

Alabama current connection

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Three Mile Creek An Urban Kayaking Adventure

By TOM HERDER

MOBILE BAY NATIONAL ESTUARY PROGRAM

Photos by Rob Nykvist

If you Google “Three Mile Creek in Mobile, AL,” the results will provide a snapshot that reveals a proud history, current challenges, and a hint of its potential as a community amenity.

Press-Register stories and editorials describe cliff swallows nesting under bridges; historical references to 19th century hotels and horse racing tracks; infestations by invasive, exotic, aquarium-released snails; problems with the closed Hickory Street Landfill and sewage overflows spilling into the Creek after rain events. One may have to

really “squint” to envision Three Mile Creek as an attractive recreational opportunity, but it is easier to do so from the seat of a kayak. The crew from entertainment website Mod Mobilian hyped their videoed July 2011 paddle down TMC from Langan Park to the Mobile Infirmary as “the first ever,” but Ed Franklin, a Mobile County Health Department Inspector, quietly preceded this effort with at least a couple solo paddles over the same course.

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Coastal Corner



Forever Wild, Alabama's Land Trust Program

<http://www.outdooralabama.com/public-lands/stateLands/foreverWild/>

Forever Wild – Alabama's Land Trust Program – has made great strides in protecting our state's unique natural heritage. This program preserves lands to be enjoyed today and by future generations to come. Since its initial funding in 1992, Forever Wild has acquired more than 227,573 acres in 25 counties, which are equitably distributed across Alabama. These acquisitions have been funded through interest earnings from the Alabama Trust Fund, which are derived from gas royalties from Alabama's submerged lands in coastal waters.

Other coastal land acquisitions have included the Perdido River/Long Leaf Tracts, Mobile/Tensaw Delta Tracts, Lillian Swamp and Grand Bay Savannah. The Forever Wild Program has also purchased tracts all over the State, including tracts in North Alabama, such as Little River Canyon and the Walls of Jericho. Other tracts include Wildlife Management Areas such as the Cahaba River and Mulberry Fork River. Forever Wild is truly a statewide program that benefits all the citizens of the State of Alabama.



Forever Wild Successes - 1992 to present:

- 91 Tracts Acquired
- 25 Counties
- Additions to 8 State Parks and 16 Public Hunting Areas
- 25 new Nature Preserves and Recreation Areas
- 200 miles of new trails and 200 miles more under development

Protecting our natural heritage and increasing recreational activities is important. However, Forever Wild is also important because it helps ensure clean water – clean water for hunting, fishing and drinking and for our children and grandchildren to swim and play in.

Photo by Lisa Comer, Silverhill, AL



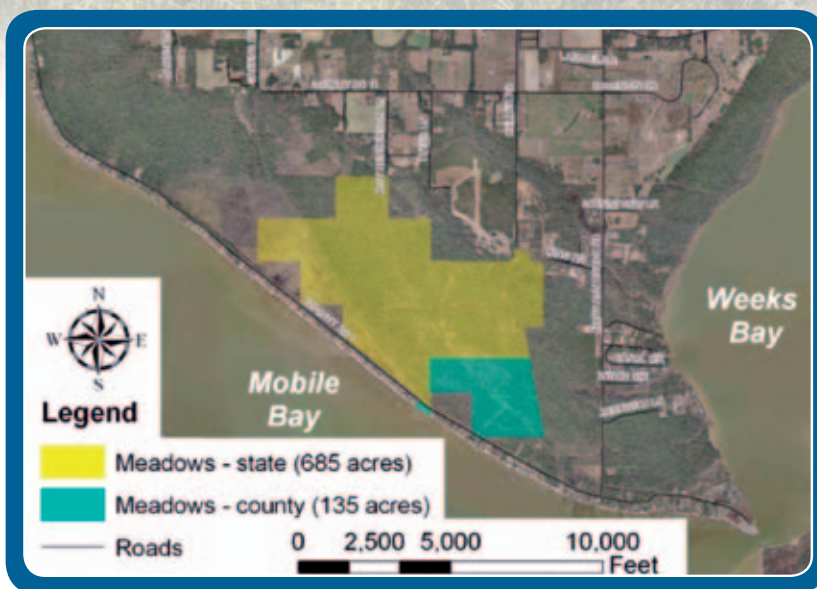
Great Blue Heron with Fish – David Snyder, Mobile, AL

At its core, Forever Wild is also about keeping pollution out of our rivers, lakes and streams while protecting the quality of our State's drinking water supplies.

Yet, this is about more than the quality of life of Alabama residents. Forever Wild is an Alabama success story that has protected nearly a quarter of a million acres of Alabama's natural areas. These investments of oil and gas fund outdoor recreation and clean water and support jobs and economic development throughout Alabama.

Hundreds of thousands of tourists visit Alabama each year, pumping over \$2.2 billion dollars into the State economy. Continuing our State's Forever Wild Program will help preserve the beauty of wildlife areas, parks and natural areas to help us continue to draw tourists to Alabama.

Editors Note: On November 6, 2012, Alabama voters will decide whether to extend the Forever Wild Program for 20 years.



The Forever Wild Program has assisted with acquisitions in the Weeks Bay area, purchasing wetlands along Fish River and fronting Mobile Bay. One of the more recent acquisitions of Forever Wild was the purchase of 685 acres along County Road 1 between Mullet Point Park and Mary Ann Nelson Beach Park. This acreage known as the Meadows Wetland Tract was the largest purchase dedicated to Weeks Bay Reserve since its designation back in 1986. Acquisition of the Meadows is the result of a unique partnership between the State of Alabama, Baldwin County, the National Oceanic and Atmospheric Administration (NOAA), the Conservation Fund and the Weeks Bay Foundation.

