GEORGIA
Adopt-A-Stream

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Department of Natural Resources
Environmental Protection Division

Back to School with Adopt-A-Stream

Tell me and I forget,
teach me and I remember,
involve me and I will understand
-Chinese Proverb

The 2010-2011 school year is just around the corner, so put on your thinking cap and learn how Adopt-A-Stream activities can be incorporated into the classroom with this special "Back to School" edition of our newsletter. Many schools around the state use Adopt-A-Stream to actively engage their students in learning and to involve students in community-based projects while meeting Georgia Performance Standards.

Adopt-A-Stream offers many exciting ways to engage students in the learning process. In this edition we will provide tools for your tool box, explore many student led Adopt-A-Stream projects and introduce you to how teachers are using water quality monitoring in their classrooms.

Adopt-A-Stream Tools for the Classroom

Adopt-A-Stream Educator's Guide
This guide, featuring 23 lesson plans, is designed to bring water quality education to classrooms and to spark students' interest in protecting our precious water resources. These activities involve our monitoring protocols and emphasize key concepts such as land use, erosion, watersheds, measurements and mathematical equations. Contact AAS to get a free copy of this guide.

Adopt-A-Stream Database
If you cannot get your students out to a waterbody, you can virtually explore water quality in Georgia through our online database. This means you can search by city, county or watershed and download data and graphs to use with your students. Comparisons can be made across basins and teachers have used these data to teach about the scientific method, mathematical concepts and research reporting. To view our database, visit www.GeorgiaAdoptAStream.org.

Project WET/Healthy Water, Healthy People
Project WET is Water Education for K-12 Teachers! Project WET is a program designed for formal and nonformal educators of K-12 students and all activities are correlated to the Georgia Performance Standards. Healthy Water, Healthy People is a supplement that promotes stewardship of water resources by teaching educators and students about the relationship between water quality and human and environmental health.

River of Words
River of Words conducts an international poetry and art contest for youth on the theme of watersheds. The contest is designed to help youth explore the natural and cultural history of the place they live, and to express, through poetry and art, what they discover.

For more information about these tools or to schedule a workshop, please visit
www.GeorgiaAdoptAStream.org or call 404.675.6240.

Back to School with Adopt-A-Stream

The Little Ones Get Their Feet Wet

Mountain Park Elementary students at Rocky Creek

Mountain Park Elementary

Ms. Kati Searcy and her gifted students in K-5 have adopted Rocky Creek in Roswell. Ms. Searcy states, "this program is a fantastic opportunity for students to become an important part of the community while at the same time mastering science curriculum and nothing compares to meaningful, real-world experiences when it comes to learning."

Nicholson Elementary

Third grade students in Mrs. Cheryl Ashley-Sarafine's Accelerated Learning program take part in the "Life is a River" unit, a semester long program promoting stewardship of our rivers. Students are actively engaged in stream monitoring, recording and submitting data to the AAS database, keeping journals to track changes while making inferences to why the change has occurred. Her favorite aspect of this unit is the joy of watching her students make connections between what is learned within the four walls of the classrooms and the world around them.

Marietta Center for Advanced Academics

Mrs. Barbara Throop teaches a class called 'Georgia Ecology' to fourth grade students and uses AAS in the watershed unit to teach about the importance of protecting their local watershed. She states, "there is not a better way to teach students about their watershed than to get "down and dirty" in our creeks." Once her students are well versed in watershed studies, they develop a brochure focused on educating people about the need to keep our watersheds healthy. Through such experiences these students have developed an appreciation of water and a passion to protect it.

Middle School Students Learn to Master Scientific Methods

Hopewell Middle School

Mr. Tom Sewell's students are immersed in water quality science both inside and outside of the classroom. His unique program uses AAS chemical and bacterial methods at one monitoring site on the school grounds and at six sites within the community. Each AAS team consists of a student and a parent, who primarily monitor in their own neighborhoods. Results are then used in classroom activities to drive home messages taught in their textbooks.

FCMS students pose with their trout

Fannin County Middle School

Mr. Tony Tickler and Mr. Jeff Weaver teach biological and chemical monitoring to their students and in recent years have expanded to include the "Trout in the Classroom" program. The life science and math teachers incorporate monitoring data into everyday classroom lessons such as life cycles, environmental changes, and growth rates. The art class has an annual t-shirt design competition while the music class composes a song to sing at the Trout Release Celebration.

