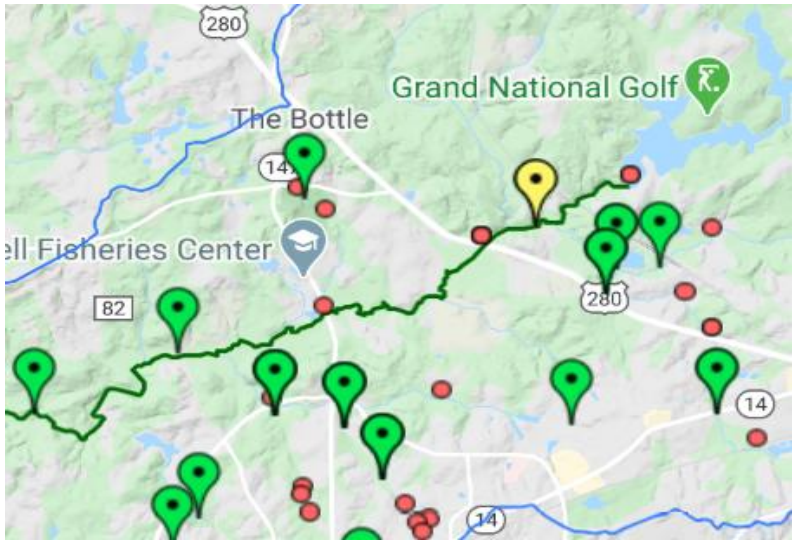
- Aquatic Macroinvertebrates
- **Group I** (Low Tolerance to Pollution, Good Water Quality)
- **Group II** (Wide Tolerance to Pollution, Fair Water Quality)
- **Group III** (High Tolerance to Pollution, Poor Water Quality)

AWW Training Program

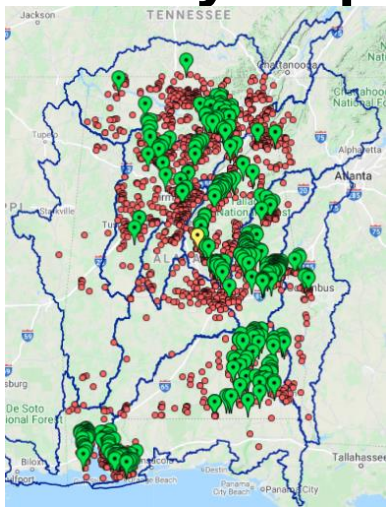
- Hybrid Model, self-paced online courses and in-person field sessions
- Training of Trainer Programs