A Vision for Three Mile Creek Transformative Change Begins with a Change in Perspective

By ROBERTA SWANN, DIRECTOR, MOBILE BAY NATIONAL ESTUARY PROGRAM

Imagine Three Mile Creek as a main artery of our fishery's body, its water – the life blood that sustains it and what we value most about coastal Alabama. Imagine that before *any* personal action, behavior or land use decision is made regarding this Creek, that the decision maker takes the time to consider – truly consider – how that action would affect the health of our fish. Soon, the Mobile Bay National Estuary Program will challenge the Three Mile Creek watershed community to adopt this very perspective as a conservation plan is crafted to achieve transformative change for this culturally rich, environmentally vital urban waterway – a key “vessel” of the Mobile Bay estuary’s “circulatory system.”

The Unique Nature of an Estuary

A recent article published in the journal *Science* by the History of Marine Animal Populations (HMAP) field project of the

Census of Marine Life Program indicates that, while human influence has caused degradation in coastal ecosystems since Roman times, it can actually be shown that decline has significantly accelerated in the last 150-300 years. Results from the 12 major estuaries worldwide (Galveston Bay representing the Gulf) show that since the emergence of written historical records, human impacts have depleted more than 90 percent of formerly important species, destroyed more than 65 percent of seagrass and wetland habitat, degraded water quality, and increased incidences of invasive species.

It is well known that estuaries and coastal areas have played a critical role in human development. They serve as habitat for most of the fish we catch, an engine for our economies, and a buffer against natural disasters. Yet, these once rich and diverse areas are suffering impairment world-wide. While investigation reveals that human exploitation underlies the degradation of

these estuarine environments, it also demonstrates that these challenged environments respond to restoration efforts. (Census of Marine Life, <http://www.coml.org/>)

The Mobile Bay drainage basin covers three quarters of the State of Alabama – the fourth largest by volume and the sixth by area in North America. The Mobile Tensaw Watershed, located at its southern terminus, is a prime mixing area of fresh and salt waters forming the upper Mobile Bay estuary. Three Mile Creek with its surrounding tributaries form a sub-watershed at the base of the Mobile Tensaw Watershed. The majority of Three Mile Creek’s 24 square mile drainage lies within the City of Mobile and is home to the University of South Alabama; the USA Medical Center; Langan, Lyons and Tricentennial parks; several public housing developments, and the “The Bottom,” a historically significant area of Downtown Mobile.



The headwaters of Three Mile Creek come together at Langan Park and flow 14 miles downstream to its confluence with the Mobile River. Much of the lower watershed is heavily urbanized, but low-intensity residential development and forested areas in the upper watershed comprise 33 and 25 percent of the total watershed area, respectively.

The Creek has undergone a number of engineering modifications from its headwaters to the River. From Langan Park lakes the Creek flows freely through a forested residential area until, nearly one mile downstream, a series of drop structures have been installed to decrease the impacts of flooding on residential and commercial buildings. Three Mile Creek is not influenced by the tidal cycle of Mobile Bay upstream of the last of these structures, which is located just east of the USA Medical Center. Prior to 1950 the Creek was diverted into a wide, straight channel

constructed through forested wetlands between Martin Luther King Avenue and Conception Street Road.

The original Creek streambed, cutoff by the channelization, meanders through the forested wetlands to its confluence with the constructed “bypass channel” at Conception Street Road. This lower portion of the Creek is habitat-rich and heavily influenced by tidal fluctuations, supporting a broad diversity of marine and freshwater species. Past Conception Street Road, the Creek again meanders freely for almost two miles through more wetlands and to

a wide mouth at the Mobile River that is subject to daily tidal fluctuations of two feet. If the Creek carries the life blood of our fishery, the wetlands are its liver, filtering trash and debris, absorbing an array of pollutants, purifying the water, and providing refuge and habitat for the fish

and shellfish that coastal Alabamians value.

The State of Alabama determines water quality classifications for its waterbodies based on how they are or might be used in the future. These classifications range from Outstanding Alabama Water (with the highest water quality) to Agricultural and Industrial Water Supply (the lowest). Waters that are determined to be polluted are considered “impaired” and the State then determines a plan for stemming further pollution through the development of a “Total Maximum Daily Load” (TMDL). A TMDL is a calculation of the maximum amount of pollutant that the

waterbody can receive and still safely meet the State’s water quality standards.

Three Mile Creek is classified as “Agricultural and Industrial Water Supply” based on its primary use of carrying stormwater from city streets and waste water discharge from treatment facilities to the Mobile River. A decade ago, urban development and decaying sewer infrastructure led to increased incidences of sanitary sewer overflows throughout its watershed. In 2006, Three Mile Creek was placed on the State’s 303(d) List of Impaired Waterbodies for “organic

enrichment and low dissolved oxygen due to sanitary system failure and urban runoff.” A TMDL was developed and approved, and since that time Mobile Area Water and Sewer Service has significantly improved the sanitary sewer lines and lift stations in the watershed. However, urban runoff and the many sources of pollution it carries remains a challenge.

In 1814, Three Mile Creek was an important source of water for the City of Mobile. By 1940, urbanization within its watershed had degraded the quality of the water, forcing the City to turn to Big Creek for its water supply. By the end of the twentieth century, urbanization had deteriorated the water quality of the Creek to a level only recommended for agriculture and industry and generally not suitable for fishing, bathing, or recreational activities.

In addition to run-off related issues directly impacting water quality, the diversity of residents within the Three Mile Creek Watershed deserves special attention. A sizeable portion of the urbanized area within the watershed is comprised of African Americans, a traditionally underserved community. The creek provides a valuable resource to these residents not only in terms of drainage infrastructure, but as a source of food. Many can be seen on any given day along the creek, fishing for supper.

To quote Charles Cort of Spanish Fort, “Sometimes the past is the best way to the Future.” A simple change in perspective of the value of Three Mile Creek by the many and diverse neighborhoods that surround it could be the starting point of its transformation from a means for transporting waste water back to a treasured centerpiece of urban life, a key contributor to estuary health, and abundant populations of fish.