Dodgen Middle School

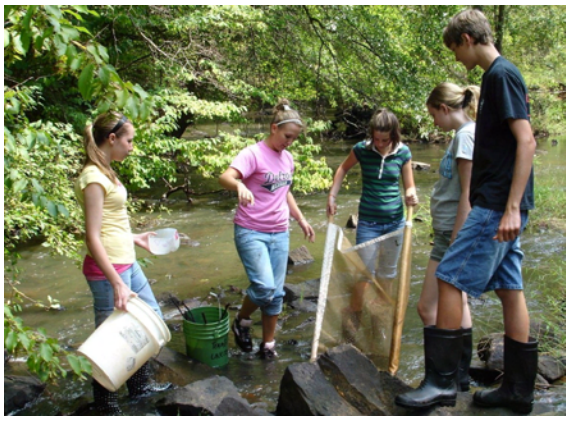
Dodgen Middle School teachers use AAS chemical and biological monitoring programs to help students see the "big picture" of how they fit into the world around them. Adopt-A-Stream monitoring helps students to understand their impact on the environment when they observe and analyze first hand the changes in our ecosystem.

Back to School Continued…

Advancing High School Students within Their Environment and Community

Tucker High School

Kelly Voss, a teacher at Tucker High School, says that AAS provides an interesting way to teach the Advanced Placement Environmental Science (APES) curriculum and it also gets her kids more involved in their community. Her students are trained during the first week of school and monitor for the entire school year plus the summer months. Tucker High School has adopted three sites within the community and the stream monitoring trips are an essential part of the class.



McIntosh H.S. students conduct biological monitoring

Collins Hill High School

Collins Hill High School teacher, Nancy Darden also uses AAS monitoring for her APES course. She and her students monitor two sites on a tributary to Little Suwanee Creek and for some students, this is their first experience at a creek. She stated that her students do well on the water component of the test due to their exposure to water quality monitoring throughout the year.

McIntosh High School

McIntosh High School uses AAS as an extracurricular activity. Their lead teacher, Michael DeLisle, has been instrumental in creating a strong and well respected program that has made great efforts to protect water quality in their community while the students learn important life skills. Over the years these students have monitored 11 sites, identified water quality impairments and participated in a door-to-door outreach program where they visited over 3,000 homes. This year, their group will incorporate bacterial monitoring into their monthly monitoring regime.

College Students Gain Real World Experience

UGA student tests for conductivity

The University of Georgia

Students in Laurie Fowler's environmental law course have partnered with Lee Carmon of the Northeast Georgia Regional Commission to evaluate bacteria levels in the Calls Creek watershed in Watkinsville. This partnership was developed as a result of Calls Creek being recently listed as impaired due to high fecal coliform levels and the City of Watkinsville needing to identify the potential sources. Through this project UGA students gain first hand experience in water quality monitoring, and it provides a better understanding of environmental functions while providing data for the Northeast Georgia Regional Commission. Their data is used to support management decisions for Calls Creek.

Clayton State University

Dr. Chris Kodani at Clayton State University integrates AAS monitoring into his college biology curriculum as a means to teach the stream ecology unit and to meet the Biology Department's experiential learning requirement. The ecology unit involves stream monitoring at three impaired sites and at one reference site. Students who show a keen interest in stream ecology are encouraged to conduct a directed research project in which they monitor many streams in the area and present their findings at the student research symposium. For those interested in starting an AAS program, Dr. Kodani recommends to "start small, even if you can only introduce one part of the curriculum at a time, that's just fine."

Science Fair Projects

Evan Newman Researches the North Oconee River

Evan participated in Adopt-A-Stream monitoring on Paddle Georgia in 2009, which sparked an interest in water quality monitoring. Upon returning to Athens, he designed a study to evaluate the health of the North Oconee River for his science fair project. He selected three sites along the river and monitored pH, dissolved oxygen, *fecal coliform* and a suite of other parameters on a weekly basis. Based on the results, he concluded that the Oconee River is in good condition. This project led Evan all the way to the State Science Fair, where he finished second. He is thinking ahead to his 2011 project and plans to include AAS bacterial monitoring as well as nitrates and phosphates using the University of Georgia lab.

Malcolm Barnard Examines Time Effects on Lake Water Quality

Malcolm is interested in anything aquatic and loves both freshwater and marine systems, and strives to be a marine biologist/biochemist someday. This love lead him to study a local lake using his certification and Adopt-A-Stream methods for a science fair project. He was curious if a lake showed differences in levels of pH, temperature and dissolved oxygen at different times of day. Malcolm had quite an amazing adventure of discovering lake water quality, especially when it came to sampling in the early/late hours of the day. His journey led him to finishing first at Autrey Middle School and second in the county! He already has great ideas on what he would change and is really excited about next year's project.

Please visit our calendar of events at www.GeorgiaAdoptAStream.org

The Georgia Adopt-A-Stream Newsletter is published six times per year.
For more information about the Georgia Adopt-A-Stream program or
to contribute to the newsletter, call or write to:

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Dragonfly

Riffle Beetle

Dobsonfly

Stonefly

Net Spinning Caddisfly