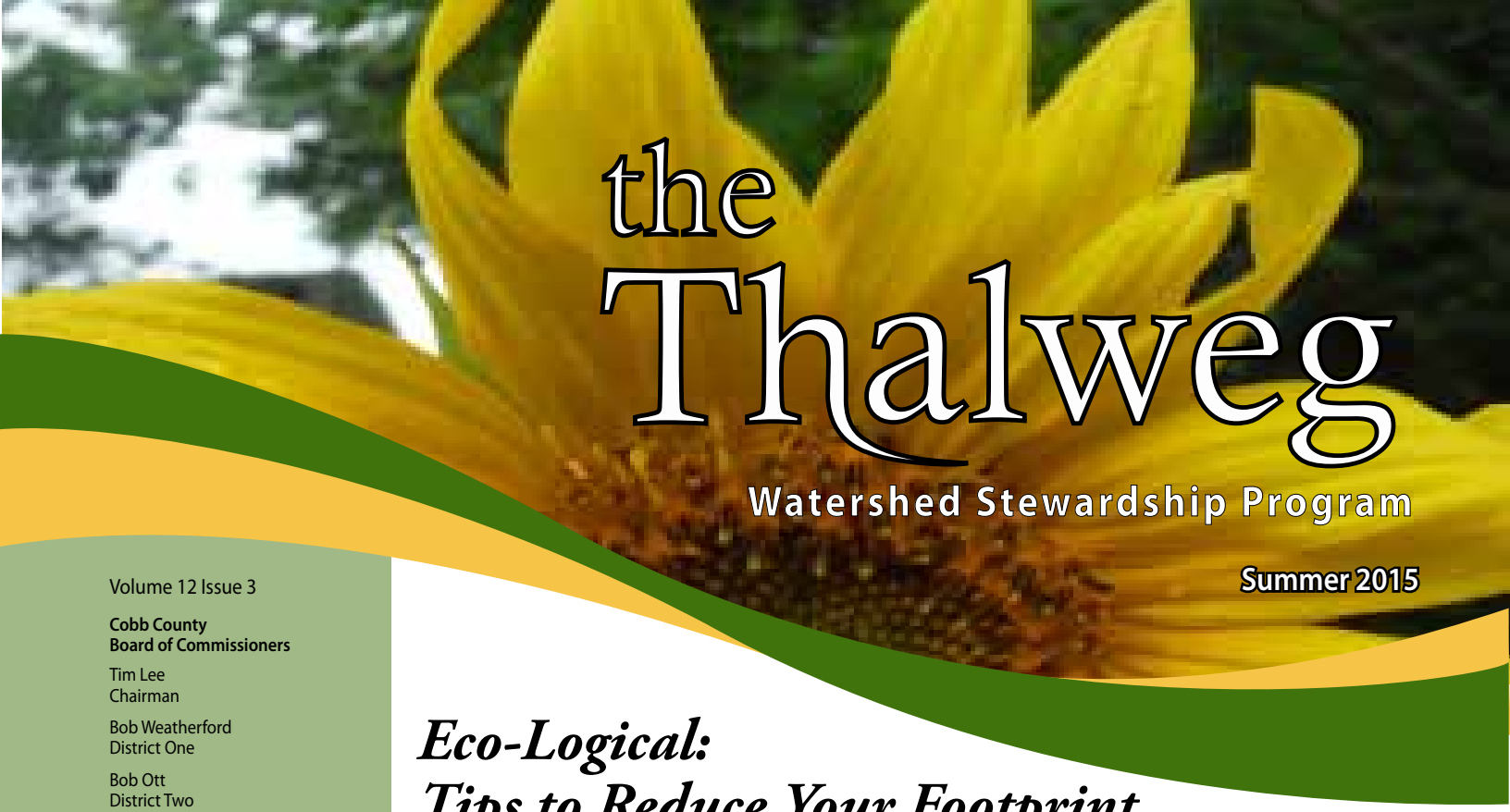

the Thalweg

Watershed Stewardship Program

Summer 2015

Volume 12 Issue 3

Cobb County Watershed Stewardship Program

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www.cobbstreams.org

Find us on Facebook

Follow our boards on Pinterest for environmental education and stewardship resources.

Follow us on LinkedIn. Follow our company page on LinkedIn.