1980, the World Conservation Strategy (WCS) was published stressing the interdependence of conservation and development. It first gave currency to the term “sustainable development.” Ten years later, Caring for the Earth: A Strategy for Sustainable Living was published by the same authors putting forth the conviction that people can alter their behavior when they see that it will make things better, and can work together when necessary. The aim of Caring for the Earth was to secure a widespread commitment to integrating conservation and development – conservation to keep our actions within the Earth’s capacity, and development to enable people to enjoy long, healthy and fulfilling lives. Embedded in these strategies is a principal goal for estuaries worldwide – to maintain the processes on which the fisheries depend.

The full article, entitled “Depletion, Degradation, and Recovery Potential of Estuaries, and Coastal Seas,” is available in Science, Vol. 312, June 2006.



Environmental Stewardship **Holcim, Inc. – Walking the Talk**

By KATHY EDDY, MOBILE BAY NATIONAL ESTUARY PROGRAM

Litter cleanups, invasive species suppression, recycling events, derelict crab trap removal, and an all around commitment to our environment and to our community are some of the services Holcim's Theodore Plant employees provide along the Gulf Coast area.



Holcim, Inc., a Swiss cement company, started business in 1912. This year it is urging each of its employees worldwide to volunteer 10 hours in an attempt to give 800,000 hours (100 years' worth of time) back to the community. But the local Theodore plant has taken its environmental volunteerism seriously for many years.

"When we think of environmental stewardship and service to the community, Holcim stands out as one of the leaders," said Roberta Swann, MBNEP director. "They

are there to help when the environment and the community need a hand – usually without even being asked."

"We've never kept track of volunteer hours, we just volunteer. Now, this year our parent company is asking us to keep track to help them reach the 800,000 hour goal. To us, the numbers haven't been important, just getting out there and getting things done has been our objective," explained Travis Osborne, environmental manager of the Theodore plant. The local plant has 143 employees.

Already this year, Holcim employees helped collect 120,000 pounds of used electronics with Keep Mobile Beautiful, barbequed lunch for 100 volunteers at the Great American Cleanup and planted more than 40 trees and bushes at the Mobile Housing Board's Emerson Gardens complex. Ninety-seven employees volunteered for three days at St. Elmo Elementary School, painting, pressure-washing, trimming and planting trees, bushes and flowers, cleaning up the playground area and replacing all benches and table tops.



*Volunteers work to remove *Phragmites australis* that infested the margins of a restored marsh at Helen Wood Park. Top inset photo shows the park prior to work. The bottom inset photo shows the final result.*



In March, a team of 16 Holcim employees spent the day removing the nuisance reed *Phragmites australis* that infested the margins of a restored marsh at Helen Wood Park, just north of the mouth of Dog River. The park provides fishing, picnic areas and wildlife observation for the public, but its marsh has been plagued with *Phragmites* pushing out native species. MBNEP restored the marsh in 2010 by removing more than half a foot of sediment to restore the tidal flow that is favored by productive native plants. Periodic treatment of the margins and high spots is needed and that's what Holcim's volunteers undertook.

"I've never seen volunteers work harder than those guys did that day," said Tom Herder, MBNEP Watershed Protection Coordinator. "They worked all day using machetes and



Holcim volunteers gather before joining the Coastal Cleanup effort.

loppers to cut the Phrag down to knee height. Then we sprayed the shafts with herbicide to kill the cut reeds,” Herder explained. At the end of the day, Holcim hauled off two truck and 16-foot trailer loads of Phragmites and buried it at the Holcim plant, leaving the park clean.

Plant manager Quentin McGahey explained, “As a Mobile native, I realize what a treasure we have in our coastal waters. Our estuaries are key to maintaining our native species and preserving our natural resources. At Holcim, sustainability is a key consideration in all of our operations. I take great pride in contributing to the preservation of eco-systems critical to our local waters. I grew up fishing in these waters and want to preserve them for future generations. At the Holcim Theodore plant, our people are our most precious resource. They are very involved in our business and the local community. It is

their passion for making a difference that makes this place special. We look forward to continuing our presence in maintaining our environment as well as working with our local schools and community in the future.”

Another example of Holcim’s environmental stewardship was when employees helped clean up the Koppersmith Tract in south Mobile County. The tract, purchased by Alabama’s Forever Wild Land Trust, has 595 acres of salt marsh, seagrass, oyster reefs and many other habitats. It also is home to several protected species. Holcim volunteers helped clean up litter from the site and provided expertise and manpower in eradicating invasive species, specifically Chinese Privet.

“Since I was a kid, I have been involved with the local seafood industry so I know the importance of protecting our environment and keeping our waters clean and healthy. It gives me pleasure to know that I am doing

my part in giving back to the community and helping to protect the environment and our surrounding waters,” said Greg Radcliff, production supervisor at the plant.

During last fall’s Coastal Cleanup day, 180 Holcim volunteers cleaned up trash at Halls Mill Creek, Hollingers Island, two miles of Dauphin Island Parkway, and the north and south sides of the Theodore Industrial Canal. “Marine debris is a pervasive problem that threatens bodies of water such as bays, rivers, canals and oceans,” Osborne said.

Following the Deep Water Horizon oil spill, Holcim requested samples of boom used to contain oil. Testing confirmed that the absorbent linings of booms not touched by oil were safe to burn in Holcim’s kiln. Holcim utilized more than 1,000 tons of boom for fuel in its kiln, keeping it out of landfills.

In addition to community and environmental volunteerism, Holcim’s Theodore facility consistently wins environmental awards, the latest being the 2012 Cement Industry Energy and Environmental Performance Award - Holcim was selected as the only plant of the 150 plants in North America to win. Other awards include Excellence in Stormwater Treatment by the Alabama Water’s Environmental Association, EPA’s Energy Star Award and Gulf Guardian Award for Storm Water Conservation, and Holcim’s President’s Award for Sustainable Environmental Performance, among many others.

