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Adopt-A-Stream

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Adopt-A-Stream Staff, Editors

Department of Natural Resources
Environmental Protection Division

Paddle Georgia 2016: Conasauga, Oostanaula and Coosa Rivers

Katie Owens, Upper Coosa River Program Director, The Nature Conservancy

In late June my 9 year old son Ben and I left the house to embark on Paddle Georgia, a 103 mile paddle and camping trip down the Conasauga, Oostanaula, and Coosa Rivers. I work as the Upper Coosa River Program Director for The Nature Conservancy and live within the Oostanaula Watershed, so I was ecstatic to get to spend a week on the river with people from all over Georgia and surrounding states. Most folks don't realize how special our rivers in Northwest Georgia are. In addition to providing drinking water to the local communities, we have an incredible number of native fish and mussels, as well as many endemics, meaning species found nowhere else in the world.

A large part of my job with The Nature Conservancy is to work with the local communities to come up with ways to improve the overall water quality and habitat within the rivers for the fish and mussels. Although I almost always have a handful of mussels to show off, it's not the same as being on the river with folks and getting to show them first hand what's just underneath the surface of the water. Paddle Georgia provided a unique opportunity for me to educate hundreds of river enthusiasts in a spectacular outdoor learning lab. Ben and I spent the week pulling seine hauls, showing off live mussels, assisting with Adopt-A-Stream water quality collections, and talking at a few evening events about the threats to the river and what we as humans can do to help better protect the river.

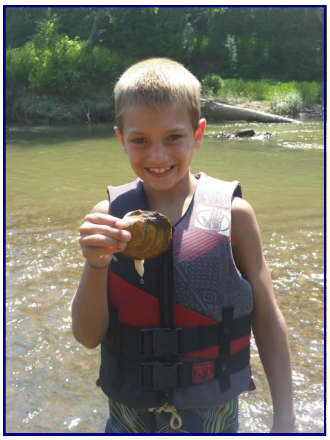


Photo by Katie Owens

By the end of the week we had fellow Paddle Georgia participants able to ID fish, successfully following mussel trails to mussels embedded in the river, and asking questions about agricultural withdrawals and lack of tree buffers and how that affects the overall river system. Ben and I are already looking forward to Paddle Georgia 2017 on the Etowah!

Paddle Georgia 2016 Continued...

Joe Cook, Advocacy and Communication Coordinator at the Coosa River Basin Initiative


Photo by Joe Cook

At the Coosa River Basin Initiative, we love showing off our rivers. With 27 endemic aquatic species that are found here but nowhere else in the world, the upper Coosa River basin is considered the most biologically unique river system in North America. That's why we lead nearly 20 guided paddle trips annually and why we were so excited to host Georgia River Network's Paddle Georgia 2016 on the Conasauga and Oostanaula rivers. More than 400 people got to experience the fish, mussels and beauty of our rivers first hand. For CRBI, the highlight was seeing children young and old rooting around on the river bottom and pulling up live southern pocketbook, three-horned wartyback and Alabama orb mussels and marveling at the beauty of these understated creatures. It was a biodiversity treasure hunt that left Paddle Georgia participants smiling and marveling. CRBI's Adopt-A-Stream program performs a similar function. It gives local citizens not only the opportunity to explore the streams in their backyards; it gives them the chance to take part in being the eyes and ears that keep watch over those rivers, protecting habitat for the basin's unique creatures and protecting our drinking water sources. A volunteer's water tests may never reveal a pollution problem, but that's only part of the purpose of AAS. The real rewards are in spending time outside and building a relationship with a neighborhood stream and the critters that call it home.


Photo by Joe Cook

Water Quality Monitoring Results

The AAS monitoring teams sampled 36 mainstem sites, 31 tributary sites and four additional sites of interest resulting in 71 monitoring sites in total on the trip. Samples were tested for AAS core chemical parameters (water temperature, pH, dissolved oxygen and conductivity) as well as nutrients and *E.coli* bacterial levels. A first step to understanding monitoring results is to reference the State of Georgia's surface water quality standards or recommended levels for specific parameters. These are available online from EPD: www.epd.georgia.gov/georgia-water-quality-standards.