Read our Rain & Wildlife Garden Phenology Blog

Eco-Logical: Tips to Reduce Your Footprint

The Watershed Stewardship Program is proud to introduce our two newest episodes in the *Eco-Logical* video series:

Water 101* & *Wastewater 101

What You Need To Know About Your Water System

Episode: Water 101

This installment of *Eco-Logical* highlights Cobb County's drinking water delivery system and your responsibilities as a customer. Derived from Lake Allatoona and the Chattahoochee River, our tap water is treated and delivered via a vast network of pipes and pumps. Many are unaware of the significant role consumers play in protecting this precious resource, especially once the drinking water passes through the water meter. In this short video, learn what you can do to prevent contamination to the public water supply by eliminating backflow and back-siphonage, how to prevent plumbing problems such as leaks and pipe bursts by monitoring and correcting water pressure, and why water from your water heater is not potable. This episode covers the basics of what you need to know about your drinking water system!

Episode: Wastewater 101

If your home or business is connected to the sanitary sewer, you are part of the wastewater collection system that leads to one of Cobb County's four water reclamation facilities. Although the wastewater collection system is convenient and largely unnoticeable, we still need to think beyond the drain. The prevention of backups, clogs, and sewage spills requires good habits from all system users. This episode provides simple ways to develop the good water habits necessary to prevent plumbing problems and pipe blockages that create backups and overflows of raw sewage into your home, business, or the environment.

To view these and other videos in the Eco-Logical Series, visit:
http://watershed.cobbcountyga.gov/files/EcoLogical.html

Carpe noctem: the importance of bats as bioindicators

By Gareth Jones, David S. Jacobs, Thomas H. Kunz, Michael R. Willig, Paul A. Racey

Photo credit: U.S. Fish and Wildlife Service
https://www.flickr.com/photos/usfwshq/8006844645/in/photolist-

Earth is now subject to climate change and habitat deterioration on unprecedented scales. Monitoring climate change and habitat loss alone is insufficient to understand the effects on complex biological communities. It is important to identify bioindicator taxa that show measurable responses to climate change and habitat loss. Bats have enormous potential as bioindicators: they show taxonomic stability, trends in their populations can be monitored, short- and long-term effects on populations can be measured, they are distributed widely around the globe, and provide key ecosystem services. Population declines suggest bats are affected by environmental stressors, and monitoring their populations may give insight into these stressors in a more general context.

The reproductive cycle of temperate zone bats is closely linked to their pattern of hibernation. If bats experience warm conditions and a supply of food in the second half of winter, they will arouse from hibernation prematurely, ovulate and become pregnant. Conversely, if bats experience periods of inclement weather associated with food shortages during pregnancy, they will become torpid and the gestation period is extended. Climate change is predicted to change energetic demands during hibernation and hence alter the distribution of hibernating species. Large die-offs (≤75% at some hibernacula) of bats in the genus Myotis have been reported in caves and mines in the northeastern USA, termed white-nose syndrome because a white fungus is apparent in the muzzle of dead and moribund bats. The fungus grows on the muzzles, ears and wing membranes of affected bats. No pathogen ultimately responsible for the die-offs has been identified; however, unusually warm and erratic winters may have affected the food supply or hibernal cycle of these bats and pesticides may also be weakening their immune system.

Habitat change has affected bats in many ways. Changes in land-use practices may affect the species composition of local and regional ecosystems, especially those associated with conditions and structures of urbanization. Light pollution might affect bats, emergence extended and infant growth retarded by house lights in some slow-flying bat species adapted to more forested habitats. In contrast, some populations adapted to foraging in open spaces may benefit from feeding on insects attracted to streetlights. The increasing use of bridges and buildings, including houses designed specifically for bats, has led to changes in geographic distributions and local population densities of some bat species. Consequently, some species that formerly only roosted in caves and tree cavities on a seasonal basis have become more abundant and occupied some roosts on a yearly basis. Long-term consequences of roosting habits on local species composition remain to be determined.

