the Thalweg

Watershed Stewardship Program

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Cobb County Watershed Stewardship Program

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5 Easy New Year's Resolutions That Will Help the Environment

DRINK TAP WATER INSTEAD OF BOTTLED WATER

The average American consumes 35 gallons of bottled water per year, which translates to about 300 bottles per person. All of that plastic comes at a cost, to the tune of 17 million barrels of oil used to produce bottles that, in most cases, wind up in the garbage. As for the idea that bottled water is cleaner than tap water, a report commissioned by the World Wildlife Fund disagrees, pointing out that there are more standards regulating tap water in the US and Europe than in the bottled water industry.

BE AN ECOLOGICALLY CONSCIOUS CAR BUYER

Although a hybrid car may not be in your price range, there are a number of tips that can reduce your carbon footprint when purchasing an automobile. Manual transmission is more fuel efficient than automatic; diesel engines last longer than gasoline-powered ones, reducing environmental impact; sport suspension requires less brake use and less fuel burn. Even color matters: avoiding black interiors, for example, can save you on air-conditioning.

BREAK OUT THE BIKE

Of course, the best way to be a green car owner is to use it less. And here is where bicycles – the most efficient transportation ever invented – come into play. So how about challenging yourself to make trips of less than two miles with your bike? While saving money on gasoline and car maintenance, you'll be helping yourself stay fit at the same time. And while other cars are sitting in traffic, you'll already be at the local café enjoying a cappuccino.

AX THE PAPER TOWELS

But it's so much easier to rip a towel off the roll than use a regular one! Indeed it is, to the tune of 13 billion pounds of paper towels used each year – or 45 pounds per person. In fact, just using one fewer paper towel a day per person could save some 570 million pounds of paper waste per year. To fill in the gap, try using cotton towels and fabric napkins that you can drop into the laundry with your clothes; with a little practice, it will become just as automatic.

ELIMINATE "PHANTOM" POWER USAGE

You know all those devices plugged in around the house – cell chargers, iPads, laptops, and kitchen appliances? Well, they're still using energy, even if they're turned off. Although the amount is small, a lot of such small draws add up over time. So make a regular point of unplugging anything that's not in use – or connecting them to a smart power strip. However insignificant it may seem, you could find yourself saving up to 10% of your electricity bill.

For opportunities to make a difference in Cobb County, see page 2-3.

Source: https://tinyurl.com/ybsr38kq

From Compassion to Action Watershed Stewardship Volunteer Opportunities

Cobb County is fortunate to have amazing residents who are committed to helping ensure our community is educated about the relationship between water quality, environmental health, and personal actions. There are plenty of ways you can make a difference by volunteering with other Watershed Stewards in fun, hands-on projects throughout Cobb County. These projects help to improve the health and ecological literacy of our community. Projects can be organized and completed with your group, we will provide supplies, training, and guidance, or volunteer to participate in one of our many community service projects. Upcoming events can be found on our website www.cobbstreams.org.

Adopt-A-Stream

Adopt-A-Stream volunteers collect data about local waterways (streams, ponds, lakes, and wetlands) and wildlife habitats through four different methods. Volunteers who complete the training workshop, and pass the related written and field tests, will be considered a QA/QC volunteer for one year.

Stream Habitat and Visual Survey Monitoring trains volunteers how to assess a stream by rating parameters such as channel bottom materials, sinuosity, bank stability, streamside vegetation, and more. When conducting these surveys on a quarterly basis, changes in the stream's health can be detected.

Chemical Monitoring is designed to teach volunteers about basic stream water chemistry and how to conduct the chemical tests using hand-held field equipment. The tests that volunteers are asked to conduct includes dissolved oxygen, conductivity, pH, and temperature.

Macroinvertebrate Monitoring samples the biological aspects of a stream. The macroinvertebrates (insects, mollusks, & crustaceans) found in a stream are excellent indicators of the condition of both water quality and habitat.

Bacterial Monitoring teaches volunteers how to monitor *E. coli* levels in their streams. *E. coli* is an indicator organism that is often used to assess the water quality. Monitoring levels of *E. coli* can help identify possible sources of pollution.

