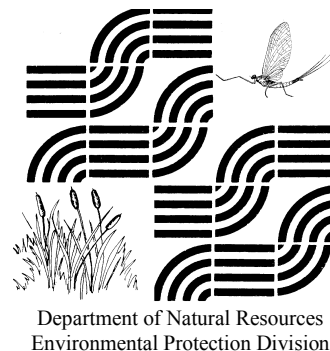


GEORGIA Adopt-A-Stream

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Adopt-A-Stream Staff, Editors



Paddle Georgia 2018: Yellow & Ocmulgee Rivers



Water Quality Monitoring Results

Paddle Georgia, a project of Georgia River Network, provides an opportunity for members of the public to experience a seven day paddle trip on a different Georgia river each summer, attracting hundreds of participants. This year's Paddle Georgia trip was held June 16-22 on the Yellow and Ocmulgee Rivers. Adopt-A-Stream staff and volunteers attended the trip to provide outreach and conduct water quality monitoring. Outreach by the monitoring teams included providing demonstrations and answering questions while out in the field as well as announcing sampling results to all participants. In total, 69 sites (33 mainstem sites, 32 tributary sites and 4 additional sites of interest) were tested for AAS core chemical parameters (water temperature, pH, dissolved oxygen and conductivity) as well as nutrients and *E.coli* levels.

A summary of the trip's sampling results are included in the adjacent chart. Complete results are available from the AAS State Office. For more information on understanding monitoring results, please reference the State of Georgia's surface water quality standards or recommended levels for specific parameters. These are available online from EPD: <https://epd.georgia.gov/georgia-water-quality-standards>

Congratulations to the five paddlers who participated in our volunteer workshop! These newly certified monitors practiced using AAS protocol for sampling water chemistry and learned how to get involved in AAS in their own communities. Lastly, we'd like to thank Paddle Georgia, AAS trainers, volunteers and the monitoring team for another great trip!

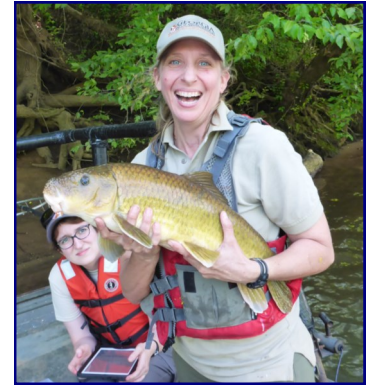
Paddle Georgia 2018: Yellow & Ocmulgee Rivers (Min-Max)		
Parameter	Mainstem	Tributary
Air Temp. (°C)	23.70-33.30	23.70-32.10
Water Temp. (°C)	24.00-30.00	20.30-31.80
pH	4.87-7.52	5.21-7.39
Dissolved Oxygen (mg/L)	4.98-8.05	3.07-8.38
Conductivity (µS/cm)	75.58-153.20	30.00-224.70
<i>E. coli</i> (cfu/100mL)	0.00-500.00	0.00-566.67
Nitrates (ppm)	0.00	0.00
Total Sites Sampled	33	32

Paddle Georgia 2018 Yellow & Ocmulgee Rivers Continued...

Robust Redhorse in the Ocmulgee

by Paula Marcinek, Wildlife Resources Division, Aquatic Biologist

The robust redhorse is one of the fish species that the Georgia Department of Natural Resources (DNR) Wildlife Conservation Section (WCS) monitors annually. The Altamaha population represents one of three genetically distinct units of the species (the other two are the Savannah and Pee Dee populations). Despite its robust size and large spawning aggregations, this hard-to-capture, cryptic species was presumed to be extinct for more than 100 years. Across its range, most of the robust redhorse's preferred spawning habitat became inundated or blocked by dams as hydropower operations came on line in the 20th century. Besides occasional anecdotal stories from anglers, the species did not reappear until 1991 when DNR biologists conducting fish surveys in the Oconee River collected several and immediately recognized them as unique.



*Photo by Peter Dimmick/
GA DNR Wildlife Resources
Division*

[Robust redhorse](#) are managed range-wide by the [Robust Redhorse Conservation Committee](#) (RRCC) and monitored through a State Wildlife Grant awarded to Georgia, South Carolina and North Carolina. Since rediscovery in the 1990s, RRCC has taken an adaptive management approach to the robust redhorse. Members monitor and implement management actions based on the information learned from monitoring and population studies.