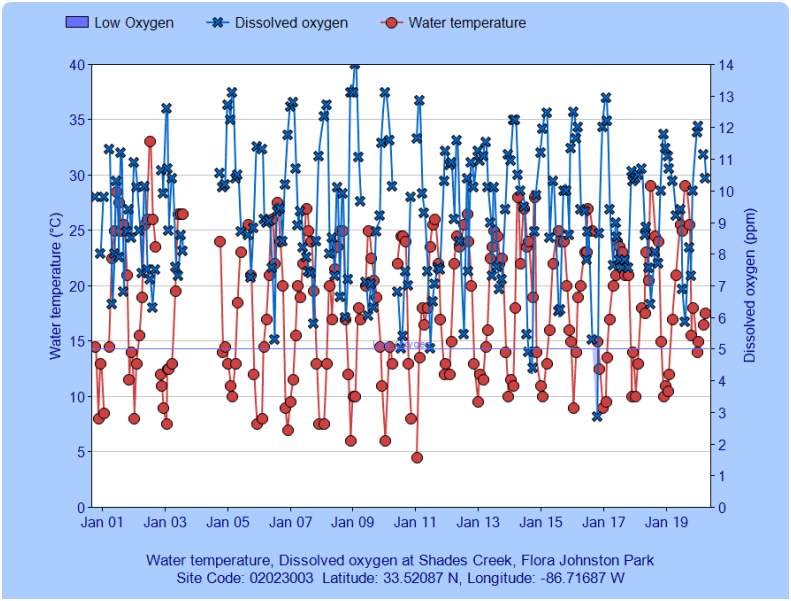
AWW Online Water Data Tools

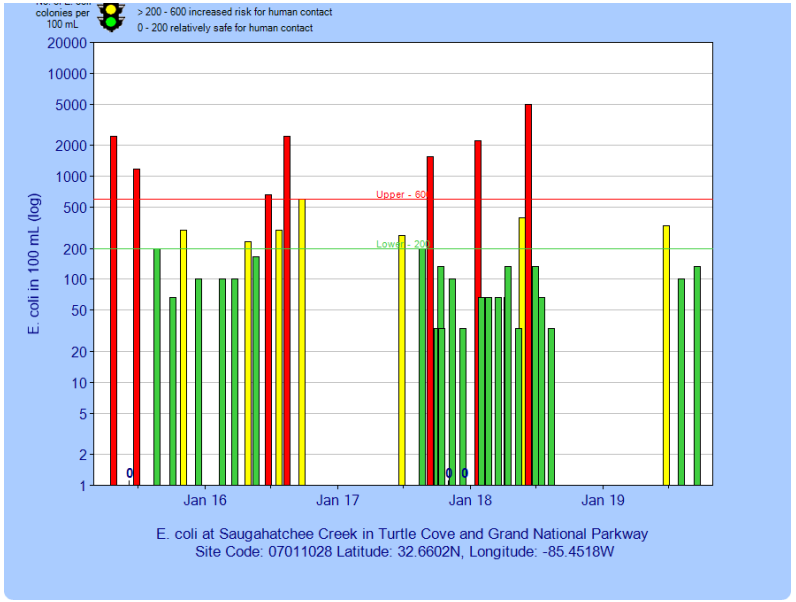




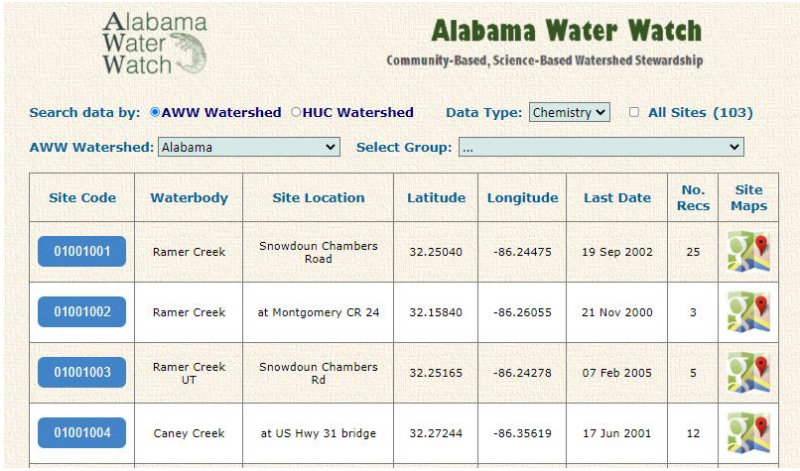
Data by Map







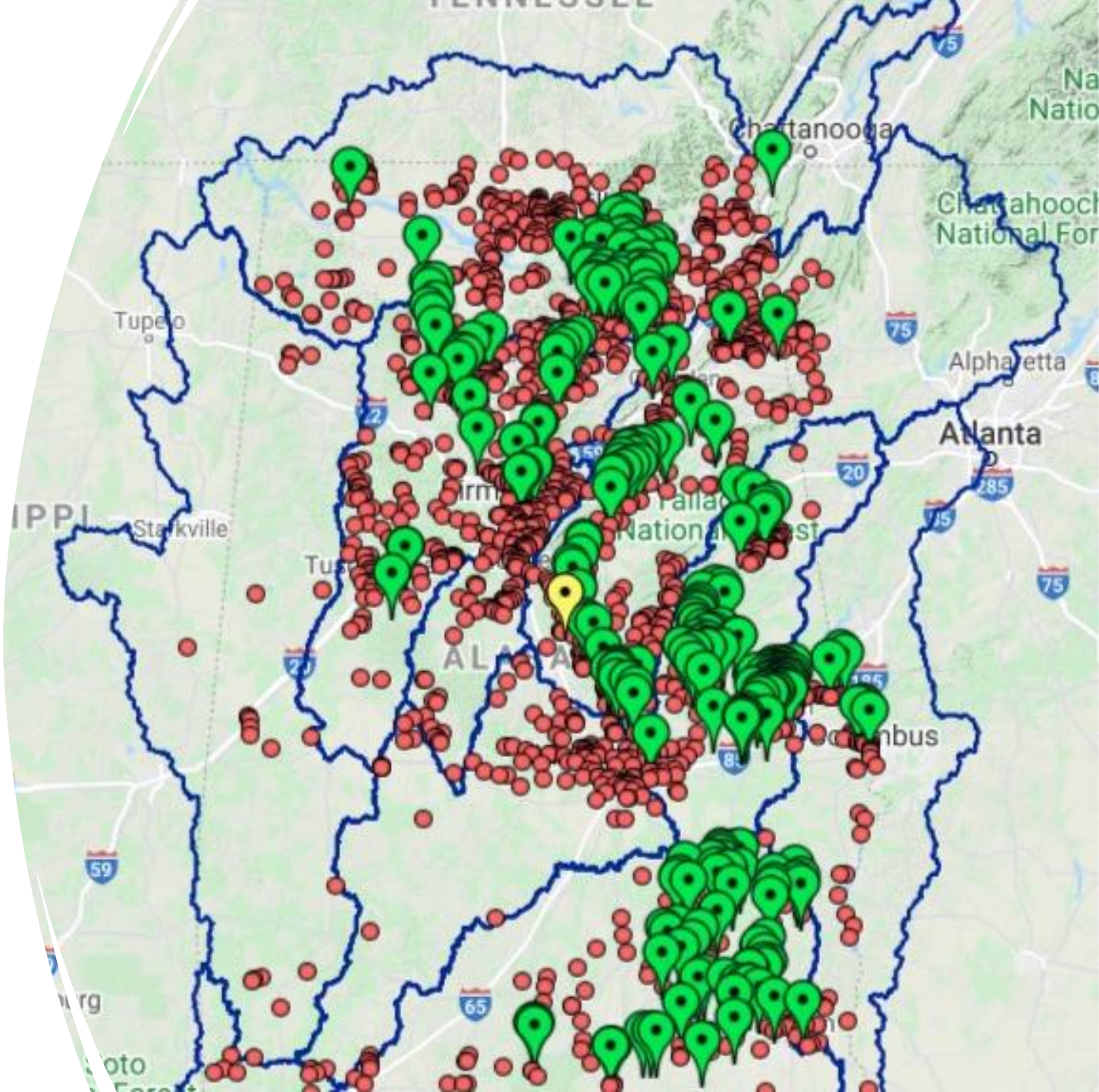
Data by Table



AWW Impact

- **30 years** of monitoring, over **110,000 data records**

- Data used for watershed management, research, education, protection of natural resources and more!



4-H Alabama Water Watch

ALABAMA WATER WATCH
ALABAMA EXTENSION

Alabama 4-H
Alabama Cooperative Extension System

Since 2013, 4-H agents, teachers, and volunteers have reached over 40,000 youth with 4-H AWW programming!

"4-H is important to me because it allows me to be a part of something that helps keep our ecosystems safe and healthy."

—Shelby Henry Limestone County 4-H

Benefits of AWW to Stormwater Management

- More informed and supportive community members
- Extra eyes, ears, and noses on the ground