Riparian habitats are prime foraging areas for insectivorous bats; these rivers and lakes support large numbers of insects. However, deterioration in water quality may occur because of agricultural runoff and industrial pollution. High input of organic matter and toxins such as ammonia into water from sewage treatment plants may lead to eutrophication that can affect the invertebrate community in rivers. The biomass and diversity of insects emerging from rivers is lower downstream of sewage outputs. Kalcounis-Rueppell investigated the effects of effluent from a wastewater treatment plant (WWTP) on foraging activities of bats and insect abundance along urban streams in North Carolina, USA. More generalist bats, were recorded upstream of the WWTP, whereas activity of a riparian habitat specialist was higher downstream, suggesting that (the riparian specialist) may be tolerant or benefit from anthropogenic input into the watershed which may increase the availability of some prey groups. There is little evidence that eutrophication of fresh waters is harmful to bats; in fact it may be responsible for the apparent increases in populations in Europe.

Big Brown Bat (Eptesicus fuscus) can be found state-wide in Georgia.
Source: UGA Museum of Natural History
Photo credit: Carson Brown, Bats of Texas

Changes in agricultural practices are occurring worldwide, and intensification is ongoing as the human population increases. Agricultural intensification is recognized as having had major detrimental effects on biodiversity in Western Europe since the mid-20th century. Intensification is the increased production of agricultural commodities per unit area and involves the use of synthetic chemical fertilizers and pesticides. Traditional rotations in farm management have declined, and field margins have been removed. Increased pesticide use can further reduce food available for insectivorous bats, (loss) of field margins will take away valuable foraging and commuting habitats, as well as reducing the availability of important habitats for their prey. Nocturnal insect abundance, species richness and moth species diversity were higher on organic farms than on their matched conventional counterparts.

Hoary Bat (Lasiurus cinereus) is the largest tree bat of the southeastern United States, ranging from 13 - 15 cm (5.1 - 5.9 in) in total length. Source and photo credit: UGA Museum of Natural History

Rafinesque's Big-eared Bat (Corynorhinus rafinesquii) ranges over the southeastern United States, and may occur throughout Georgia but is considered rare in the state. Source and photo credit: UGA Museum of Natural History

Rapid rates of deforestation are major conservation concern. Timber harvesting and agricultural practices have adversely affected bat populations in many parts of the world. Clearing of rainforests or temperate-zone old-growth forests (with selective harvesting of snags) has resulted in the loss of crevice, cavity and foliage roosts, as well as foraging habitats.

High fatalities observed in bats, if associated with diseases, may provide an early warning of environmental links among contamination, disease prevalence and mortality. Increased environmental stress can suppress the immune systems of bats and other animals, and one might predict that the increased prevalence of diseases is a consequence of altered environments. Bats are reservoirs of several pathogens whose spread may be related to physiological stress associated with habitat loss or alteration. The recent die-offs of bats presenting with white-nose syndrome may relate to increased levels of environmental stress, perhaps as a consequence of increased arousals and hence energetic stress during hibernation, rendering the bats susceptible to fungal infection.

Bats are excellent indicators of human-induced changes in climate and habitat quality. Many bats fulfill vital ecosystem services, and declines in bat populations often reflect features of habitat deterioration that have impacts on a wide range of taxa. It is now time to 'seize the night' and to develop a global monitoring programme for bat populations, involving standardized methodology that can be applied, so that the value of bats as bioindicators can be fully realized.

Read the full article at: http://www.int-res.com/articles/esr2009/8/n008p093.pdf

Cluster of little brown bats (Myotis lucifugus) showing symptoms of white-nose syndrome. The syndrome has been associated with recent mass deaths of bats in the northeastern USA, though it may be a secondary consequence of other environmental stressors. Signs of disease in bats may be indicators of environmental stress. Photo credit: Al Hicks, New York Department of Environmental Conservation

Not Your Typical Northern Migration

Photo credit: Chris van Dyck https://www.flickr.com/photos/chrisvandyck/4453036699/in/photolist

An ecological invasion is coming and in fact, it is already here. Your first guess might be an invasive plant like kudzu or maybe privet that creeps into an area and then envelopes the surrounding plants. Unlike the plants above, this exotic is an animal, which walked into Georgia on its own four claws and has rapidly spread; the nine-banded armadillo (Dasypus novemcinctus).

How did these Lone Star armadillos arrive in Georgia? Until the 1850's armadillos were only found in Texas.As settlers began moving into Texas and leaving trails behind them, armadillos began following those trails east.If armadillos have a choice to follow a well warn path or an area with brush, the armadillo chooses the cleared space. Due to the tendency to stick to cleared spaces many armadillos are found along roadsides foraging, and as road kill.