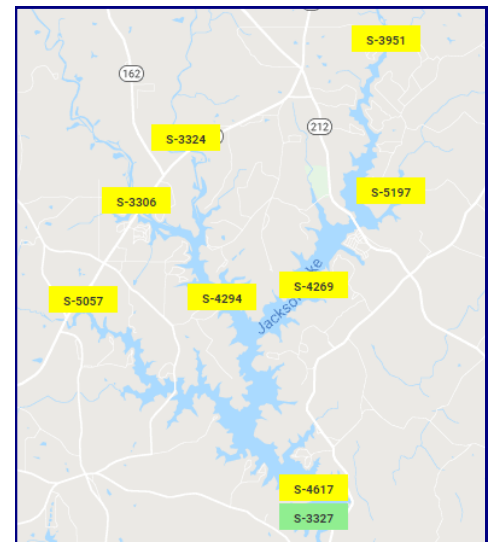
The shoals of the upper Ocmulgee River provide important spawning habitat for this species of sucker fish that uses the mainstem Ocmulgee from Juliette Dam to the lower Altamaha River during its life cycle. Unfortunately, most of the gravel shoal habitat is degraded by sedimentation or blocked by barriers to migration, such as Juliette Dam. This spring, WCS caught, tagged and released four robust redhorse on the Ocmulgee River near Juliette. The three females and one male were all adults in spawning condition. The fish marked the first sighting of this endangered species in the Altamaha drainage in more than three years.

Jackson Lake Association

by Skip Davis, JLA Member and lake resident

Jackson Lake was created at the start of the Twentieth Century to provide electricity to industries north of Macon. After WWII, it morphed into a fishing paradise, then became a recreational destination in the 60s-90s. Over the last 20 years it has become a year-round residential community. During these transitional periods, water quality became a regular topic for discussion.

The Jackson Lake Association (JLA), previously known as the Jackson Lake Homeowners Association, became involved in water quality monitoring with the assistance, support and certification of the Georgia Adopt-A-Stream program. In 1999, Terry Hall, a Georgia Tech Mechanical Engineer, JLA Member and lake resident, began testing the major tributaries to the lake. Horace "Smitty" Smith oversaw the expansion of the monitoring program to its current level. With the aid of the South River Watershed Alliance and many individuals, the program has become a fixture of the Jackson Lake Association. Water sampling is now conducted at more than seven sites located on all entry points to the lake as well as an exit point just prior to the Lloyd Shoals Dam.



JLA monitoring sites on the AAS website



*JLA won 2017 AAS Extraordinary
Volunteer Watershed Effort award*

The result of this continuing monitoring program is a regular confirmation of the quality of Jackson Lake water from its origins to its end. Consistent monitoring indicates we have one of the cleanest lakes in Georgia. Our lake is alive, beautiful and supportive of native fish and aquatic animals.

A recent example of the coordinated efforts of the Georgia Adopt-A-Stream program and its member organizations was displayed during the Paddle Georgia trip on the Yellow and Ocmulgee Rivers this past June. Without this coordinating support and interaction, it would be much more difficult for the JLA to provide solid monitoring for our community.

Paddle Georgia 2018 Yellow & Ocmulgee Rivers Continued...

Yellow River Water Trail

www.yellowriverwatertrail.org

The Yellow River Water Trail (YRWT) is a Georgia River Network-certified river running 53 miles through Gwinnett, DeKalb, Rockdale and Newton counties, passing beautiful woodlands, stone outcrops, parks and neighborhoods. The Yellow River joins with the Alcovy and South Rivers at Jackson Lake to create the great Ocmulgee River.

The mission of YRWT is to enjoy, share and protect the Yellow River by inspiring river stewardship and recreation, promoting thriving communities and providing river access, education and outreach. Its vision is to connect communities along the Yellow River with beautiful, clean, natural resources and provide a vibrant Georgia destination for outdoor recreation with convenient access points and connection to parks, greenways and local businesses along its four county 53-mile run supported for generations to come.



AAS Water Science Poster Session: Call for Abstracts!



This year's Confluence Friday Social will include a special poster session open to students as well as AAS volunteers!

Guidelines and Abstract Submission Forms are on the [Poster Session](#) page of the Confluence menu on the Georgia Adopt-A-Stream website at www.AdoptAStream.Georgia.gov.

Abstracts and posters of previous presenters can be viewed on the [Water Science Poster Presenters & Winners](#) page.

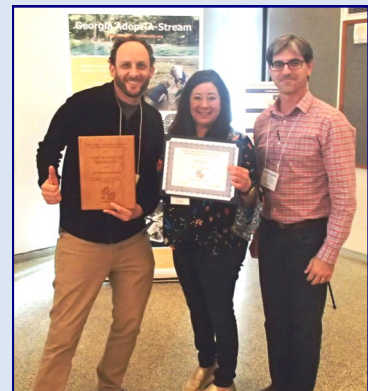
Travel stipends are available for eligible participants.