Meet Minimum Control Measures with AWW

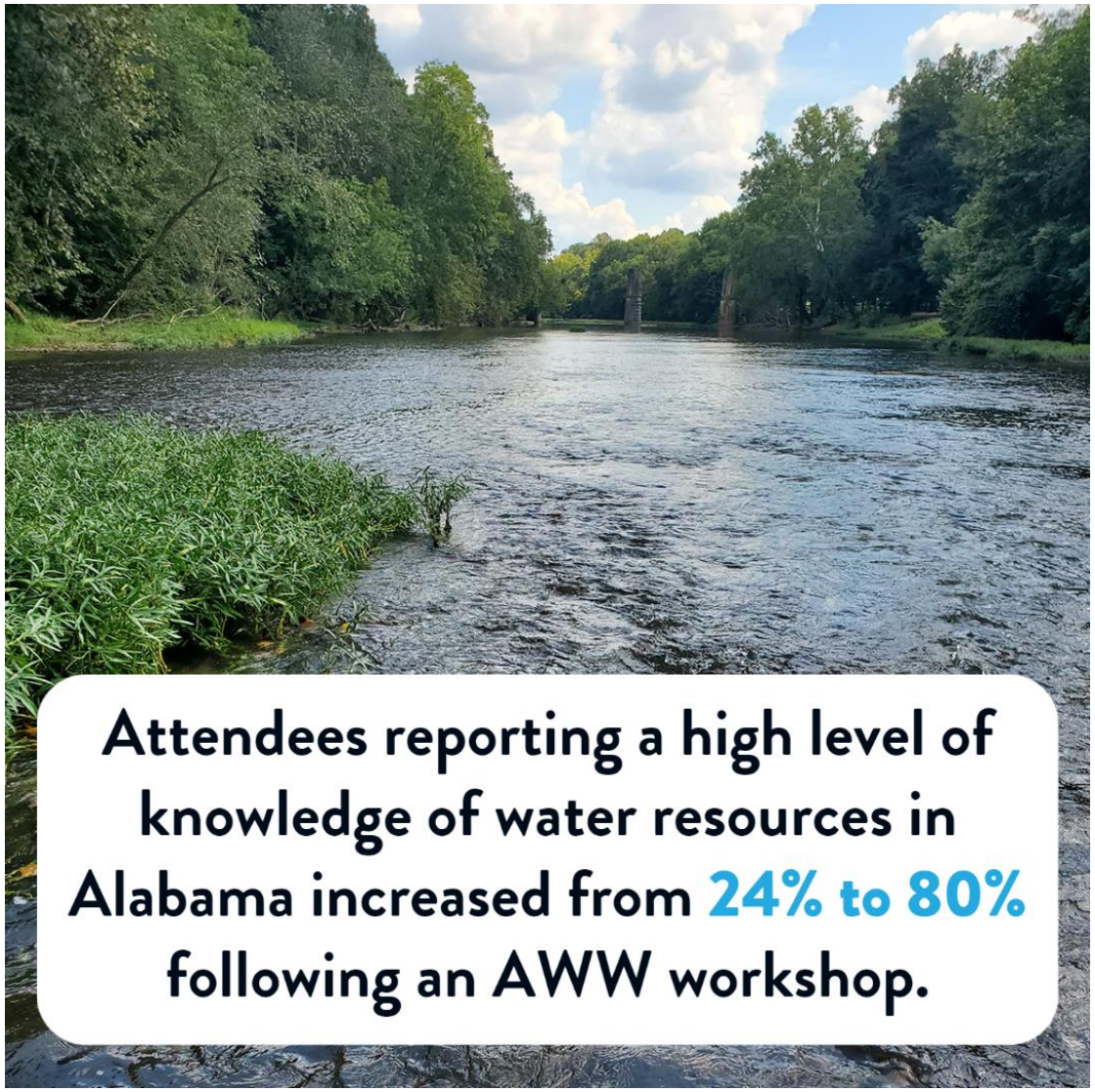
- Public Education & Outreach
- Public Participation & Involvement
- Illicit Discharge Detection
- Good Housekeeping
- Construction Site Runoff

Public Education & Outreach

- ✓ Building Partnerships
- ✓ Educational Materials

Outreach & Education Outcomes

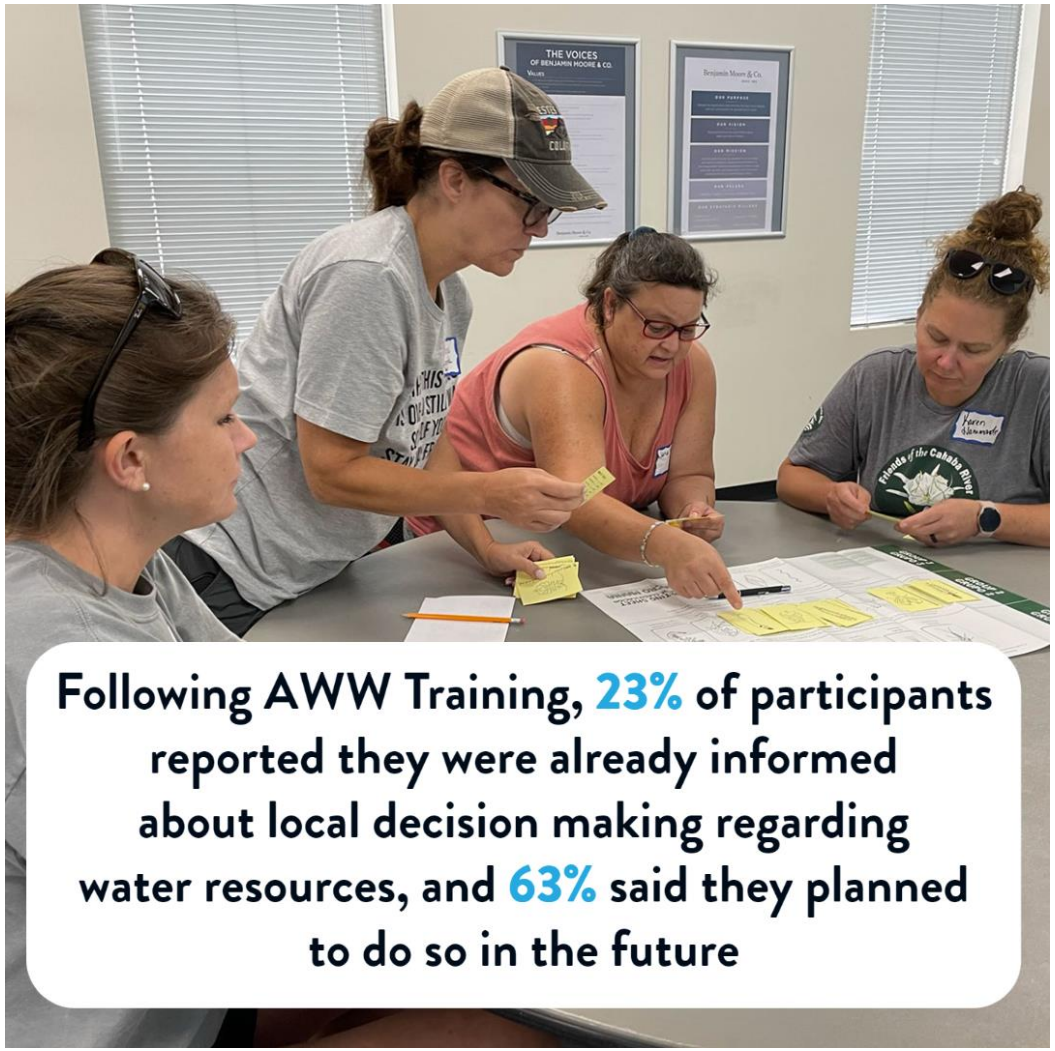
Following AWW Training, **28%** of participants reported they were already educating others about water resources, and **58%** said they planned to do so in the future