Fairy Habitat Helpers

Our youngest environmental stewards fulfill a very important role in Cobb County. These volunteers are responsible for creating, observing, and maintaining habitats for small creatures. Designed to foster a foundation of service, an appreciation for being outdoors, and a sense of wonder for the natural world, Cobb's Fairy Habitat Helpers work to ensure all creatures have a healthy and secure home place.

Family workshops are scheduled in the spring, summer, and fall. If you would like to get started independently, complete the participant signup form at https://tinyurl.com/ydyl7rmx. We encourage participants to report their activities and images using the participant log. If you send in an image, it will be added to our photo gallery.

Frog Monitoring

In response to the declining number of amphibians in North America, and the uncertainty of locations and abundance of frog species in Cobb County, the Watershed Stewardship Program developed a frog monitoring program that focuses on identifying frogs by their calls. Residents can become trained Citizen Scientists by attending a Frog Monitoring Workshop and practicing their identification skills during our guided Frog Walks. Volunteers complete training, commit to year-round data collection in their area, and receive access to the Frog CollectorApp to easily document the vocalizations of frog and toad species they've learned to identify. Training workshops generally occur in the spring and fall. The volunteer-generated data from the CollectorApp is used to create maps to track where each species is detected, providing insight to the conditions of our local watersheds.

Garden Work Days

Our Wildlife and Rain Garden Demonstration Site is located at the Cobb County Water Quality Laboratory. This community project is an educational garden that showcases methods for stream bank stabilization, residential and commercial rain gardens, and habitat creation. Program staff and Cobb County Master Gardeners host a work day on most Thursday mornings for those interested in learning about gardening with natives, pollinators and wildlife, and bioretention. Community members are welcome and appreciated.

Privet Pulls

Privet Pulls are a fun and easy way for community members to participate in a service project without making an ongoing commitment. Organized typically in colder months, these projects rotate across the county and allow you to give a couple hours of time helping to remove a non-native invasive species (an organism that is not native to an ecosystem, reproduces quickly and spreads aggressively, and causes harm) while learning about watersheds and pollution prevention.

You can also help restore habitat and native plant species in your area by organizing a privet pull for your neighborhood. The Cobb County Water System will support the event, provide information about identifying privet and how to remove it, and supply tools and gloves.

Stewardship Mobs

Stewardship Mobs are a fun and easy way for community members to participate in service projects without making an ongoing commitment. Organized monthly and scheduled for late afternoon as daylight allows, these projects rotate across the county and allow those seeking volunteer service to give two hours of time helping with a special project while learning about watersheds and pollution prevention. Mob activities include: cleanups, invasive plant removal, wildlife habitat creation, and storm drain marking.

Storm Drain Marking

Storm Drains are part of the system that moves rainwater away from our homes, businesses, and roadways. Unfortunately, litter, harmful substances, and landscape debris are often dumped into the system and cause flooding and pollution problems. By placing aluminum markers on storms drains and distributing educational material, you will remind residents that when stormwater goes into the drains, it is unfiltered and leads directly to our streams.

Organized events are typically held in Spring and Fall, or you can organize an event for your club, scout group, family, or other community organization. Simply count the number of storm drains and houses in the neighborhood you want to mark and submit an online proposal. You will be provided with aluminum markers, gloves, garbage bags, educational materials, and instructions on how to complete the project.

Waterway Cleanups

Waterway Cleanups occur year-round in neighborhoods and parks across the county. You will be provided with gloves, bags, litter sticks, and help with logistics. To organize a cleanup in your area, complete a waterway cleanup proposal to request assistance. You can also participate in one of our community organized events. These events are typically held in Spring and Fall and concentrate on a waterway with a previously identified large amount of trash. In past events, items found have included TVs, tires, bottles and cans, soccer balls, bicycles, and even an arm cast!