Paddle Georgia 2016: Conasauga, Oostanaula and Coosa Rivers					
	Conasauga		Oostanaula	Coosa	
Parameter	Mainstem	Tributary	Mainstem	Mainstem	Tributary
	AAS Methods *(Min-Max)*				
Water Temp. (◦C)	22.8-28.4	20-32.9	23.7-29.8	28.4	26.6
pH	6.75-8	6.75-8.00	6.75-8.5	8	7
Dissolved Oxygen (mg/L)	5.25-8.7	2.8-8.05	5.85-8	6.9	7.3
Conductivity (µS/cm)	100-230	130-630	110-140	150	240
Phosphates (ppm)	0-0.4	0-0.8	0	0	0.2
E. coli (cfu/100mL)	0-200	0-833.3	0-333.3	66.7	0
	EPD Methods *(Min-Max)*				
Turbidity (NTU)	6.63-28.5	2.58-80.3	11.3-19.2	13	5.78
Total Hardness (ppm)	45.3-108	37.4-216.2	41-59.9	72.3	102.5
Nitrates (ppm)	<.05-.368	<.05-1.79	<.05-.28	0.119	0.61

The EPD Ambient Monitoring Unit sampled for additional parameters including total hardness and metal concentrations. Program Manager Jeremy Smith shared their findings: "EPD's Ambient Monitoring Unit was able to sample at 48 sites on this year's Paddle Georgia, the most we have collected since we began participating in 2012. We collected in-situ data which included: dissolved oxygen, pH, conductivity, temperature, and turbidity. Chemical samples were taken and analyzed for nutrients and other parameters such as biological oxygen demand, suspended solids, hardness, alkalinity, and total organic carbon. Samples were also analyzed for heavy metals and mercury.

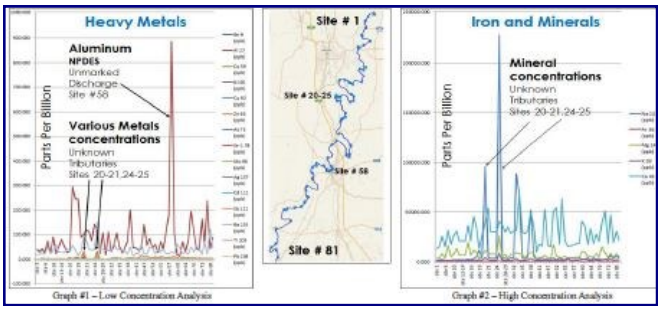
The dissolved oxygen concentration in Moody Branch and Howell Creeks were less than 4.0 mg/L violating Georgia's water quality criteria. No other water quality violations were found. There were some instances of conductivity that was higher than expected when compared to hardness; generally, the higher a water's hardness the higher the conductivity of the water. These sites were Howell and Polecat Creeks, tributaries to the Conasauga River and originate from Dalton Utilities Land Application System. Elevated concentrations of phosphorus were also found in these streams along with Oothkalooga Creek; the Oostanaula River above and in Rome; and the Etowah River at S. Broad Street just before joining the Oostanaula. All heavy metal and mercury results were below detection limits."

Congratulations to all the paddlers who became certified monitors in our volunteer workshop! Also, we'd like to thank Paddle Georgia, AAS trainers and the monitoring team for making this another successful trip!

Paddle Georgia 2016 Continued…

Analysis of North Georgia River Waters by ICP-MS: Working together for better health of Georgia Rivers

Internship Authors: Chloe Fernandes, Whitney Jones, Internship Advisor: Dan Jones



Interns Chloe Fernandes and Whitney Jones with PerkinElmer utilized samples collected by Adopt-A-Stream monitors to conduct testing for heavy metals. They have produced a poster with their methods and results which they presented at the South Eastern Regional Meeting of the American Chemical Society (SERMAC). An excerpt from their abstract is included below:

"During the 1960s, pollution from upstream carpet factories heavily affected the connected rivers of the Coosa River Basin. The Clean Water Act and actions by local and municipal authorities led to significant efforts to restore the river. The purpose of this experiment was to monitor how well these efforts have continued in the following years. This study details trace metal analysis of 84 samples collected by Adopt-A-Stream volunteers during the 2016 Paddle Georgia journey. Samples and blanks were collected at 84 individual sites over a 100-mile span along the three rivers. Although a few sites contained levels of certain trace metals above the advised EPA Drinking water threshold, none of these are considered particularly harmful. This seems to demonstrate that the efforts of Adopt-A-Stream, local government, and volunteers continue to have a positive effect on the health of this river system."

Citizen Science and Turtle Conservation

By Grover Brown

It's a little known fact that the Southeastern United States is a biological diversity hotspot for turtles, ranked no. 2 in the world for number of turtle species. In Georgia, we have almost 30 species of turtle occupying habitats from the highest points of the Southern Blue Ridge Mountains (the Federally threatened bog turtle) down to the marshes of the Georgia coast (the diamondback terrapin), and everywhere else in between. However, with this almost unparalleled diversity come a number of threats to their survival, and globally, turtles are considered one of the most threatened vertebrate groups.