Attendees reporting a high level of knowledge of water resources in Alabama increased from **24% to 80%** following an AWW workshop.

Public Participation & Involvement

- ✓ Greater Support
- ✓ Greater Compliance



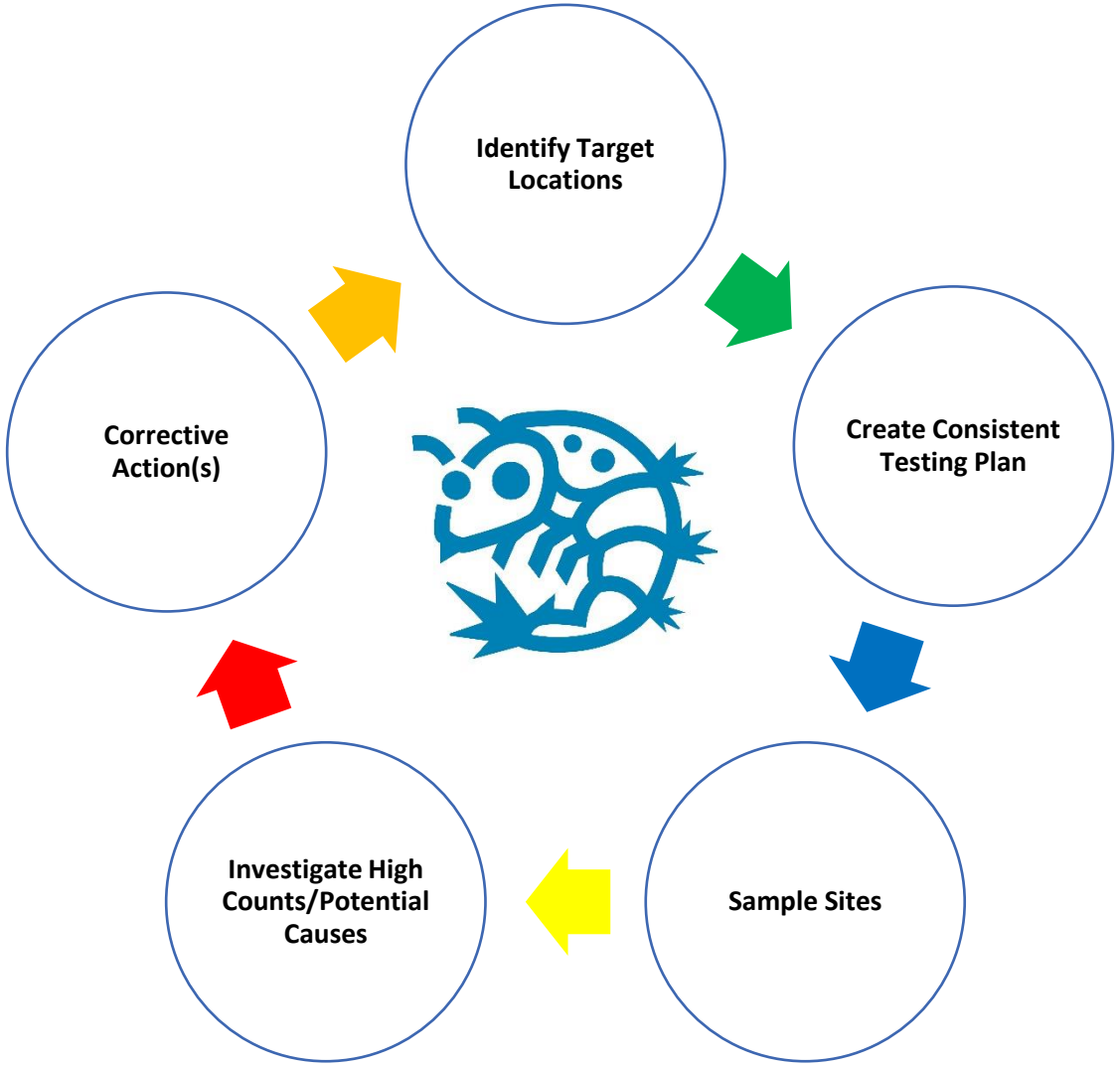
Illicit Discharge Detection

- ✓ Locate Problem Areas
- ✓ Find the Source

