

GEORGIA

Adopt-A-Stream

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Adopt-A-Stream Staff, Editors



Paddle Georgia 2015: The Ogeechee River



Jesse Demonbreun-Chapman, Watershed Outreach Coordinator at Ogeechee Riverkeeper



“We had such an incredible time sharing our beloved Ogeechee River with over 400 paddling enthusiasts during Paddle Georgia 2015. This remote river exists as one of the few remaining free-flowing rivers in our nation, and paddlers were quick to extol its beautiful and wild nature. We can’t help but agree. The Ogeechee River is a remarkable waterway teeming with wildlife. Its unconstrained flow carves out an ever-changing channel through bottomland swamps, as each winter’s flooding drains slowly to the Atlantic Ocean just south of Savannah, GA.

Ogeechee Riverkeeper exists to protect, preserve, and improve the water quality of this pristine waterway and its tributaries through responsible policy work, education, and scientific monitoring.

Despite the picturesque scenery spotted all along the Paddle Georgia route, this waterway has experienced an incredibly challenging history. Increased groundwater consumption slowly pulls down the river’s average flow rates, and in 2011, one of the largest fish kills in the state’s history exposed a poorly monitored industrial plant for violating the Clean Water Act.

With these pressures in mind, Georgia Adopt-A-Stream is an incredible tool that helps us fulfill our mission by providing a method of collecting quality data on the health of this river. Disenfranchised landowners and concerned citizens alike can take part in keeping a close eye on our most cherished of natural resources – water.

Through the marriage of high quality curriculum and dedicated volunteers, we are able to create a monitoring network capable of identifying and addressing water quality issues so that this remarkable river remains as beautiful as it is today for future generations.”

Ruth Mead, Senior Environmental Educator at Phinizy Center for Water Sciences, AAS Board Member and Trainer, and Project WET facilitator

“Having been on several Paddle Georgia trips before, I jumped at the opportunity to be both an AAS trainer and WET facilitator on the trip down the majestic Ogeechee. How brave of Georgia River Network (GRN) to offer the Ogeechee as a week paddle as her waters can run some ten feet higher in winter and crash to levels almost non-navigable in the dry summer months. But no one would be disappointed – the water level was perfect and the beauty of the watershed offered a rewarding experience.



Eleven years ago when GRN initiated their annual river awareness paddle, Paddle Georgia, they had the insight to partner with both AAS and Project WET. This partnership allows the participants not only the opportunity to experience the magic of some of Georgia’s 70,150 river miles but provides training to encourage them to help protect their own watershed. The AAS Staff, with the help of a few trainers, monitor the river and its tributaries daily as the paddle floats downstream. Paddlers often join the monitoring events or stop by the lab in the evening to check on the water quality. This visual AAS presence goes a long way in helping GRN meet their goal of engaging and empowering citizens to protect, restore and enjoy our rivers by just purely making folks aware of the issues.

Paddle Georgia 2015: The Ogeechee River, continued...

Sponsorships allow GRN to offer teacher scholarships. The lucky recipients get to take in all the fun of Paddle GA while becoming certified in Project WET and AAS. Not familiar with Project WET? It is an innovative, interdisciplinary water education curriculum that provides activities aligned to the Georgia Performance Standards that teachers can use to help students understand the importance of a healthy, sustainable environment. Wow – sounds like it fits right in with GRN & AAS goals. Not only do teachers get to enjoy the paddle but they take their experience and training back to their students.

Paddle GA 2015 was the third time I had the great honor of being a WET facilitator for the scholarship recipients. It means an extra day of being involved with the paddle as the WET workshop takes place the Friday before the paddle. It is always a great transition from the hassle of daily lives to becoming immersed in the beautiful power of the river where you can be lost from society. Through the course of the week, the teachers tend to develop a bond not only with their group but with the educators who paddled before them - many of whom come back every year to paddle a new river.