Abstract Submission Deadline: MONDAY, JANUARY 14TH, 2019

AAS Award Nominations!

We need your help to recognize Adopt-A-Stream award winners for 2018. Submit a nomination for an active volunteer, trainer or watershed group that sets outstanding examples of the five goals of our program.

See full award category descriptions and submit nominations on the [AAS Awards Submission](#) page at www.AdoptAStream.Georgia.gov.



Deadline for Nominations: MONDAY, JANUARY 14TH, 2019

What I Did with My Stream Monitoring Data, and What We Can Do with Everyone's Data Together

by Chris Kodani, Associate Professor of Biology at Clayton State University

As Adopt-A-Stream volunteers, we can all agree that monitoring a stream is one of the most enjoyable things a person can do! Having collected data for a while, one naturally begins to ask the question, “What can I do with all of these data?” As a professor in a university biology department, the answer was obvious: publish a scientific paper! Over several years, I had a lot of fun working with my research students and had collected data from 20 sites in the south metropolitan Atlanta area. I noticed that the macroinvertebrate communities differed greatly from site to site and suspected that some of that variation was due to differences in imperviousness of the watersheds. In order to analyze each watershed, I had to learn to use a new research tool: Geographical Information Systems or GIS. Using GIS, I was able to determine the amount imperviousness in each watershed that I was monitoring. I was then able to construct a graph which enabled me to establish the relationship between a macroinvertebrate community's Water Quality Index (WQI) and the watershed's percent imperviousness.

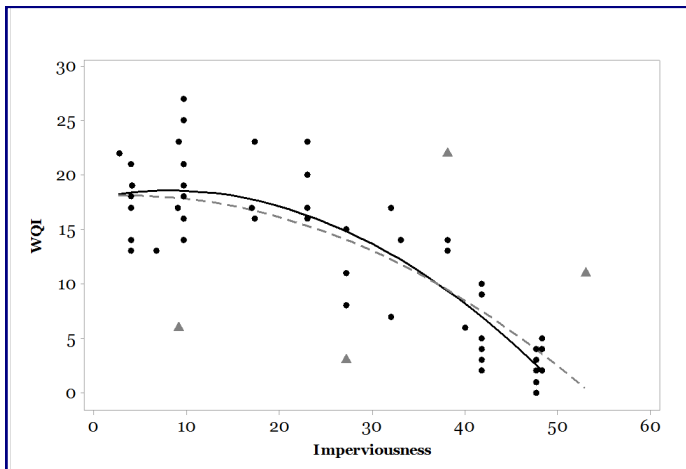


Figure 1: The relationship between WQI and imperviousness is a curved line.

The first thing you'll notice about the graph is that there appears to be some decline in WQI with increasing imperviousness, and this was not surprising. What WAS surprising was the shape of the graph—it's not a straight line, but appears to be a curve. It appears that perhaps watersheds can take a small amount of imperviousness without suffering too much of a decline in macroinvertebrate diversity, but anything above 20% imperviousness starts to have more and more serious effects. The other thing you might notice is that most of the dots don't fit on the line, and some (those with triangles), are so far off that we can call them outliers. On the surface, this is disappointing, because as scientists we like our patterns to be crystal clear, and would just love all those dots to fall right smack on the line. Unfortunately, life isn't so easy, and those dots don't always cooperate. So what causes a watershed to have better or worse macroinvertebrates than predicted by that line? The possible

answers are the stuff that stream ecologists lay awake at night wondering about! Let me give you just a few tantalizing examples. Sometimes, my students and I collected data in the fall semester, sometimes in the spring, and occasionally even during the summer. Does season affect macroinvertebrate diversity? You bet it could, but we don't have a lot of data from the summer time! Would it make a difference if the impervious surfaces cut through the protective stream buffer zone? It probably does, but we didn't have many sites completely lacking a buffer so it's hard to say. Could some source of pollution affect the health of the macroinvertebrate community without causing a measurable difference in imperviousness? Quite possibly, but it is difficult to say without more data.