Our volunteers are a diverse group of individuals and groups who partipate in a wide range of projects, but there still remains many opportunities for you to make a difference. To find out more about our programs, to submit an online proposal for a project of your own, or to find out about upcoming community service projects, visit https://www.cobbcounty.org/watershed-stewardship/volunteer.

Floods 101

https://www.nationalgeographic.com/environment/natural-disasters/floods/
Photo source: https://tinyurl.com/y7dc62ns

There are few places on Earth where people need not be concerned about flooding. Any place where rain falls is vulnerable, although rain is not the only impetus for flood.

Photo source: https://tinyurl.com/y9lalg2c

How Floods Develop

A flood occurs when water overflows or inundates land that's normally dry. This can happen in a multitude of ways. Most common is when rivers or streams overflow their banks. Excessive rain, a ruptured dam or levee, rapid ice melting in the mountains, or even an unfortunately placed beaver dam can overwhelm a river and send it spreading over the adjacent land, called a floodplain. Coastal flooding occurs when a large storm or tsunami causes the sea to surge inland.

Most floods take hours or even days to develop, giving residents ample time to prepare or evacuate. Others generate quickly and with little warning. These flash floods can be extremely dangerous, instantly turning a babbling brook into a thundering wall of water and sweeping everything in its path downstream.

Disaster experts classify floods according to their likelihood of occurring in a given time period. A hundred-year flood, for example, is an extremely large, destructive event that would theoretically be expected to happen only once every century. But this is a theoretical number. In reality, this classification means there is a one-percent chance that such a flood could happen in any given year. Over recent decades, possibly due to global climate change, hundred-year floods have been occurring worldwide with frightening regularity.

Impact of Flooding

Moving water has awesome destructive power. When a river overflows its banks or the sea drives inland, structures poorly equipped to withstand the water's strength are no match. Bridges, houses, trees, and cars can be picked up and carried off. The erosive force of moving water can drag dirt from under a building's foundation, causing it to crack and tumble.

Photo source: https://tinyurl.com/ydd6hcm8

In the United States, where flood mitigation and prediction is advanced, floods do about $6 billion worth of damage and kill about 140 people every year. A 2007 report by the Organization for Economic Cooperation and Development found that coastal flooding alone does some $3 trillion in damage worldwide. In China's Yellow River valley, where some of the world's worst floods have occurred, millions of people have perished in floods during the last century.

When floodwaters recede, affected areas are often blanketed in silt and mud. The water and landscape can be contaminated with hazardous materials, such as sharp debris, pesticides, fuel, and untreated sewage. Potentially dangerous mold blooms can quickly overwhelm water-soaked structures. Residents of flooded areas can be left without power and clean drinking water, leading to outbreaks of deadly waterborne diseases like typhoid, hepatitis A, and cholera.

But flooding, particularly in river floodplains, is as natural as rain and has been occurring for millions of years. Famously fertile floodplains like the Mississippi Valley in the American Midwest, the Nile River valley in Egypt, and the Tigris-Euphrates in the Middle East have supported agriculture for millennia because annual flooding has left millions of tons of nutrient-rich silt deposits behind.

Photo source: https://tinyurl.com/yblyd58w

Most flood destruction is attributable to humans' desire to live near picturesque coastlines and in river valleys. Aggravating the problem is a tendency for developers to backfill and build on wetlands that would otherwise act as natural flood buffers.

Many governments mandate that residents of flood-prone areas purchase flood insurance and build flood-resistant structures. Massive efforts to mitigate and redirect inevitable floods have resulted in some of the most ambitious engineering efforts ever seen, including New Orleans's extensive levee system and massive dikes and dams in the Netherlands. And highly advanced computer modeling now lets disaster authorities predict with amazing accuracy where floods will occur and how severe they're likely to be.

For the complete article and more on this topic, visit https://tinyurl.com/y9mzqb3a. For more information on how to reduce flooding, flood plain mapping, and flood insurance, visit https://www.cobbcounty.org/water/stormwater-management. Additional information can also be found at www.fema.gov.