After a major fish kill on the Ogeechee some four years ago, Phinizy Center for Water Sciences increased their research beyond the Savannah Basin by initiating river monitoring on the Ogeechee. Phinizy has six monitoring sites, five of which have continuous monitoring data sondes. As an educator for the Phinizy Center, paddling the Ogeechee allowed me to more fully comprehend our research efforts. Our monitoring parameters are similar to those of AAS. Data sondes continuously monitor for dissolved oxygen, pH, conductivity, and temperature. Nutrient sampling is conducted monthly and macroinvertebrate sampling with Hester-Dendy samplers is conducted quarterly. Where AAS chemical sampling gives you a single snapshot once a month, continuous sampling is more like a movie. We like to think of it as a security camera that is constantly watching – it is much easier to know exactly what happens and when. Not only are there seasonal changes in our waters but also daily changes. Constant monitoring allows you to more efficiently record those changes. Our data helps regulators more closely examine the effects of loads to the river at different flow conditions, hopefully doing a better job at setting limits. Our monitoring sites on the Ogeechee are at nearly the same river mile as our sites on the Savannah which will hopefully allow us to compare the two rivers. Check out our monitoring sites at: <http://phinizycenter.org/projects/river-monitoring/>.

Paddle GA 2015 also sponsored a group of 10 impressive girls from Camp Creek Middle School in Atlanta. They took on the challenge as novice paddlers on a week adventure bravely winding through willow thickets and enjoying every water fight possible. I had the great pleasure of spending a day with them as they went through a chemical AAS training. Our kits got a little sandy and we were about the last ones off the river but all in all it was one great day in one incredible week!"

Ogeechee River Monitoring Results

As the AAS monitoring teams paddled down 95 miles of the Ogeechee, we sampled twenty-four sites along the mainstem as well as twelve tributaries that flow into the river. We monitored for AAS' core chemical parameters (water temperature, pH, dissolved oxygen and conductivity) as well as turbidity and *E.coli* levels. EPD's Ambient Monitoring Unit sampled for additional parameters including total hardness and metal concentrations. The table to the right is a brief summary of our water quality results for the Ogeechee River and its tributaries.

A first step to understanding the data is to reference the State of Georgia's surface water quality standards or recommended levels for certain parameters. You can find these standards online from EPD: www.epd.georgia.gov/georgia-water-quality-standards. We found consistent, expected results for the mainstem throughout the paddle with greater variability in the tributaries. Lead was detected but not at

levels that are a cause for concern. More frequent sampling would be welcomed along the Ogeechee to gather a solid base of background levels in this watershed. Contact the Ogeechee Riverkeeper if you are interested!

Thank you to all the paddlers who participated in our volunteer workshop! We had around 35 people learn how to use AAS methods to monitor water chemistry. Also, a big thanks to the trainers and monitoring team for making this such a fun and effective trip! Paddling through the overhanging willows and white sand beaches, we heard many people exclaim, "This is the cleanest river we've ever paddled!" After monitoring the 95 mile stretch of the Ogeechee, we can confirm, as we did in the nightly water quality updates—there's not much to report, and that's a good thing!

Paddle Georgia 2015 on the Ogeechee River (Min-Max)		
Parameter	Mainstem	Tributary
AAS Methods		
Water Temperature (°C)	27.3-31.5	23.7-31.2
pH	6.5-7.25	4.75-6.75
Dissolved Oxygen (mg/L)	3.8-7.2	0.0-4.6
Conductivity (µS/cm)	110-140	70-190
<i>E.coli</i> (cfu/100mL)	0-67	0-2367
EPD Methods		
Turbidity (NTU)	3.7-8.5	3.8-110
Total Hardness (ppm)	25-46.9	28.5-49.1
Lead (mg/L)	1.9-2.3	2-2.5
Total Sites Sampled	24	12

Highlighting Adopt-A-Stream on the Coast

In the 1990s, Georgia Adopt-A-Stream initiated volunteer monitoring activities on the coast of Georgia through a partnership with Savannah State University. In the 2000s, the UGA Marine Extension Service (MAREX) received grants to promote coastal monitoring and partnered with AAS to grow the coastal monitoring presence. The MAREX program was called Coastal Georgia Adopt-A-Wetland and it included biological and chemical monitoring. This program also produced the Coastal Georgia Adopt-A-Wetland manual, an excellent resource for those monitoring salt water systems.