Previously, it was believed that obstacles like the Mississippi River, temperature, and habitat would slow down the expansion of the armadillo. By the 1950's armadillos had spread past the Mississippi and were quickly wandering toward Georgia. Rivers, armadillos can ford, by a dogpaddle motion, and they can hold their breath for up to 6 minutes while walking on the river bed. They are excellent climbers and use fallen trees to cross streams. Some armadillos have even stowed away on trains. Temperatures have not slowed down the armadillo either. According to National Geographic armadillos have been spotted as far north as Iowa down to their native Argentina. They are found from west Texas east to South Carolina. Precipitation is the main deterrent for the spread of armadillo, preferring a habitat that is neither too wet nor too dry.

Armadillos are a member of the Xenarthra order, which also include sloths and ant eaters. In Spanish armadillos means "little armored one". They have a tough plastron, (upper shell), which offers some protection from a predator's attack. Made of two layers of bone and horn, the distinctive shell makes the armadillo easy to identify. There are 20 surviving species of armadillos distinguished by the pleated plastron, but the only one currently found in the United States is the nine-banded armadillo.

Characterized by having slow metabolisms, armadillos are nocturnal omnivores who feed regularly. While insects make up the majority of their diet, they do eat fruits and other small animals. Due to poor eyesight and hearing these omnivores find food mainly by smell. In fact, it is not difficult to sneak up on one of them while they are foraging for food. If startled the animals leap straight into the air and after landing back down, will take off running.

While an armadillo is a pest, they are not considered invasive. Like a minor frustration, these destructive animals change the terrain and habitat of an area; however, unlike an invasive species, they do not overcome another animal's niche or cause much financial strain. Stag, standing dead trees, have been ripped apart in the armadillos hunger for insects. Foraging on insects, armadillos dig up to 24-holes a day each with a depth of 5 inches. The digging behavior can cause mild erosion.

Armadillo on Cumberland Island, GA
Photo credit: Lyndi & Jason
https://www.flickr.com/photos/citnaj/1111349288/in/photostream/

Armadillos are not just a pest to the ecosystem; they have a distinct positive ecological attribute. Preliminary studies show they may eat fire ants, an invasive species from Argentina, which is causing havoc in the southeast. Anyone who has felt the sting of fire ants can imagine the destruction of native insects, whose numbers have been greatly reduced due to the fire ants. With a little luck armadillos will become the predator to these fire ants and diminish the invasive ant population.

Another effect armadillos are having on human populations is leprosy, a disease that attacks the skin and nervous system. Armadillos are the only animal hosts for leprosy beside humans and with their help, major medical breakthroughs have occurred. Doctors can now cure anyone afflicted with the infection. While armadillos helped create a cure, they are also the ones who continue to spread the disease. Handling or eating a diseased armadillo can actually spread leprosy to humans. Last year three people in Georgia came down with the infection. Not all armadillos carry leprosy, at most one in five armadillos carry the infection. Best way to avoid the disease is to never handle the animal.

So you have an armadillo destroying your yard, or garden? What is the best way to humanely rid yourself of this pest? The first option is to build a fence around your disturbed area, making sure, the barrier stretches a foot below the surface, so the armadillo cannot dig under. While this option could work, it is not economical and not everyone can live behind a wall. So changing the smell of the yard is also an alternative. Since scent takes up to 1/3 of an armadillo's cerebrum, they are truly ruled by their nose. If the green space does not smell inviting then the armadillo will not stay for dinner. The pungent smell of vinegar is a likely deterrent; however the vinegar has not been studied adequately. Finally, armadillos can be trapped in a cage but if at all possible avoid handling them.

So the next time you are outside and notice shallow holes in your newly tilled flower garden, take a moment that evening to see if you have a visiting armadillo.