North Atlantic Right Whale

The North Atlantic right whale, *Eubalaena glacialis*, is Georgia's state marine mammal. Measuring 45- to 55-feet-long, adults can weigh nearly 70 tons and are now one of the rarest of all the great whales. The current population is estimated to be around 400 individuals. Populations range from temperate to polar latitudes in the northwestern Atlantic Ocean with migration along the eastern seaboard, from Iceland to Florida. The only known calving grounds for the North Atlantic right whale is the critical habitat off coastal Georgia and northern Florida. In late fall, females and a few others migrate south to the relatively calm, cool, and predator-free waters off Georgia and north Florida, where, from December to April, calving occurs. Becoming tangled in strong ropes used in fishing, getting hit by boats, and a reduction of food sources due to climate change have all greatly reduced the lifespan and overall population of the North Atlantic right whale.

https://georgiawildlife.com/conservation/rightwhales
https://tinyurl.com/ybm8klho
Photo source: https://tinyurl.com/y8wbkbpg

OBSERVATIONS

CONSERVATION TIP

Light Pollution Effects on Wildlife and Ecosystems

An earlier sunset during winter means longer time each day for the effects of light pollution. Plants and animals depend on Earth's daily cycle of light and dark rhythm to govern life-sustaining behaviors such as reproduction, nourishment, sleep and protection from predators. Scientific evidence suggests that artificial light at night has negative and deadly effects on many creatures including amphibians, birds, mammals, insects and plants. Glare from artificial lights can also impact wetland habitats that are home to amphibians such as frogs and toads, whose nighttime croaking is part of the breeding ritual. Artificial lights disrupt this nocturnal activity, interfering with reproduction and reducing populations.

Birds that migrate or hunt at night navigate by moonlight and starlight. Artificial light can cause them to wander off course and toward the dangerous nighttime landscapes of cities. Every year millions of birds die colliding with needlessly illuminated buildings and towers. Migratory birds depend on cues from properly timed seasonal schedules. Artificial lights can cause them to migrate too early or too late and miss ideal climate conditions for nesting, foraging and other behaviors.

Many insects are drawn to light, but artificial lights can create a fatal attraction. Declining insect populations negatively impact all species that rely on insects for food or pollination. Some predators exploit this attraction to their advantage, affecting food webs in unanticipated ways. To minimize your contribution to light pollution, shield outside lights so they point down. If this is not possible, use bulbs with a red or yellow tint.

Source: http://darksky.org/light-pollution/wildlife/

Stewardship Stars
Excellence in Data Collection

The following volunteers have submitted data each month during the September, October, and November quarter:

Bishop Lakes - Chemical Monitoring in Willeo Watershed
Cobb Progressives - Chemical & Bacterial Monitoring in Noonday Watershed
Dominion Christian School Science Dept - Chemical & Macro Monitoring in Allatoona Watershed
Donna Leavell - Chemical Monitoring in Olley Watershed
Eddie's Follies - Habitat Monitoring on Sweetwater Creek
GA Lake Monitoring - Chemical Monitoring in Lake Allatoona Watershed
Keiler - Chemical Monitoring in Allatoona Watershed
Lakewood Colony - Chemical & Bacterial Monitoring in Rubes Watershed
Lassiter High School APES Classes - Chemical & Bacterial Monitoring in Rubes Watershed
Ledbetter - Chemical & Bacterial Monitoring in Poplar Watershed
Loch Highland - Chemical & Bacterial Monitoring in Willeo Watershed
McCleskey Middle School - Chemical, Bacterial, & Macro Monitoring in Rubes Watershed
Osborne High School - Chemical Monitoring in Olley Watershed
Pic - Chemical Monitoring in Noses Watershed
Pope High School Environmental Science Classes - Chemical Monitoring in Sewell Mill Watershed
Richard's Creek - Chemical Monitoring in Allatoona Watershed
Sedalia Park Elementary School - Chemical Monitoring in Sope Watershed
Sierra Club Centennial Group - Chemical, Bacterial, & Macro Monitoring in Rottenwood Watershed
Simon Locke - Chemical & Bacterial Monitoring on Butler Creek
Team Salty - Chemical Monitoring in Sope Watershed
Village N. Highland Subdivision - Chemical, Bacterial, & Macro Monitoring in Willeo Watershed
Walton High School APES Classes - Chemical Monitoring on Sope Creek

Thank you for your hard work and dedication!