Over the years, funding for a coastal coordinator position has waxed and waned, and right now the region is experiencing a prolonged dry spell. Still, as highlighted throughout this newsletter, other leaders have stepped forward to provide support of coastal monitoring activities. Although we all agree that there is no substitute for a single coordinator to unify the region, we wish to recognize these local coordinators in filling the gaps by providing water monitoring support throughout the 11 county coastal region. The coast of Georgia has always had some of the strongest monitoring programs in the State, with many coastal groups having monitored for five, ten and more years. The loyalty of these citizen scientists is doubly impressive when you consider the number of coastal coordinators that have come and gone. Georgia Adopt-A-Stream is excited to be able to provide continued support for coastal monitoring activities and we applaud the efforts of these monitors as they provide valuable data on the health and conditions of our coastal waters.



Blake Caldwell and Obby Tapley, Peregrine Marsh Gang Volunteers and AAS Trainers

“We got involved with Georgia Adopt-A-Stream when Obby saw an announcement in the Savannah Morning News that the program was looking for volunteers. We contacted Mary Sweeney-Reeves at the Marine Extension Center on Skidaway Island and she encouraged us to establish a monitoring group. Obby contacted a group of friends to participate as volunteers and we started the Peregrine Marsh Gang. Mary helped us select a monitoring site on the Wilmington River and trained us in both chemical and bacterial procedures. We have been dedicated ever since our first monitoring event on March 16, 2003 and have only missed one month in over 12 years.

Our group of volunteers is large enough that we can always field a fun group with at least one certified member. All of our members genuinely care about the environment and enjoy doing their part. Since the inception, our dedicated recorder, Anita Clos has kept us straight every month. She enters the data on the fabulous Adopt-A-Stream website and keeps the hard copies of the data. We enjoy each other’s company and try to have lunch afterwards. The high quality of the Adopt-A-Stream website also keeps us monitoring. With the data readily available to concerned scientists and citizens in numerous formats, we feel that the data is used – not just sitting in a file drawer.



Both of us have professional experience in related areas and wanted to bring that expertise to the AAS program. Obby has a background in environmental science, law, and consulting with a lot of work in water quality. Blake is a physician who spent five years early in her career doing research on bacterial diarrhea and as a result has a depth of knowledge in fecal coliform. A contributing factor to our decision to become trainers was the cutback in funding that eliminated the Coastal AAS Coordinator Position. We want to keep the program alive along the coast for certification of new volunteers as well as recertification. On the day of a workshop, Obby does the chemical training and Blake does the bacterial. We both attend the entire session, freely interjecting comments in the other’s presentation. Friends do that. We grade our respective tests and Obby does the follow up computer work.



Adopt-A-Stream is an important part of the scientific community because robust QA/QC validated data sets are generated which establish invaluable baseline data. Also, we serve as a trip-wire in the event of an environmental development that requires further investigation. Valid baseline data is critical for monitoring long term trends which may prove to be of increasing importance as we experience climate change. One of the most enjoyable parts of being trainers has been the opportunity to train highly motivated individuals and groups. Their enthusiasm and interest keeps us going.”

Highlighting Adopt-A-Stream on the Coast, continued...

Ashby Nix, Satilla Riverkeeper



Satilla
RIVERKEEPER®

“With my past experience in water quality analysis, and as the new Satilla Riverkeeper, I knew the importance of monitoring water quality in our watershed. In reviewing Adopt-A-Stream sites, I realized what a large gap there was in monitoring efforts in the Satilla River watershed and knew that is an important role we could serve - to not only monitor our waters regularly, but to increase the number of volunteer monitors in the region to help improve our watershed and waters for the public.