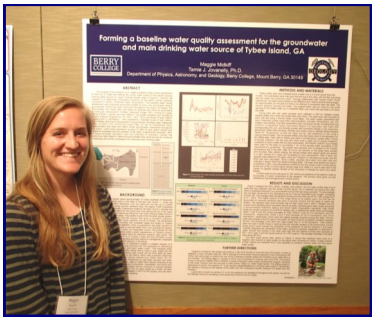

Photo by Grover Brown

In other parts of the world, turtle populations have been recently decimated, especially in and around Southeast Asia where consumption of turtles for food, traditional medicine, etc., has skyrocketed in the past 20 years in conjunction with the extreme population growth in the region. Unfortunately for turtles, they mature about as fast as they can crawl, and some take 15-20 years to reach reproductive size. They compensate for this delayed sexual maturity with long lives, and reproducing into old age (150-year-old tortoises can still lay fertile eggs!). This is what makes them so vulnerable to exploitation: they simply can't keep up with demand, and so harvest far exceeds sustainable levels. Southeast Asia *was* number one in turtle diversity, but unfortunately many species are now functionally extinct, with some species having as few as 3 known individuals left on the planet (the Yangtze Giant Softshell turtle).

So, after exhausting their own turtle species to the brink of extinction, Southeast Asia started importing metric tons of turtles from the surrounding region, until those too were exhausted. Now, hundreds of thousands of turtles from the Southeastern United States, Georgia included, are being exported to the same Chinese markets responsible for wiping out their own turtle species. This terrible cycle must come to an end.

In Georgia, many species have been trapped and exported to Asian markets for food and now for the increasingly popular illegal pet trade. However, there is hope, and education and vigilance can help safeguard our state's turtle diversity! Turtle traps come in a variety of shapes and sizes, generally there is a funnel leading to a bait-source suspended in a posterior cavity of the trap. Typically these are hoop-shaped or box-shaped. By law, each of these traps should be tagged with the name, address, and special permit number. These traps should also have a ring 10 inches in diameter made into the rear of the trap to permit fish to escape (few traps actually have this). Improperly labeled turtle traps, or traps without fish excluders, should be reported to the Georgia Department of Natural Resources Law Enforcement Division. The proper authorities can be dispatched by emailing the state herpetologist, John Jensen (John.Jensen@dnr.ga.gov), the specific locations and/or the coordinates of the turtle traps. With the help of citizen scientists, like Georgia Adopt-A-Stream volunteers, we can make a very real difference in turtle conservation in Georgia.

AAS Water Science Poster Session: Call for Abstracts!



In place of the competition that has been held the past couple of years, this year's Confluence Friday Social will include a special poster session open to students as well as AAS volunteers! This event provides an opportunity to share your water science work, receive recognition and interact with peers and professionals in the field. For selected entries, participants will showcase their posters during the AAS Confluence. Share your student water science research and volunteer monitoring projects! Tell your AAS story!

Guidelines and Abstract Submission Form are on the Poster Session page of the Confluence menu on the Georgia Adopt-A-Stream website at www.GeorgiaAdoptAStream.org. Abstracts and posters of previous presenters can be viewed at the bottom of the Science & News page. Travel stipends are available for eligible participants.

Abstract Submission Deadline: Sunday, January 15th, 2017

Confluence 2017: March 24-25

Adopt-A-Stream Annual Conference

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

Announcing Keynote Speaker: Dr. Alan Covich,
Odum School of Ecology, University of Georgia

Environmental & Heritage Center in Buford, GA
For more information, visit the Confluence page at www.GeorgiaAdoptAStream.org

Board Member Spotlight: Katie Owens, The Nature Conservancy

Katie Owens has always had a strong connection with the environment. She spent her childhood playing in the creeks and forests of North Carolina and Kentucky. Katie moved to Georgia in 2000 when she attended Berry College, a beautiful 28,000 acre campus that remains her running and mountain biking playground still today. Following graduation from Berry with a degree in Environmental Science, Katie worked for three years as the Program Director for the Coosa River Basin Initiative. It was in this position that she was first introduced to Adopt-A-Stream and became a certified Trainer.

In 2007, Katie took a position as the Upper Coosa River Basin Program Director for The Nature Conservancy, where she still remains today. In this position Katie oversees all aquatic and terrestrial projects in Northwest Georgia. Katie believes education is a key component to local citizens understanding the incredible biodiversity within the Upper Coosa, and what the local communities can do to protect and restore that biodiversity. Adopt-A-Stream offers a great opportunity to involve local citizens in keeping an eye out for their local streams and rivers. When Katie isn't fulfilling her biologist duties, she stays busy keeping up with her three young boys, helping her husband Matt run the family farm, mountain biking, and climbing the tallest mountains she can find in the United States.