Photo Credit: Dusty Kimbrow, City of Auburn, Watershed Program Coordinator

AU Stormwater Management with AWW

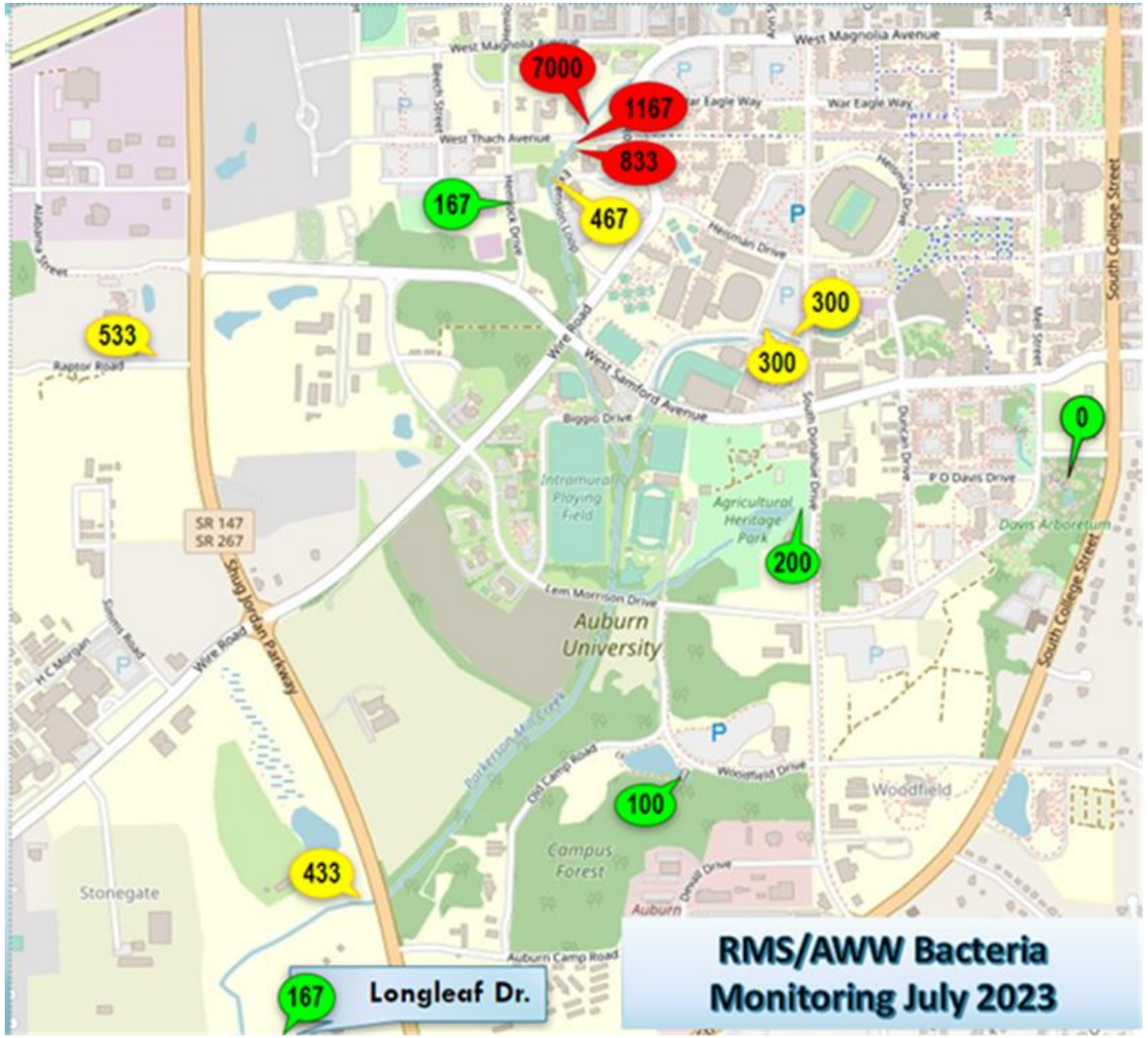
- Sampling Sites selected by AU Risk Management & Safety
- Routine monitoring for bacteria by AWW since January 2021
- ~500 records collected
- Alert for system breaks
- Part of MS4