Photo credit: Florida Fish and Wildlife
https://www.flickr.com/photos/myfwcmedia/12988547315/in/photostream/

Sources:
The Nine-Banded Armadillo: A Natural History
Colleen M. McDonough, W. J. Loughry

Armadillo
http://animals.nationalgeographic.com/animals/mammals/armadillo/

Armadillo
http://myfwc.com/wildlifehabitats/profiles/mammals/land/armadillo/

Nine Banded Armadillo
http://extension.uga.edu/publications/detail.cfm?number=C866-2

Yes, You Can Get Leprosy From an Armadillo
http://news.sciencemag.org/biology/2011/04/yes-you-can-get-leprosy-armadillo

Photo credit: UGA Museum of Natural History

FUN FAST FACTS ABOUT ARMADILLOS

Type: Mammal

Diet: Omnivore

Average life span in captivity: 12-15 years

Size: 5 to 59 in (13 to 150 cm)

Weight: 3 oz to 120 lbs (85 g to 54 kg)

Protection status: Threatened

They have strong legs and huge front claws for digging, and long, sticky tongues for extracting food.

Did you know? The nine-banded armadillo's hapless propensity for being run over by cars has earned it the nickname "Hillbilly Speed Bump."

Source: http://animals.nationalgeographic.com/animals/mammals/armadillo/

OBSERVATIONS

Image source: Mud-puddling...the butterfly's dirty little secret:

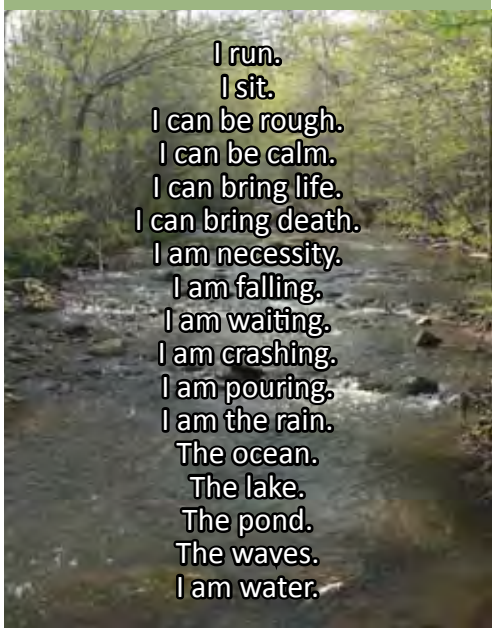
http://www.earthtouchnews.com/in-the-field/backyard-wildlife/mud-puddling-the-butterflys-dirty-little-secret

Butterfly Mud Baths

We all know that to attract butterflies, you need flowers. However there is something else that will also lure them to your garden – a mud bath. Butterflies get essential minerals and salts from mud and animal manure. In the wild you may have seen large numbers of butterflies gathered in mud puddles, a behavior called mud-puddling. If you would like to create your own butterfly mud bath, mix one part soil to one part composted cow manure (from your local garden supply store), put in a shallow container and keep moist. As an added bonus, you may notice robins gathering some of this mud in their beaks as an essential component for their grass and stick nests.

Lori Watterson
Master Naturalist

This Is Me
Rilee White
Grade 6
The Walker School, Marietta
Teacher: Kitty Drew
2014 Georgia River of Words Poetry Winner



ANNOUNCEMENTS

Chattahoochee Challenge Update

And the winner is...
Pope High School Environmental Club
with 221 volunteer service hours.

2nd Place: Cheatham Hill 4th Grade Target Class- 99.75 Service Hours
3rd Place: Mabry Middle School Environmental Club - 80 Service Hours
4th Place: South Cobb High School Environmental Club - 74 Service Hours

Thank you to all the groups that registered for the Challenge.
Over 500 service hours were logged on for projects improving the water quality on the Chattahoochee River Watershed.

Be sure to check the Fall 2015 issue of *The Thalweg* to find out about the 2015-2016 Challenge!

On Saturday, May 16, 2015, Pope High School students floated the Chattahoochee River with Ranger Jerry Hightower and the Watershed Stewardship crew.

We had a great time enjoying the water, hiking along the corridor, and learning more about the river in our backyard.

Cricket Chirps: Nature's Thermometer

Did you know that you can tell the temperature by counting the chirps of a cricket? Here's the formula:

To convert cricket chirps to degrees Fahrenheit, count number of chirps in 14 seconds then add 40 to get temperature. Example: 30 chirps + 40 = 70° F

To convert cricket chirps to degrees Celsius, count number of chirps in 25 seconds, divide by 3, then add 4 to get temperature. Example: 48 chirps /(divided by) 3 + 4 = 20° C

Source: http://www.almanac.com/cricket-chirps-temperature-thermometer

SEASONAL HAPPENINGS

Homeschool Summer Series

Aquatic Macroinvertebrates and Creek Seek! In this series you'll learn to identify and index aquatic macroinvertebrates, make your own field guide, and visit a stream to see these organisms up close and personal! Check the calendar for this exciting two-part series.