It is important that the organization participate in Adopt-A-Stream, as a regular monitor of our waters and as a trainer of others, so that we can continue to gain more knowledge of our local waters and monitor for any potential pollution or issues that may arise and threaten the health of our river and users of the river. It is an important aspect of our mission - to protect, restore and educate about the Satilla River. We are often the go-to source for information regarding the river; it is imperative that we have a thorough knowledge of the river and a great team of volunteers and members to help protect it.

The Adopt-A-Stream program benefits our local southeast Georgia communities by increasing interest, awareness and knowledge of our local waters. Engaging volunteers in this program brings a sense of stewardship and responsibility for the river and ensures that it remains swimmable, fishable, and enjoyable for its variety of users. I strongly feel that once you experience the Satilla River, whether via a paddle, adopting a water monitoring site, or swimming or fishing its waters, you will want to take an active role in protecting this precious gem that we are so lucky to have.

Georgia Adopt-A-Stream has enabled us to meet numerous individuals who care for the Satilla River and want to take an active role in protecting it. We were able to meet our newest employee, Mary Freund, through an AAS workshop. Soon thereafter, Mary joined us as a summer intern then used AAS protocol in her research of plankton in the Satilla River for her undergraduate project. This project went on to win awards at the AAS Confluence! We are glad to have her on board now as a full-time employee conducting important water quality sampling, training and research on the Satilla River. This year, we have also been able to use AAS protocol in monitoring swimming locations along the Satilla River, ensuring healthy swimmable waters for the public. We have recently integrated the results onto the Waterkeeper Alliance Swim Guide, a handy app for those who are interested in discovering which waters are currently safe for swimming. It's a great combination of tools that help inform the southeast Georgia public on how to enjoy and get to know their river while remaining safe.”



Mary Freund, Watershed Outreach Coordinator at Satilla Riverkeeper



“I got involved with Georgia Adopt-A-Stream in January of 2014 through the encouragement of my aquatics biology professor, Jan Mackinnon, who also serves on the Adopt-A-Stream Advisory Board. I attended a coastal chemical monitoring workshop at the Coastal Resources Division, where I met Ashby Nix, Satilla Riverkeeper Director. I started volunteering for Satilla Riverkeeper and adopted a site on the Satilla River in my hometown of Woodbine, Georgia.

When volunteers are actively engaged in water quality monitoring at their adopted site, they feel a sense of ownership and in return wish to protect it and help make others environmental stewards. I hope there will be a coalition of water quality volunteers to keep the water quality monitoring program going strong in the Satilla Basin long into the future.

Adopt-A-Stream gave me the tools and the training that I needed to be a successful water quality volunteer, which led to my internship, which led to my research project, which led to my job, which led to me constantly thinking and dreaming about the Satilla River. I

spent my entire life on the banks of the Satilla River; it's my home. As an adolescent, I never thought that I would use it for scientific study, let alone have a job where I work to protect and educate people about it. I have been trying to get more young people involved like me, and we have a new volunteer with a site on the Turtle River system in Brunswick. Because of my involvement, I now have a firm grasp on various aspects of water quality issues and want to go back to school and study impacts of ocean acidification on various benthic invertebrate communities. Water quality will always hold a place in my studies and career interests.”

Highlighting Adopt-A-Stream on the Coast, continued...

Jessica Warren, Camden County Agriculture and Natural Resources Extension Agent

“My involvement with Adopt-A-Stream and Rivers Alive began when I took a position as a Program Assistant in the EPD State Office between undergraduate and graduate school in early 2008. When I moved back to Georgia in 2013 to take a position as the Camden County Agriculture and Natural Resources Extension Agent, I knew that Adopt-A-Stream would be a natural fit for my program. Working in a coastal county with miles of salt marsh habitat, water quality issues are exceptionally important. Our marsh health affects citizens far beyond the borders of our county, in addition to affecting our local fisheries, tourism, and ecological health.