Sampling Results Over Time

Triplicate samples are collected at each site using the R-CARD ECC A Method. Results are available in 20-24 hours.

Investigate Cause and Take Corrective Action



Possible Cause - Tree Roots into a sewer line, verified by camera.

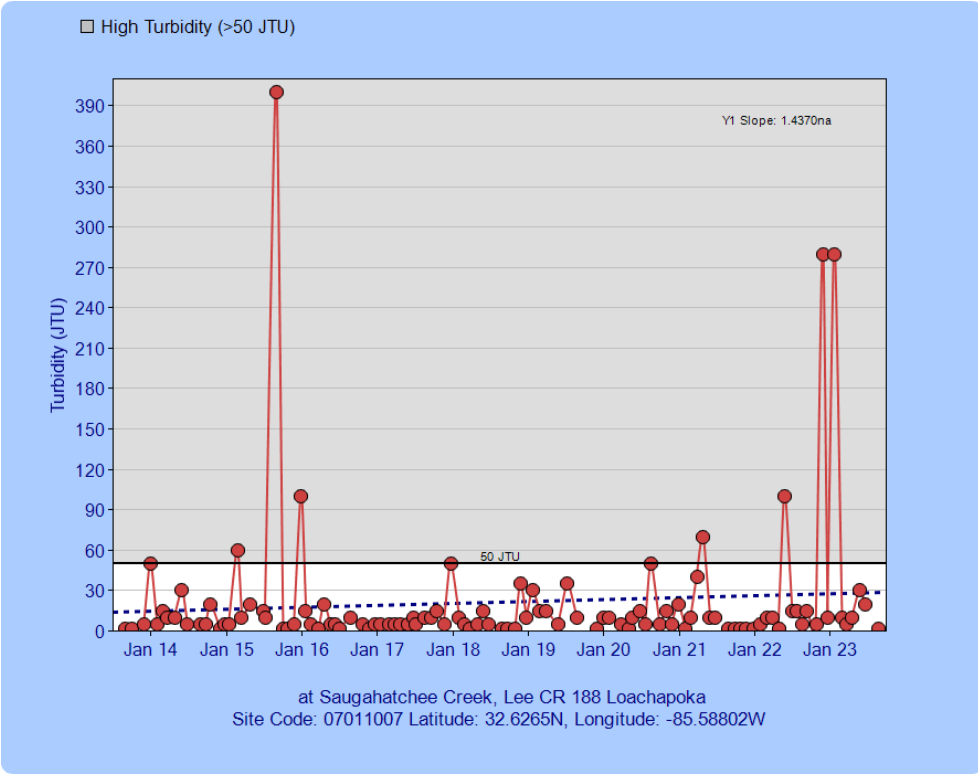
Pollution Prevention & Good Housekeeping

- ✓ preventing or reducing pollutant runoff
- ✓ Implement BMPs

*Following AWW Trainings, **82%** of participants reported that they would correctly apply fertilizers and pesticides in their yards, **85%** reported they would pick up their pet's waste.*