Summer Library Programs

Come be a hero for amphibians as WSP partners with Cobb County Libraries for their summer reading program. Enjoy a reading of *About Amphibians* and learn what makes these special creatures unique. Be ready to move and wiggle- this one is for the younger "active" listener!

Our **Rain & Wildlife Garden** was recently added to the Rosalynn Carter Butterfly Trail! If you haven't visited our demonstration garden, it is open to the public and includes examples of rain gardens, pollinator habitat, and much more! Come walk the trails or lend a hand during our weekly garden work day. Call (770) 528-1482 for more information.

Adopt-A-Stream Volunteers Annual Kit Swap

Attention Cobb County Adopt-A-Stream Volunteers: The summer season marks our annual exchange of monitoring equipment. Reagents and batteries need to be replaced, glassware sanitized, and meters recalibrated. Please clean, organize, and ready your monitoring kits for the yearly swap. Watershed Stewardship staff will be in touch. Thanks for monitoring!

WSP 2014-2015 Annual Report availlable online

Visit http://watershed.cobbcountyga.gov/files/publications.htm

Find us on Facebook — We post twice weekly updates, workshop information, natural history tidbits, and more!

Follow us on LinkedIn — Follow our company page on LinkedIn.

Follow our boards on Pinterest for environmental education and stewardship resources.

Read our Rain & Wildlife Garden Phenology Blog

CONSERVATION TIP

Shopping For Meat

If you have the option, choose your meat at the butcher counter and purchase only as much as you know you'll use. You'll reduce food waste, save money, and conserve resources. The average person wastes over twenty-two pounds of edible store-bought meat each year. Given that it takes five pounds of grain and 2,500 gallons of water to make one pound of beef, that's more than one hundred pounds of wasted grain and 55,000 gallons of wasted water per person!

If all households decreased their beef purchase by just one pound per year, 250 billion gallons of water would be saved. It would take five days for this amount of water to pour over Niagara Falls.

The Green Book

ECOPEDIA

Poisonous & Venomous

Though the words poison and venom are often used interchangeably - and although they both describe a toxin that interferes with a physiological process - there is a difference. It's all about how the substance is delivered: Venom is delivered via an anatomical device like fangs, while poison is usually inhaled, ingested, or absorbed.

http://mentalfloss.com/article/58254/13-scientific-terms-you-might-be-using-wrong

ANNOUNCEMENTS

Start planning fall Rivers Alive Cleanups!

Register your fall stream cleanup event at www.riversalive.org. Supplies and t-shirts will be provided for groups that register before the July 31st deadline. Need help planning? Let us know - we can help you organize your event.

Farewell Lori Watterson

The Watershed Stewardship Program wishes a fond farewell to our good friend and colleague Lori Waterson. Since 2011, Lori performed the 3rd grade puppet show in nearly every elementary school in the County School District, has been a wonderful caretaker for our program animals, and supported the program in countless additional ways. We wish you the best of luck and will greatly miss working with you.

Welcome Coral Bass

We would like to introduce our new part-time Environmental Program Specialist, Coral Bass. Coral came to the WSP from the Gwinnett Environmental and Heritage Center where she coordinated the center's volunteer program. Coral has Adopt-A-Stream Trainer status in chemical and macroinvertebrate monitoring, and will soon be certified to teach the Bacteria Monitoring workshops as well. Coral brings a wealth of knowledge from her many experiences in the field of environmental education and will be heading up the middle and high school programming. Please join us in welcoming Coral to our program!

welcome

new watershed stewards

ERM Atlanta
Chemical Monitoring on Powers Branch of Chattahoochee

McCabe Academy
Chemical & Bacteria Monitoring on Olley Creek

Chance Science
Anuran & Chemical Monitoring on Noses Creek

Stewardship Stars
Excellence in Data Collection

The following volunteers have submitted data each month during the March, April, May quarter:

Bushart
Chemical Monitoring in the Sewell Mill Watershed

Butler Creek Kennesaw
Chemical, Bacterial, & Visual Monitoring in the Butler Watershed

Fairfax Consulting
Chemical & Bacterial Monitoring in the Powder Springs Watershed