Welcome Deb

We would like to welcome Deb Kay as a "Brooke and Branch" puppeteer. Deb has a degree in Agriculture from Ohio State University and has served in the Peace Corps in Ecuador teaching sustainable community practices. She also worked in Venezuela assisting with an anaconda census and manatee preservation project. She looks forward to her time with the Watershed Stewardship team.

welcome

Beving on Allatoona
Chemical & Bacterial Monitoring in Allatoona Watershed

Boss Environmental
Chemical Monitoring in Mud Watershed

Jenna Glenzer
Frog Monitoring in Nickajack Watershed

Osborne High School
Chemical Monitoring in Olley Watershed

Phoenix
Bacterial Monitoring in Tanyard Watershed

Riverstone Montessori Academy
Chemical Monitoring in Olley Watershed

Stephen Thomas
Chemical & Bacterial Monitoring in Noses Watershed

2018 Georgia River of Words Winner
Sea Turtles on the Beach
Erin Lewis
Grade 2
Casa Montessori, Marietta
Teacher: Theresa Dean

RECOMMENDED RESOURCES

Why Beavers May Help Save Us From Drought

"The humble beaver has helped maintain wetlands and ponds across the arid landscape in North America. Their numbers fell dramatically at the turn of the 20th century. But the animal is now making a comeback in the U.S. and Canada.

As Maggie Mullen (@maggiemlln) of the Mountain West News Bureau reports, some scientists believe they can play a role in the fight against drought."

WBUR: Podcast aired October 29, 2018
https://tinyurl.com/y9xmd5ax

Photo source: https://tinyurl.com/yb64ayp2

Save the Date!
2019 Watershed Stewardship Fair
Volunteer Appreciation Banquet

Wednesday, March 27, 2019
6:30 - 8:30 PM
Cobb County Water Quality Lab
662 South Cobb Drive, Marietta, Georgia 30060

Please join us on Wednesday, March 27th, 2019, for our annual Watershed Stewardship Fair! This event provides volunteers with the opportunity to showcase their water protection efforts and meet others who share their passion for keeping our waterways healthy.

Participants are encouraged to share their stream observations and project goals with the community, and each group is invited to create a poster displaying their water quality conservation efforts. For those who wish, we give each group a few minutes to relate success stories and share concerns and frustrations with a like-minded audience. We will also celebrate the accomplishments of our volunteers and partners by presenting several Watershed Stewardship awards. In addition to a fun evening of education and mingling, tours will be conducted for those who are interested in the day-to-day workings of the Cobb County Water Quality Laboratory. This is your opportunity to learn from and support other Cobb County volunteers! Refreshments will be provided.

Please contact us at 770-528-1482 or water_rsvp@cobbcounty.org for more information.

Welcome to the 2018-19 Chattahoochee Challenge Competitors!

Osborne High School
Pope Environmental Club
Earth First
Lassiter Environmental Club
Dominion Christian Science Department
McCleskey Middle School
Walton High Environmental Club

We are excited to announce the schools and clubs that are registered in our 2018-19 *Chattahoochee Challenge*. These groups are participating in numerous volunteer opportunities including creek cleanups, storm drain marking projects, privet pulls, and water quality monitoring. They are also coordinating their own activities that teach others about water quality and help protect Cobb County waterways.

Participating groups log and submit their event description, volunteer hours, and group participants. The group that accumulates the most volunteer service hours by April, will win a free rafting trip on the Chattahoochee River with a National Park Ranger.

Best of luck to all our competitors!

SEASONAL HAPPENINGS

Homeschool Winter Science Series

January 25 • 1:00pm – 2:30pm • Introduction to Stream Animals
There are more than 3,000 miles of waterways in Cobb County, and stream corridors are home to an amazing diversity of animals. Let's learn about the most commonly sighted animals that utilize the stream corridors as habitat and make a field guide to take home. Ages: 3rd grade and up.
Registration required.