Construction Site Runoff Control

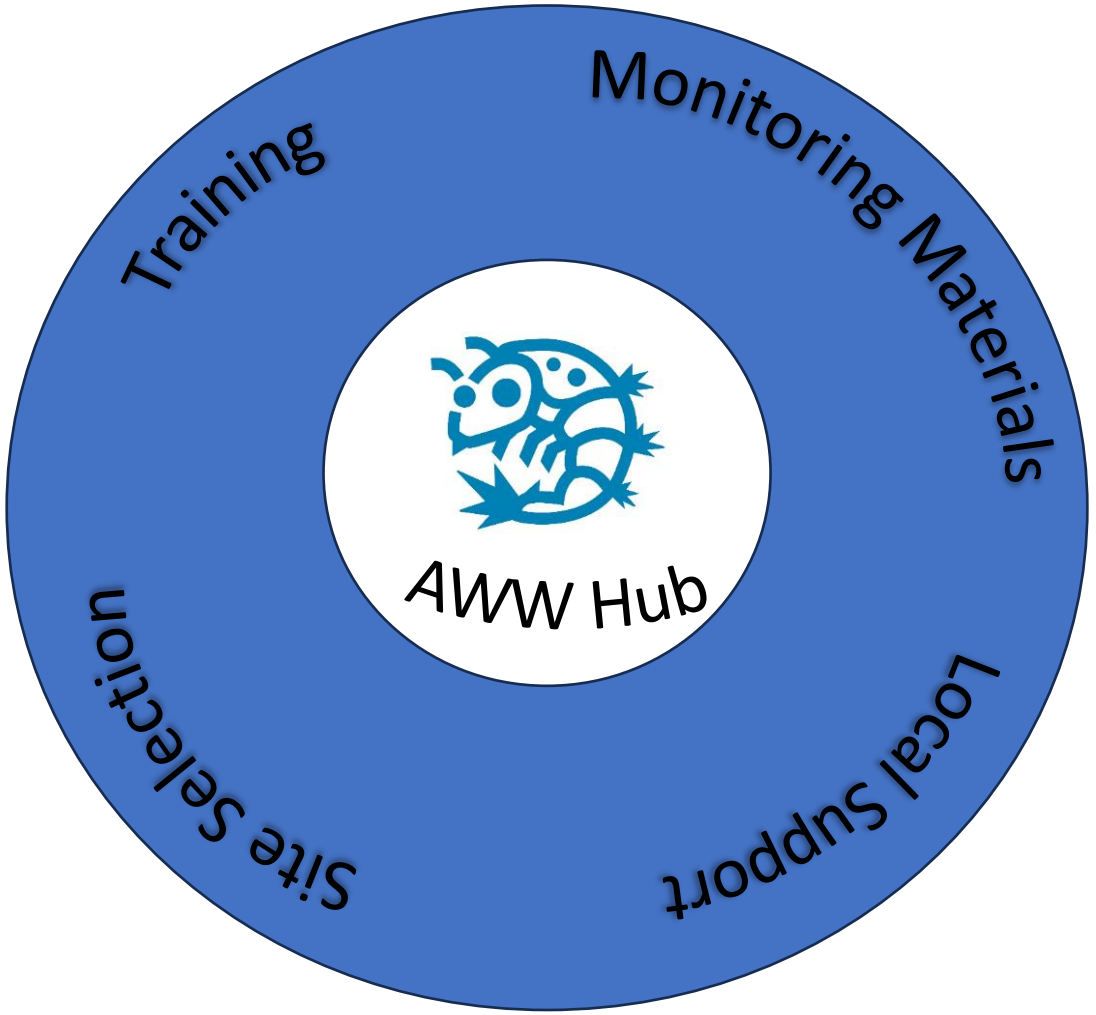
- ✓ Information submitted by the public



Turbidity Graph created through AWW Water Data Portal

How to Incorporate AWW into Your Program

- Sponsor or co-coordinate an AWW Training in your city
- Provide volunteers with monitoring materials
- Assist with strategic sampling site selection
- Have staff become AWW Trainers



Take Away Messages

- Partnering with AWW is an **effective and economical** way to meet Minimum Control Measures
- AWW volunteers can be a **first alert** for local water issues and
- AWW volunteers can **educate others** stormwater best practices
- **Talk to me** about how we can work together!

Questions & Comments?

ALABAMA WATER WATCH
ALABAMA EXTENSION

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Channel: Alabama Water Watch

Mona Dominguez
Director, Alabama Water Watch
www.alabamawaterwatch.org
Phone: 334-844-4785
Email: srs0013@auburn.edu

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