It may be Holcim’s 100th birthday, but the communities in which it operates are the ones getting the gifts.



Volunteers from Holcim helped to clean up Koppersmith Tract.



Ed and Tom get started after another challenging portage.

Three Mile Creek

An Urban Kayaking Adventure *Continued from the page 1*

This small, tidally-influenced stream flows 14 miles east through Mobile to a confluence with the Mobile River just north of the State Ports. It drains 29 square miles of urban and residential landscape, dropping an average of 26 feet each mile over its upper six miles before flattening to nine feet per mile over its lower eight. Headwaters that begin near Cody Road consolidate into the lakes at Langan Park. From there the Creek flows under Spring Hill Avenue past the Japanese Gardens, up and around the north side of Spring Hill, under four Canadian National Railroad bridges, under Moffet Road and I-65, up through Crichton past the USA Medical Center, down along Spring Hill Avenue past Tricentennial Park and the Mobile Infirmary, north under Martin Luther King Avenue up a straight, engineered bypass channel to a confluence with its historic streamway and Toulmin Springs Branch, under Conception Street Road, past Scotch Gulf Lumber, under Telegraph Road, and then out to the Mobile River.

On April 3, after a night of strong thunderstorms, I met Ed, along with

accomplished local kayaker and environmental advocate Rob Nykvist, at Langan Park's Japanese Gardens to give it a go. Just upstream of our put-in water rushed down over rocks with impressive power, stimulating concerns about safety. But with assurances from Ed we pushed off in three separate kayaks.

Trepidation turned to excitement, as the current carried us steadily over surprisingly clear, shallow water over a sandy bottom between steep, wooded stream banks. Rob and Ed warned that the paddle would be interrupted by frequent portages (that means you have to get out and carry your boat) around rapids and weirs, and early on we encountered three sets of rock rapids. We had to work together to portage the kayaks around the first set, but I followed Rob down through the next two. What a blast!

The Creek looped under the first two railroad trestles, and then its character changed from "natural creek" to "widened canal." Natural steep vegetated banks gave way to engineered "flood plains"... and gentle rock rapids gave way to weirs. Weirs are engineered steel walls placed



Fishing on the banks of Three Mile Creek

across the channel to slow the Creek's velocity, creating unnavigable "falls." The weirs are virtually invisible on approach, and you hear them before you see them. One could easily be surprised paddling over a four-foot drop onto a riprap bottom, if not for the warning provided by the sound of water hitting rocks. The current, at least that day, was not dangerously forceful. Along Three Mile Creek, weirs are found in pairs, with a second, smaller weir 30-40 feet downstream stream of the first, followed by riprap rapids.



Portage of kayaks proved difficult at times.

Portaging around weirs was pretty tough. First, there's selecting a place to take-out, with limited choices. Then the hard part: pairing up, lifting the kayaks out, carrying them up the ripped or steep, gabion-basket-stepped banks and around the obstacles, and then back down to the Creek. Ed's kayak was small and light. My two-man sit-in was larger and somewhat heavier. Rob's long, sleek, ruddered craft felt like it was full of rocks! After a couple challenging portages, we lost any enthusiasm for the four sets that remained (with the last just east of the USA Medical Center).



Ed Franklin slides into Three Mile Creek after portage.

Wildlife was abundant on the Creek. Egrets and herons were plentiful. Upstream we watched a large slider turtle laying eggs on a sandy bank. Fishermen were here and there, and one was moving to avoid a cottonmouth he had just seen. Along Spring Hill Avenue near the Infirmary, the bottom was covered with flowering submerged aquatic vegetation, sheltering a lot of fish, some surprisingly large. While live Apple Snails were not abundant, their pink egg clusters were easy to spot above the waterline attached to reeds and cattails.



Apple snails lay pink eggs above the waterline.

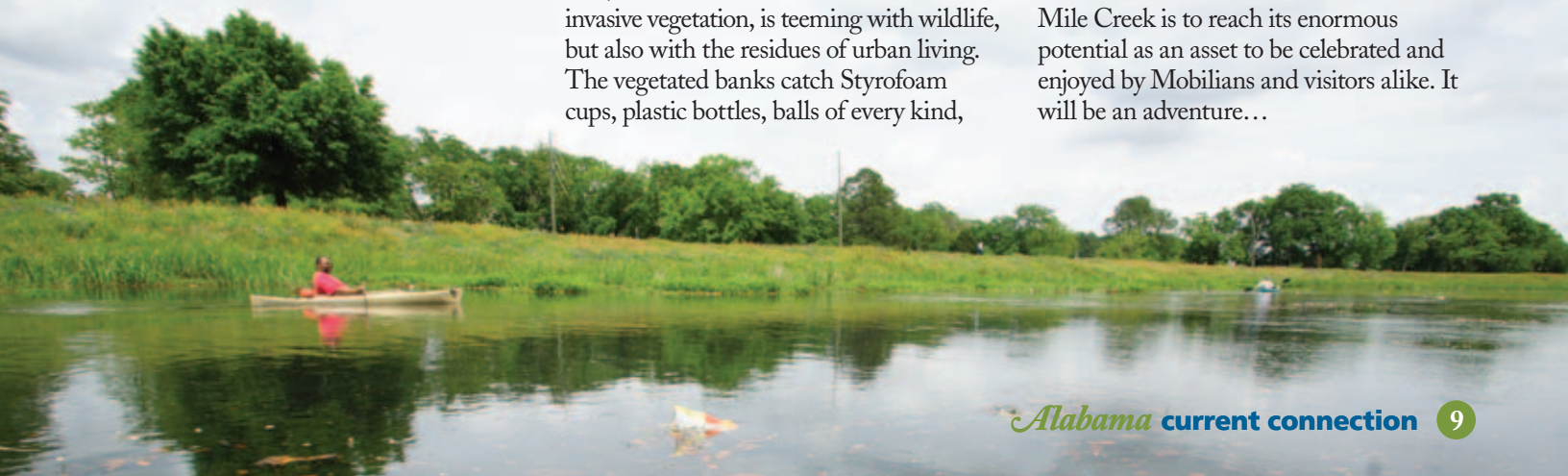
We took-out at Tricentennial Park and called it quits, although some of the best and easiest paddling remained downstream. Between MLK Avenue and Conception Street Road, the Creek's bypass channel – excavated in the mid-20th century for flood control – cuts straight through wooded wetlands. This area, lush with a mixture of native and invasive vegetation, is teeming with wildlife, but also with the residues of urban living. The vegetated banks catch Styrofoam cups, plastic bottles, balls of every kind,