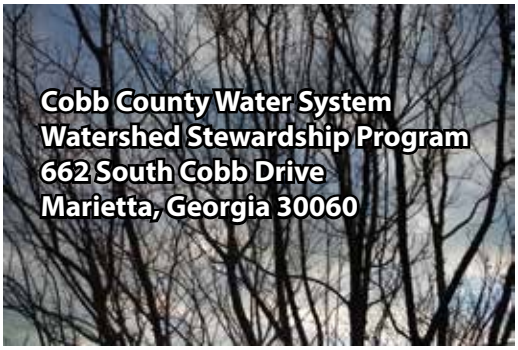
February 15 • 1:00pm – 2:30pm • Is This Stream Healthy? A Water Science Adventure
There are several simple steps to test the quality of a stream to see if it is suitable for wildlife. Learn how to perform basic stream assessments, then become a water drop and take an *Incredible Journey* through the water cycle while making your own beaded bracelet to record your water pathway. **Ages 10 and up only.** Basic water testing chemicals will be used during this lesson. Teacher/Parent participation is required. For the safety of younger siblings, each must have a designated chaperone and are not allowed to participate.
Registration required.

ECOPEDIA

Keystone species

"Keystone species are those which have an extremely high impact on a particular ecosystem relative to its population. Keystone species are also critical for the overall structure and function of an ecosystem, and influence which other types of plants and animals make up that ecosystem. Thus, in the absence of a keystone species, many ecosystems would fail to exist. A common example of keystone species in the context of conservation biology is the predator-prey relationship. Small predators that consume herbivorous species prevent such herbivores from decimating the plant species in the ecosystem, and are considered keystone species. In this scenario, despite the low number of predators required to maintain a low population of herbivorous species, without this keystone species, the herbivore population would continue to grow, and thus consume all of the dominant plant species in the ecosystem." Keystone species in this area include the beaver, the yellow-bellied sapsucker, and all pollinators.

Source: https://biologydictionary.net/keystone-species/



Cobb County Water System
Watershed Stewardship Program
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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

December

1 Adopt-A-Stream Visual Monitoring Workshop • 10:00am - 1:00pm • Cobb County Water Quality Laboratory/Larry Bell Park
6 Garden Work Day • 9:00am - 11:00am • Cobb County Water Quality Laboratory
13 Garden Work Day • 9:00am - 11:00am • Cobb County Water Quality Laboratory

January

10 Garden Work Day • 9:00am - 11:00am • Cobb County Water Quality Laboratory
17 Garden Work Day • 9:00am - 11:00am • Cobb County Water Quality Laboratory
18 Lunch & Learn: Rain Gardens • 12:00pm - 12:45pm • Cobb County Water Quality Laboratory
24 Garden Work Day • 9:00am - 11:00am • Cobb County Water Quality Laboratory
25 Home School Science Series Part 1: Introduction to Stream Animals • 1:00pm - 2:30pm • Cobb County Water Quality Laboratory
26 Adopt-A-Stream Macroinvertebrate Monitoring Workshop • 10:30am - 2:00pm • Cobb County Water Quality Lab/Larry Bell Park
31 Garden Work Day • 9:00am - 11:00am • Cobb County Water Quality Laboratory

February

6 Adopt-A-Stream Chemical Monitoring Workshop • 6:30pm - 9:00pm • Cobb County Water Quality Laboratory
7 Garden Work Day • 9:00am - 11:00am • Cobb County Water Quality Laboratory
8-9 Georgia Organics Conference & Expo • Tifton, GA • http://conference.georgiaorganics.org/
14 Garden Work Day • 9:00am - 11:00am • Cobb County Water Quality Laboratory
15 Home School Science Series: Is This Stream Healthy? A Water Science Adventure • 1:00pm - 2:30pm • Cobb County Water Quality Lab
28 Garden Work Day • 9:00am - 11:00am • Cobb County Water Quality Laboratory

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