My program hosts multiple chemical and bacterial monitoring workshops each year to educate and involve local citizens, and works with teachers and school groups to bring more awareness and involvement into the classroom. In addition, we host two Rivers Alive cleanups per year, one of which is in partnership with our local state park as part of Your State Parks Day. In 2014, 76 community members attended these events collecting over 1,050 lbs of trash from the shorelines of Camden County. I really look forward to witnessing the continued impact the Adopt-A-Stream and Rivers Alive programs can have on the coast.”

AAS Board Member Spotlight: Jan Mackinnon, Coastal Resources Division



Jan Mackinnon is a Biologist with the Georgia Department of Natural Resources Coastal Resources Division (CRD) in Brunswick, GA. She joined the CRD team in 1999, beginning her career in Marine Fisheries and then moving to Ecological Services. For the last 10 years, she has led the Division’s Wetlands initiative on the coast, including monitoring salt marsh health, carrying out targeted salt marsh research, tidal wetland restoration, updating the National Wetland Inventory, and Living Shorelines.

Jan is also an adjunct professor of Biology at the College of Coastal Georgia in Brunswick (CCGA). Since 2003, she has been teaching general Biology, but most recently began teaching Aquatic Biology and Ecology as well as Marine Biology to Coastal Ecology majors.

In 2009, Jan joined the AAS Advisory Board and in 2011 she became a Trainer for AAS. Currently she is able to train volunteers on the coast that are interested in adopting their own site, or connect folks up with already established groups. She was also instrumental in assisting the CCGA Biology Club to adopt a new site in Glynn County.

Due to the nature of her work, Jan is able to promote the AAS Program through her interaction with property owners, school groups, and other citizens on the coast. In addition, she is able to co-teach training sessions with other coastal groups, such as the Satilla Riverkeeper and UGA Cooperative Extension. Whether she is in the field, providing outreach through her work with CRD, or teaching at CCGA, Jan is always educating the citizens of the coast on AAS and encouraging new citizen scientists. As an advocate of education and science, Jan has made it a priority to educate the citizens of Georgia on the importance of coastal wetlands. AAS is a great way to do that!

SAVE THE DATE CONFLUENCE 2016!

*Friday evening: Student Water Science Poster Competition and Social
Saturday: Water Quality Workshops, Exhibits and Awards Ceremony*

~ Environmental & Heritage Center in Buford, GA ~

For more information, visit the Confluence page at www.GeorgiaAdoptAStream.org

**FRI & SAT
MARCH
11-12**

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For more information about the Georgia Adopt-A-Stream program or
to contribute to the newsletter, contact:

Georgia Adopt-A-Stream
Environmental Protection Division
2 MLK Jr. Dr. SE, Suite 1462 East
Atlanta, GA 30334
404.651.8512 / 404.651.8513
GeorgiaAdoptAStream.org

AAS Staff

*Harold Harbert, Seira Baker and
Chelsea Hopkins*

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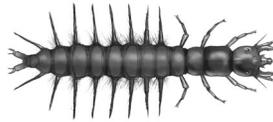
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Announcing 2015 AAS Awards

Recognize an exceptional volunteer, watershed group or trainer
in your community!



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

- Trainer of the Year
- New Trainer of the Year

Watershed Awards

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

Nomination Deadline: January 15, 2016

*More information on award categories and nominations at
GeorgiaAdoptAStream.org*

**Second Annual Student
Water Science Poster Competition**

The annual event provides an opportunity for students to share
water science research projects, receive recognition and
interact with peers and professionals in the field. Selected
entries will present at the AAS annual volunteer conference
on March 11-12, 2016.

CASH PRIZES for winners!

- Graduate College
- Undergraduate College
- High School (9th-12th Grade)

**Submit abstracts by
January 15, 2016**



*Competition Guidelines and Abstract Submission Form at
GeorgiaAdoptAStream.org*

*Please visit our online calendar at www.GeorgiaAdoptAStream.org
for upcoming monitoring workshops and Adopt-A-Stream events!*