tires and other discarded trash carried by stormwater off city streets. From the Conception Street Road Bridge, the natural Creek resumes, meandering north and then east to the River.

An adventurous paddler can turn east just before the bridge into the historic Three Mile Creek streamway that meanders southward almost a mile to the "plug," where siltation from the channelization prevents further navigation. As one approaches the plug,

only the sound of an ice cream truck or the sight of the RSA Tower over the tree line belies that this is not the Delta. Or one can take a left into One Mile Creek and paddle southeast to the Hank Aaron Loop, past the closed and degrading Hickory Street Landfill. Alligators are plentiful, birds are everywhere, and it is not uncommon to chase a dense school of menhaden swimming the channel.

There's a lot of work to do if Three Mile Creek is to reach its enormous potential as an asset to be celebrated and enjoyed by Mobilians and visitors alike. It will be an adventure...



Get the Trash Out of the Splash!

Alabama to Celebrate 25th Annual Coastal Cleanup

By AMY KING, ALABAMA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

Alabama will celebrate 25 years of dedicated volunteerism during the 25th Annual Alabama Coastal Cleanup on September 15, 2012. Thousands of volunteers from around the coast and the state will continue a quarter-century tradition, spending a few hours removing trash from their local beach or waterway and keeping track of everything they find on standardized cards. This information is sent to the Ocean Conservancy which is the official sponsor of the International Coastal Cleanup. The Ocean Conservancy uses this data to create the world's only state-by-state, country-by-country index of what is trashing our ocean, lakes and rivers. This has helped identify the sources of and solutions to marine debris over the past 25 years.

Marine debris, which is trash and litter discarded into the water or along the shoreline, is not only an eyesore, but also poses a real threat to both marine wildlife and humans. Your support and participation in the Alabama Coastal Cleanup provides a unique opportunity to be a part of the state's largest volunteer effort focused on the removal of marine debris from the water's edge.

The Alabama Coastal Cleanup involves local citizens in the removal of trash and debris from Gulf Coast beaches and waterways, the identification of the sources of debris, and the behaviors that cause pollution. Over the past twenty-four years, 65,255 volunteers have participated in the Alabama Coastal Cleanup and removed 1,240,931 pounds of marine debris from Alabama's valued coastline.

There are more than 20 cleanup zones across Mobile and Baldwin counties. For more information about how to get involved either as a volunteer or as a sponsor with the 25th Annual Alabama Coastal Cleanup, please visit www.AlabamaCostalCleanup.com or call (251) 621-1216.

Here are a few safety tips to help "Get the Trash out of the Splash!"

- Drink plenty of fluids!
- Bring sunscreen, a hat and wear comfortable shoes.
- An adult should supervise children at all times.
- Be careful near sand dunes and other fragile ecosystems.
- Please do not attempt to remove dangerous or heavy items yourself.
- Mark the location and report back to the Zone Captain.

10

things you can do to help prevent marine debris

- 1 Join Alabama's 25th Annual Alabama Coastal Cleanup on September 15, 2012!
- 2 Clean up your trash, even when you're not near the water. It's amazing that the majority of trash in our waterways comes from land-based activities. Even trash discarded miles inland can make it to the ocean, carried by the rain, streams and wind.
- 3 Retrieve your monofilament fishing line. Don't leave fishing line in the water and remove others' line when you find it...being careful not to tug on snagged lines that could be caught on important habitat below the surface. Also be aware of hooks that may be left on the line.



Coastal Cleanup participants bagged trash along waterways last year.

4 Contain and properly clean spills when boating. Use oil-absorbent rags or even diapers to clean spills. Ocean Conservancy's Good Mate program <http://www.oceanconservancy.org/good-mate/> can provide you with plenty of tips for reducing impact when on the water.

5 Recycle used motor oil and oil filters. Your local gas station should have facilities for recycling these materials. Never pour oil, paint, antifreeze or other household chemicals into an open sewer or waterway.

6 Better yet, find alternatives to household chemicals. Don't use fertilizers, pesticides and herbicides that can wash into open waters. Use lemon juice, vinegar, and baking soda for household cleaning.

7 Become a storm drain sentry. Stencil your local drains to remind people where the things they dump in the drain end up...and of the potential consequences.

8 Use cloth bags for groceries. Take them with you when you shop to reduce the number of plastic bags you use. In addition to being ugly, plastic bags can choke marine wildlife when they mistake it for food.

9 Properly dispose of used batteries and electronics. Use your local recycling center. Electronics leach harmful chemicals into the environment. Once there, these toxic pollutants can affect the environment for decades.

10 Contact your elected representatives. Let them know you care about the effects of marine debris and that you are watching what they do to stop it. Then, vote for candidates who support marine debris prevention and who are good stewards of our ocean.



*Volunteers clean up trash along
Halls Mill Creek.*



Trees: Part of the Solution to Urban Stormwater Problems

By MICHAEL SHELTON, WEEKS BAY NATIONAL ESTUARINE RESEARCH RESERVE

Managing polluted runoff and flooding in an urban landscape is a challenge. Conventional drainage systems such as street gutters and underground pipes take rainfall away from buildings, parking lots and streets, but concentrate it in greater volumes and increase its velocity. This in turn can lead to downstream flooding and erosion, damaging both public and private property.