Friends of Victory Heights Subdivision Park
Chemical & Bacterial Monitoring in the Rottenwood Watershed

Keep Smyrna Beautiful Adopt-A-Stream
Chemical Monitoring in the Nickajack Watershed

Lakewood Colony
Chemical & Bacterial Monitoring in the Rubes Watershed

Richard's Creek
Chemical Monitoring in the Allatoona Watershed

Sally Brooking
Chemical Monitoring on Sope Creek

Sharon & Rick Donato
Anuran Monitoring in the Rubes Watershed

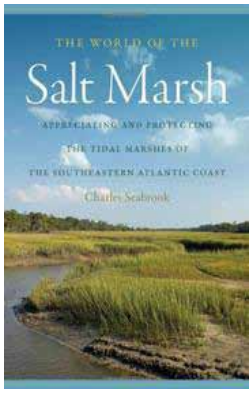
Sierra Club Cobb Centennial Group
Chemical, Biological, & Bacterial Monitoring in the Rottenwood Watershed

Village North Highlands Subdivision
Chemical & Bacterial Monitoring in the Willeo Watershed

Thank you!

RECOMMENDED RESOURCE

THE WORLD OF THE SALT MARSH
Appreciating and Protecting the Tidal Marshes of the Southeastern Atlantic Coast
by Charles Seabrook



The World of the Salt Marsh is a wide-ranging exploration of the southeastern coast—its natural history, its people and their way of life, and the historic and ongoing threats to its ecological survival.

Focusing on areas from Cape Hatteras, North Carolina, to Cape Canaveral, Florida, Charles Seabrook examines the ecological importance of the salt marsh, calling it "a biological factory without equal." Twice-daily tides carry in a supply of nutrients that nourish vast meadows of spartina (Spartina alterniflora)—a crucial habitat for creatures ranging from tiny marine invertebrates to wading birds. The meadows provide vital nurseries for 80 percent of the seafood species, including oysters, crabs, shrimp, and a variety of finfish, and they are invaluable for storm protection, erosion prevention, and pollution filtration.

- UGA Press

Cobb County Water System
Watershed Stewardship Program
662 South Cobb Drive
Marietta, Georgia 30060

Cobb County...Expect the Best!

This is an official publication of the Cobb County Water System, an agency of the Cobb County Board of Commissioners.

Calendar of Events

July

2 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
7 Every Hero Has a Story • Children's Summer Library Program • 1:00pm - 2:00pm • Powder Springs Library
8 Every Hero Has a Story • Children's Summer Library Program • 3:30pm - 4:15pm • West Cobb Regional Library
9 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
16 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
22 Every Hero Has a Story • Children's Summer Library Program • 11:00am - 12:00pm • Kemp Memorial Library
23 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
23 Rain Barrel Make & Take Workshop • 11:00am - 12:00pm • Cobb County Water Quality Laboratory
23 Adopt-A-Stream Chemical Monitoring Workshop • 6:00pm - 8:30pm • Cobb County Water Quality Laboratory
23 Frog and Toad Calls Identification • 5:30pm - 9:00pm • Chattahoochee Nature Center - Nature Club Meeting
30 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory

August

5 Homeschool Summer Program Part 1• Make A Macro Field Guide • 11:00am - 12:00pm • Cobb County Water Quality Laboratory
6 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
13 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
14 Homeschool Summer Program Part 2 • Aquatic Macroinvertebrate Creek Seek • 10:00am - 11:30am • Leone Hall Price Park
20 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
20 Rain Barrel Make & Take Workshop • 2:00pm - 3:00pm • Cobb County Water Quality Laboratory
20 Adopt-A-Stream Bacterial Monitoring Workshop • 6:30pm - 9:00pm • Cobb County Water Quality Laboratory
27 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory

September

3 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
10 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
17 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
17 Rain Barrel Make & Take Workshop • 2:00pm - 3:00pm • Cobb County Water Quality Laboratory
17 Adopt-A-Stream Chemical Monitoring Workshop • 6:30pm - 9:00pm • Cobb County Water Quality Laboratory
24 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
26 Green Apple Day of Service • visit www.hphsga.org for more information

Events in GREEN are Cobb County Watershed Stewardship events.
More information can be found on our Calendar at www.cobbstreams.org.