Calling All Volunteers—We're Looking for This Year's Award Winners!

We need your help to recognize Adopt-A-Stream award winners for 2016. Submit a nomination for an active volunteer, trainer or watershed group that sets outstanding examples of the five goals of our program.

You can't win if you don't submit!

Details about award categories and guidelines for submission are on our website at www.GeorgiaAdoptAStream.org.

DEADLINE FOR NOMINATIONS: SUNDAY, JANUARY 15TH, 2017

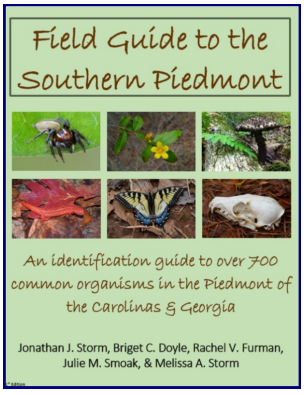
VOLUNTEER AWARDS
Volunteer of the Year
Extraordinary Watershed Monitoring
Red Flag Award
Outstanding Outreach and Partnership
Adopt-A-Stream Multimedia Award
Excellence in Data Collection
Nymph Award
Beyond Borders

TRAINER AWARDS
New Trainer of the Year
Trainer of the Year

WATERSHED AWARDS
Local public utilities, government agencies, regional commissions, nonprofits and watershed organizations

See full award category descriptions and submit nominations on the AAS Awards Submission page at www.GeorgiaAdoptAStream.org.

New Free Online Field Guide!



The *Field Guide to the Southern Piedmont* is a picture-based identification guide to over 700 species in Georgia and the Carolinas and it includes common animals, plants, fungi, slime molds, animal tracks, skulls and bones, rocks, minerals, and nature sounds. Dr. Jonathan Storm and his co-authors at USC Upstate created the field guide to help the general public, particularly kids, easily identify and learn about common organisms they may encounter in their backyard or while hiking a trail here in the Piedmont. The field guide e-book is available for download for free to any electronic device from www.uscupstate.edu/fieldguide.

Rivers Alive Cleanups and T-shirts!

Thanks to the efforts of our organizers and volunteers, Rivers Alive is having another successful year! So far in 2016, 141 cleanups have engaged almost 18,600 volunteers to remove over 550,000 pounds of garbage from Georgia's waterways, and there are still many more cleanups scheduled throughout the remainder of the fall!

If you held a cleanup this fall, please submit your final tally as soon as possible so we can finalize our yearly report!

In addition to removing trash, these cleanups have helped to educate citizens across the state about water quality issues. Please return extra shirts to the Rivers Alive state office so we can share them with other volunteers!

www.RiversAlive.org

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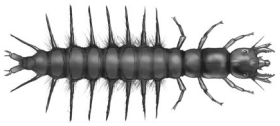
AAS Staff: *Harold Harbert, Seira Baker and Meredith Whitten*

GO BLUE!
Sign up for our e-newsletter by emailing us at AAS@dnr.ga.gov

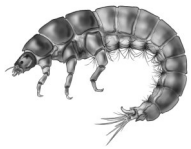
Dragonfly

Riffle Beetle



Dobsonfly

Stonefly



Net Spinning Caddisfly

Thank You and Good Luck, Chelsea!

Once again, we have the tough task of saying goodbye to an outstanding Adopt-A-Stream State Coordinator. In three plus years with the program, Chelsea gave us her all. Her dedication, her hard work, her exquisite attention to detail and excellent organizational skills have helped make the state program just that much better. If you wanted something done, and you wanted it done right the first time, we always knew we could count on Chelsea.

"In thinking about my experiences here, saying that leaving is 'bittersweet' is an understatement. I have so enjoyed my time working with all of you, both from the perspective of a Program Assistant and then as State Coordinator. My friends sometimes joke that I am the only one that whole-heartedly loves their job. I always respond with the fact that there is such an amazing community of people around the state (and beyond!) connected to Georgia Adopt-A-Stream that make working here meaningful and enjoyable!

You all have taught me so much, both personally and professionally, and I appreciate each one of your perspectives and feedback. Each of you makes the program come alive and are the reason Adopt-A-Stream is nationally recognized in the volunteer water quality monitoring field. Thank you for all of the time and positive energy you put into your involvement with and guidance of Adopt-A-Stream; the community effort makes for a strong foundation as the program continues to grow!" - Chelsea

We'll miss her sunny disposition and always smiling face, and know that she's still laughing as she chases salmon in her new river modeling job in central California at UC Davis. Best of luck Chelsea!

Please visit our calendar at www.GeorgiaAdoptAStream.org for upcoming workshops and events!