Part of the solution is changing development practices to reduce runoff at the source. Keeping rainfall onsite and allowing it to soak into the ground are some of the goals of “low impact development” or LID. A LID handbook, expected out next year, will identify practices that are useful in reducing runoff and the pollution associated with it. The Alabama Department of Environmental Management is developing the handbook with Auburn University’s (AU) Department of Agronomy and Soils, the AU Landscape Architecture Program, and the Alabama Cooperative Extension System.

Another part of the solution to the stormwater puzzle is already growing in yards and along streets in our communities. Trees serve several roles in urban settings. They add to the overall quality of life in a community; they cool buildings resulting in energy savings for households and businesses; and they add value to property. Trees also provide habitat for wildlife and provide mental health benefits to employees.

(A study by the University of Michigan showed that productivity went up for workers who could view trees and nature.) In addition to all these benefits, trees also can play a major role in helping reduce the damaging effects of excessive rainfall runoff and the contaminants it may carry.

Trees have canopies full of branches and leaves. The canopy protects the soil from the erosive effects of rainfall through a process called interception. Leaves and branches catch raindrops before they reach the ground with the energy accumulated

during their long descent from the clouds. Rainfall then drips more slowly and gently to the ground, allowing the water to seep into the ground, thereby reducing erosion. Also, leaves act as platforms for evaporation to occur. According to Urban Forestry Research in 2001, about 500 gallons of rainwater can evaporate from just one tree during the course of a year.

Multiply these effects by all the trees

present in a city or a large urban area and a significant volume of runoff can be controlled.

Roads and parking lots are heated by the rays of the sun as anyone who has walked barefooted across these surfaces on an August afternoon can attest. Rain flowing across an asphalt parking lot or road is heated along its way. This

heated water runs into creeks and streams and can damage habitat, reduce oxygen in the water, and chase away wildlife.

According to Urban Forestry Research in 2001, evaporation of around 500 gallons of rainwater per year occurs on the leaves of a single tree.

The shade from a tree canopy can cool these paved surfaces dramatically, reducing the temperature of the runoff and the damage to the stream environment.

Tree roots play a big part in reducing runoff and erosion. Roots grip and hold soil that otherwise would erode. Roots stabilize hillsides and the banks along urban creeks. Rainfall soaks into soil kept loose by tree roots. Trees take up the water they need for their metabolic processes through evapotranspiration. A typical mature tree absorbs around 100 gallons of water a day from the soil and releases it into the air. (This is in addition to the 500 gallons per year of rainfall that evaporate from a tree's branches and leaves during a rain.) Some trees take up even more; an article in *Stormwater* (*Forester Media*, 2002) indicates that a mature bald cypress absorbs about 880 gallons per day. That's a lot of water not available to rush down the streets and into streams.

The root system of trees and other plants stabilize erodible soils. The U.S. Department of Agriculture estimates about 50 tons of soil erode each year from a square mile of forested area compared to more than 25,000 tons from a square mile of developed area. On the other hand, grass lawns are frequently fertilized and continuously mowed. The clippings decompose, quickly returning excessive nutrients back to waterways, often resulting in eutrophication. Eutrophication is characterized by a profuse buildup of nutrients, resulting in an overgrowth of algae and other organisms. Those organisms decay and in turn deplete oxygen from shallow waters.

Cities and towns spend millions of dollars to fight storm runoff. The problems are made worse by the removal of mature trees during development. Using development techniques that retain mature trees can reduce damage caused by stormwater erosion, flooding and pollution. Proper care of mature trees keeps them healthy and resistant to the wind so that they can remain part of the solution to urban runoff problems. Janis Keating, a frequent contributor to *Stormwater*, entitled a 2002 article, "Trees: the Oldest New Thing in Stormwater Treatment?" The question mark should be replaced with an exclamation point.

Rain Barrel Program Teaches Coastal Residents How to Reduce Stormwater Impacts

By CHRISTIAN MILLER, AUBURN UNIVERSITY MARINE
EXTENSION AND RESEARCH CENTER

Coastal Alabama receives in excess of five feet of rain per year. In urban areas most of this water washes across hard, or impervious, surfaces, picking up and carrying pollutants into our waterways. According to the U.S. Environmental Protection Agency, stormwater runoff is the greatest threat to water quality in the United States; as more people continue to move to coastal areas, hard surfaces and volume and velocities of stormwater continue to increase.

Driveways, roofs, roads and parking lots are examples of hard surfaces; this means that rainwater cannot percolate into the ground where it would either be taken up by plants or replenish groundwater resources. Instead, stormwater runs off quickly, putting major stress on municipal stormwater infrastructure and natural wetland habitats. As stormwater flows across hard surfaces it picks up and transports trash and debris as well as pollutants such as pathogens, nutrients, sediments, heavy metals, and chemicals. It then either flows directly to local water bodies or storm drains. The storm drains lining area roads are just one part of a much larger storm sewer system, a network of underground pipes designed to quickly transport stormwater to local waterbodies. Due to large volumes, stormwater bypasses traditional water treatment plants, and the pollutants which accumulate in stormwater are introduced to receiving waters, adversely affecting water quality.

Rainwater harvesting, the practice of collecting and storing stormwater runoff from roofs and other hard surfaces for future use, is one practical way to reduce the impacts associated with residential stormwater runoff. An inch of rain falling on a typical 1000 square foot roof yields over 600 gallons of water. Installing a rain barrel at your home is an inexpensive way to capture and store some of this water for later use. With a rain barrel, you'll not only help reduce pollution, but you'll also have a supply of free non-chlorinated soft water for washing your car, watering plants, and many other household uses.