What We Can Do With Everyone's Data Together

One of the greatest things about Georgia Adopt-A-Stream is sharing your data with the statewide database! To me, the database actually is a stream: each volunteer observation is a single drop of water that condenses out of the clouds, and when all of these drops coalesce into the database, they become a powerful river of information which is able to drive some powerful science! There are currently data from as far north as Andrews, North Carolina, south to Key West in Florida, east to Tybee Island, Georgia, and west to Piedmont, Alabama! No matter where your adopted stream is, your data tell a story, and your observations help us to answer some of those big questions that keep us awake at night! Take another look at the graph from my own study, and you'll notice some gaping holes where there aren't any dots. It would appear that my students and I were never able to get to pristine watersheds, untouched by development, that would approach 0% imperviousness on the far left side of the graph. Likewise, on the right side, none of our watersheds had greater than 50% imperviousness, and this begs to ask the question, “what happens to macroinvertebrates in highly urbanized streams?” My own research team usually stays close to our campus, because I have classes to teach, and my students have classes to take, so we may never be able to get to those watersheds, even though we'd love to. Now imagine if we put the power of the volunteer-driven Georgia Adopt-A-Stream database to work. We could not only fill in the blank left and right areas of the graph, but we could also add more observations to greatly strengthen the middle area. Not only could we confirm whether seasonality has an effect on macroinvertebrates, we could actually quantify how big that effect is. The list of questions that we can address with a bigger dataset goes on and on, and the power of the database increases with every little observation that trickles in. So here's my message to you: get out there to collect data, and share it, because every drop makes a difference!

Board Member Highlight: Ruth Mead, Phinizy Center for Water Sciences

Ruth Mead grew up in a creek in Charlotte, NC where she spent most of her free time. She was in the creek from when she was old enough to get behind the fence to it, until she headed off to college. She knew where every big crayfish could be found, so it would only be fitting that she would find her way to AAS. After receiving her Bachelor of Science in Forest Management from North Carolina State University, she was off to Florida where she spent 10 years working as a forester for a private timber company.

In 2000, Ruth followed her chemical engineer husband to Augusta and started a second career in environmental education. She is currently the Education Director for Phinizy Center for Water Sciences at Phinizy Swamp Nature Park. New to education, Ruth took every opportunity she could find to help develop curriculum at Phinizy Swamp. In summer of 2003, she took her first AAS chemical training workshop and jumped into the creek to start monitoring. She created a kid's club group who named themselves "The Creek Freaks" and they became part of every monitoring event. Within a year, Ruth became certified as a trainer in both chemical and macroinvertebrates, thinking it would be great to add training workshops to the programs offered at Phinizy. She is currently a trainer in chemical, macroinvertebrate, and bacterial monitoring.



Adopt-A-Stream complements the water quality and wetland programs at Phinizy beautifully. Ruth uses her AAS knowledge more as a teaching tool than reporting the health of her local stream. She loves giving students hands-on learning and citizen science experience. For the last 15 years, she has opened The Creek Freaks to middle and high school students to help with monthly chemical sampling, quarterly macroinvertebrate sampling and an annual river cleanup. She has witnessed improved self-esteem, improved science and math scores and students moving on to environmental careers.

Ruth felt extremely honored to be invited to the AAS Advisory Board and hopes to do everything she can to support the programs from monitoring to Rivers Alive cleanups to Confluence to working with the board. She is delighted to be a part of the AAS family!

Thank You and Best Wishes!



"While my time with EPD has not been as long as some others I feel that I have developed some amazing friendships and connections with you all. I am extremely thankful for the opportunity I have had to get to know and work with you and for the knowledge and confidence you all have given me, personally and professionally.

As I reflect on the past eleven months I have spent here I would have to say, without a doubt, that working with our board members, community coordinators, and trainers has been the most rewarding part of this position. Seeing how dedicated and passionate you all are for the work you do is inspiring. You all are making a real difference in the lives that you are touching through your work in our state, and in the entire southeast. I am proud to say that I was a part of the Georgia Adopt-A-Stream program. Don't lose faith and don't lose that passion. The world is a better place because of people like you!

Once again, I just wanted to thank you all from the bottom of my heart for welcoming me into this amazing Adopt-A-Stream family. I will always think back on my time as an AAS State Coordinator fondly. All the best." - Mary Lou

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Georgia Adopt-A-Stream
Environmental Protection Division
2 MLK Jr. Dr. SE, Suite 1462 East
Atlanta, GA 30334
404.651.8512 / 404.651.8517
AdoptAStream.Georgia.gov

AAS Staff: *Harold Harbert, Seira Baker,
Mary Lou Hoffacker, Lina Yazbak, Jana Pearce*

GO BLUE!

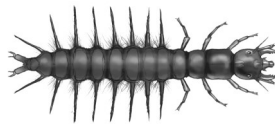
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Dragonfly



Riffle Beetle



Dobsonfly



Stonefly



Net Spinning Caddisfly

NEW LOCATION!
Unicoi State Park

Confluence 2019: March 22 – 24

Adopt-A-Stream Annual Conference

Friday evening: Water Science Poster Session and Social
Saturday: Water Quality Workshops, Exhibits and Awards Ceremony
Sunday: Water Quality Workshops & Special Activities

Unicoi State Park & Lodge in Helen, GA

For more information, visit the Confluence page at www.AdoptAStream.Georgia.gov
~~ Registration will open February 2019 ~~