Rain barrels help prevent stormwater runoff.

Although rain barrels can be purchased through many commercial outlets, they are generally expensive and don't offer much in the way of education for the consumer. Through an ongoing series of workshops residents of Mobile and Baldwin counties have learned how to construct and set up low-cost rain catchment systems at their homes, along with other ways to conserve water and protect water quality along the coast. These workshops are continuously scheduled throughout the year, in coordination with partners

in both Mobile and Baldwin Counties, and last approximately two hours. Cost for the workshop is \$40, which includes one rain barrel. Rain Barrels constructed during the workshops are taken home by participants at the end of the program. The fee for individuals who wish to attend without making a rain barrel is \$10.

For more information, or to register for an upcoming workshop, call Christian Miller, Auburn University Marine Extension and Research Center, 251-438-5690 or email christian@auburn.edu

Community Group Profile:

Alabama Stormwater Partnership

By DONNA JORDAN, MOBILE BAYKEEPER

Urban and rural stormwater runoff is a leading cause of decreased water quality across the state of Alabama. The Alabama Stormwater Partnership was formed in June 2007 by water quality advocacy groups from across the state working to decrease stormwater pollution in our waterways. Currently, the Partnership consists of 17 state and national organizations like Mobile Baykeeper and Alabama Coastal Foundation.

The Alabama Stormwater Partnership has helped organize watershed groups and individuals to enact policy change in Alabama by improving stormwater law, regulations and enforcement. The purpose of the Partnership is to unite individual watershed groups across Alabama in order to coordinate and enhance their efforts to eliminate stormwater pollution statewide. By working together, partners have access to the knowledge, experience and technical expertise of each participating watershed group.

Since its formation, the Partnership has continued advocating for stronger oversight of stormwater discharges by regulatory authorities. The Partnership has met with officials at the Environmental Protection Agency (EPA), the Alabama Department of Environmental Management (ADEM), and local governments as well as providing comments to those agencies on stormwater regulations currently under revision. Over the past couple of years, ADEM has been in the process of renewing stormwater permits for small municipalities, called MS4 Phase II communities, for regulated communities with populations of less than 100,000, as well as the Construction General Permit for land clearing and building activities of more than one acre.

Through the Partnership's advocacy,

these permits now include requirements for increased local government enforcement and oversight of stormwater discharges, including adopting post-construction stormwater control ordinances, as well as encouraging low impact development and green infrastructure. ADEM is now getting ready to put out new permits for large municipalities, those urbanized areas with populations over 100,000 such as Birmingham, Montgomery and Mobile. The Partnership is gearing up to review these permits as they become available and to work with ADEM and EPA to ensure that our waters are best protected from stormwater pollution coming from our cities.

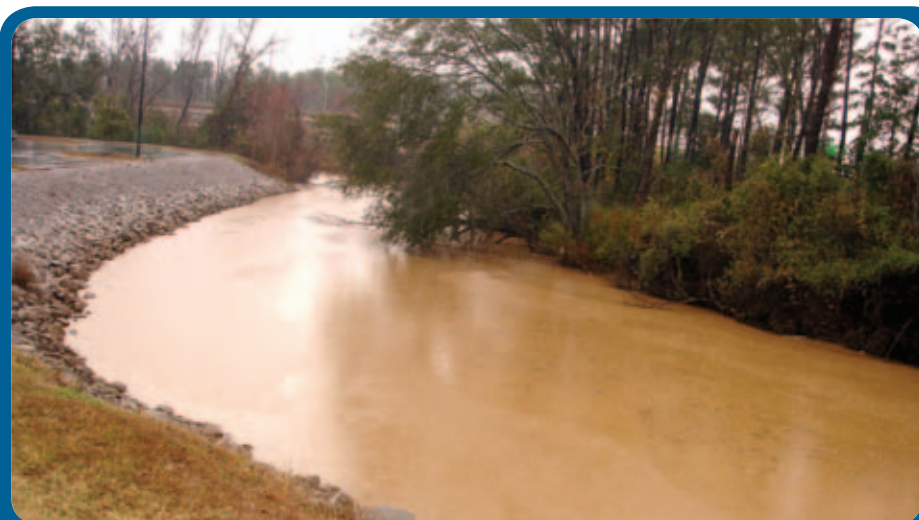
Members of the Partnership also are heavily involved in educating citizens, developers and politicians on the problems stormwater pollution pose. The Partnership is primarily focusing on sources of sediment pollution in our waterways and on finding ways to stop it, including involvement in Muddy Water Watch (www.muddywaterwatch.org). Partner groups participating in the Muddy Water Watch Program have conducted volunteer training across the state. They are educating the public about stormwater issues and recruiting volunteers

to use this knowledge to monitor stormwater runoff from construction sites and to work with developers and regulatory agencies to address stormwater pollution problems.

The Partnership also has taken up the task of thoroughly reviewing the Municipal Separate Storm Sewer System (MS4) program to evaluate the regulatory mechanisms in place by municipalities and their effectiveness at managing stormwater discharges. Black Warrior Riverkeeper has researched MS4 regulatory information throughout the state to compile an auditing template. This template can be used by other Partners and grassroots groups to conduct audits of local MS4 programs. Choctawhatchee Riverkeeper and Mobile Baykeeper are currently in the process of reviewing the stormwater programs of Phase I and Phase II municipalities in their watersheds, specifically the cities of Auburn, Dothan and Mobile.

For more information on the Alabama Stormwater Partnership or becoming a participating organization, please contact:

Beth Nichols, Partnership Coordinator,
Mobile Baykeeper
bnichols@mobilebaykeeper.org
(251) 433-4229



The EPA considers polluted stormwater runoff the number one threat to our nation's water quality.

U.S. EPA Gulf of Mexico Program Welcomes New Director Ben Scaggs

FROM U.S. ENVIRONMENTAL PROTECTION
AGENCY GULF OF MEXICO PROGRAM OFFICE

Ben Scaggs has been selected as the Director of the U.S. EPA Gulf of Mexico Program (GMPO) and will be responsible for overseeing this collaborative program to protect, maintain, and restore the health and productivity of the Gulf of Mexico.

Ben comes to the GMPO following exemplary service as Director of the Office of Administration and Resource Management at EPA's Research Triangle Park, North Carolina location, the largest agency presence outside of Washington, DC. Ben came to EPA in 1991 from the Federal Energy Regulatory Commission, and over his 20 years at the Agency has also worked in the Office of Air and Radiation and in EPA's Region 4 office in Atlanta. He has a bachelor's degree and master's degree in Public Administration from the University of North Carolina at Chapel Hill.

Ben recognizes that the Gulf of Mexico is of tremendous ecological, economic, and social value to our region and is home to magnificent beaches, critical wetland habitats, some of the most productive fisheries in the world, and a quarter of U.S. domestic natural gas and one-eighth of its oil. Both the resilience and the vulnerability of this region have been on national display in the last ten years, first in the impacts of Hurricanes Katrina and Rita, and more recently in the dramatic oil spill following the explosion and collapse of the Deepwater Horizon in 2010, the largest marine spill in the history of the petroleum industry.

When asked about accepting the position as Director of the GMPO and the challenges facing the Program Office and its partners, he replied, "It is an extraordinary opportunity coming at an



Ben Scaggs

extraordinary time." He continued, "I've obviously not gotten my feet wet yet, but it's fairly clear that the opportunities and challenges we collectively have before us call for balance and collaboration in and around varying interests and views. I look forward to learning about all the perspectives

involved and joining others as we pursue our goals together." Ben's leadership skills and collaborative style will be a tremendous asset to the work in the Gulf of Mexico, a vast, productive, and important body of water.

Ben is no stranger to the Gulf Coast; he has family in Texas and Florida as well as his native Mississippi. His roots in and understanding of the region will serve well in collaboration with the diverse set of partners working together to create a healthy and resilient Gulf. He assumed his new duties at the Gulf of Mexico Program Office in late April.

The U.S. Gulf of Mexico Program began in 1988 to protect, restore, and maintain the health and productivity of the Gulf of Mexico ecosystem. The U.S. EPA Gulf of Mexico Program is a non-regulatory, inclusive consortium of state and federal government agencies and representatives of the business and agricultural community, fishing industry, scientists, environmentalists, and community leaders from all five Gulf States. The Gulf Program seeks to improve the environmental health of the Gulf in concert with economic development.

For more information about the Gulf of Mexico Program, call the Gulf of Mexico Program Office at 228-688-3726 or visit the web site at <http://www.epa.gov/gmpo>.

Alabama current connection

About the Mobile Bay National Estuary Program:

The Mobile Bay National Estuary Program's mission is to lead the wise stewardship of water quality and living resources of the Mobile Bay and Tensaw Delta. The MBNEP serves as a catalyst for activities of estuary stakeholders, helping to build community-based organizational capacity for sound resource management and leveraging commitment and investment to ensure the estuary's sustainability. For more information, please contact the MBNEP office at 251-431-6409.

About ADCNR, State Lands Division, Coastal Section:

In an effort to protect and enhance coastal resources and reduce potential conflicts between environmental and economic interests, the Alabama Coastal Area Management Program (ACAMP) was approved by the National Oceanic and Atmospheric Administration (NOAA) in 1979. The ACAMP is administered through the Alabama Department of Conservation and Natural Resources, State Lands Division, Coastal Section. For more information, please contact the Coastal Section office at 251-621-1216.

Alabama Current Connection is produced biannually by the Mobile Bay National Estuary Program. Support is provided in part by the Alabama Department of Conservation and Natural Resources (ADCNR), State Lands Division, Coastal Section; the U. S. EPA; NOAA; and the Dauphin Island Sea Lab/Marine Environmental Science Consortium.

Alabama Current Connection encourages reprinting of its articles in other publications. If you have recommendations for future articles or would like to subscribe, please contact the editor:

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Alabama current connection

Dauphin Island Sea Lab
Marine Environmental Science Consortium
101 Bienville Boulevard
Dauphin Island, Alabama 36528

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Mobile, AL 36601



Current events

*This Summer*_____

Dauphin Island Sea Lab Estuarium

Where: 101 Bienville Blvd., Dauphin Island

Summer Hours:

Monday - Saturday, 9 a.m. - 6 p.m.

Sunday, noon - 6 p.m.

For admission prices and additional

information, visit: http://estuarium.disl.org/hours_pricing.htm

Weeks Bay National Estuarine Reserve & Visitors' Center

Where: 11300 US Hwy. 98, Fairhope

Hours: Monday - Saturday, 9 a.m. - 5 p.m.; closed Sunday,

Visitor's Center closed July 4th

Boardwalks remain open on holidays

For information, visit: http://estuarium.disl.org/hours_pricing.htm

*September*_____

September 15

What: 25th Annual Alabama Coastal Cleanup

Where: Various locations in Baldwin and Mobile counties

For locations and more information visit:

www.AlabamaCoastalCleanup.com or
<http://www.alpals.org/coastalcleanup.asp>

*October*_____

October 4-6

What: 9th Annual Coastal BirdFest

Where: 5 Rivers Delta Resource Center and Fairhope locations

For registration information, visit: <http://alabamacoastalbirdfest.com/index.htm>

October 11-14

What: 41st Annual National Shrimp Festival

Where: Gulf Shores

For more information, visit: <http://alagulfcoastchamber.com/pages/ShrimpFestival>

*November*_____

November 14-15

What: Mississippi-Alabama Bays and Bayous Symposium

Where: Mississippi Coast Coliseum and Convention Center; Biloxi, MS

For registration information, visit:

www.masgc.org/bb2012