

RESTORING CREEKS WITH SHORELINE BUFFERS



A **shoreline buffer** is an area of native vegetation located next to a waterbody. One of the main functions of a buffer is to protect the receiving waterbody from sediment and pollutants contained in storm water runoff. Buffers also provide excellent habitat for aquatic and terrestrial wildlife. **Bank restoration** is the process of restoring wetland, stream or buffer functions lost through natural or man-made impacts.

Benefits of Shoreline Buffers

- ◆ Provides a protective, natural barrier between land and water
- ◆ Buffer vegetation traps and removes sediment and pollutants from runoff
- ◆ Vegetation slows the velocity of runoff entering a waterbody
- ◆ Provides shade for waterbodies resulting in lower water temperatures and increased dissolved oxygen levels
- ◆ Vegetation stabilizes streambanks and prevents property loss due to erosion
- ◆ Increases property values, decreases yard work and provides privacy for homes and property
- ◆ Provides rich, diverse habitat for wildlife
- ◆ Serves as a migratory bird and wildlife corridor



View a shoreline buffer and bank restoration example at the Storm Water Demonstration Site in Anne McCrary Park off Randall Parkway. For more info, visit our website or call 343-4777.

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Attention 8th Grade Science Teachers



The Enviroscope is a hands-on, interactive watershed model that enables students to make the connection between storm water runoff pollution, water quality, watersheds, stewardship and personal responsibility.

The Enviroscope presentation directly correlates with NCSCOS 8th grade goals and objectives for the hydrosphere.

Call now to schedule an Enviroscope presentation for school year 2004-2005, **341-5895**.

"In the end, we will conserve only what we love, we will love only what we understand, and we will understand only what we have been taught."
Baba Dioum, 1968

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STORM WATER WATCH

Summer 2004

A Publication of the City of Wilmington's Storm Water Services

Greenfield Lake Receives Some TLC

This spring, Cape Fear River Watch and the City of Wilmington's Storm Water Services were awarded state grant funding from the NC Coastal Nonpoint Source Program (CNPSP) to implement specific outreach recommendations in the Greenfield Lake Watershed.



The Greenfield Lake Watershed Outreach Program will implement outreach recommendations developed by the Greenfield Lake Stakeholders Initiative, a group that formed in October 2001. This group consisted of representatives related to four main issues identified as affecting Greenfield Lake: pet waste, lawn care, illicit discharge and public safety.

The Stakeholders Initiative developed specific outreach recommendations designed to raise citizen awareness and involve the public in addressing nonpoint source pollution issues and the current condition of Greenfield Lake. Long term goals of the initiative are to improve the water quality of Greenfield Lake, restore the Lake's full recreational uses and remove it from the State's impaired list.

On August 20, 2002, Wilmington City Council passed a resolution approving the Greenfield Lake Stakeholders Initiative summary report and outreach recommendations.

The Greenfield Lake Watershed Outreach Program will implement the outreach recommendations that specifically address pet waste, lawn care and illicit discharge. Grant outreach efforts include:

- ▶ Water quality direct mailings or doorhangers to residents and businesses in the Greenfield Lake Watershed
- ▶ Additional pet waste stations and signage at Greenfield Lake
- ▶ Pet waste brochures and pick-up bags for all participants of the annual Dog Jog held at Greenfield Lake
- ▶ Mass media campaign utilizing TV, radio and newspaper
- ▶ Neighborhood and community presentations
- ▶ School presentations
- ▶ Storm drain marking

The Greenfield Lake Watershed Outreach Program runs from March 2004 through December 2004. Grant oversight is provided by the NC Division of Coastal Management and the NC Division of Water Quality.

For more information or to participate in any activities, please contact Jennifer O'Keefe at Cape Fear River Watch, 762-5606. To view the Greenfield Lake Stakeholders Initiative Report on the web, visit www.ci.wilmington.nc.us/pubservices/stormwater/PublicationsandReports.htm

WATER QUALITY ISSUES IN GREENFIELD LAKE

- ALGAL BLOOMS
- NUTRIENTS
- FECAL COLIFORM BACTERIA
- LOW DISSOLVED OXYGEN

www.ci.wilmington.nc.us/pubservices/stormwater/stormwater.htm



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North Carolina has launched an innovative recycling program to collect oyster shells from individuals and businesses and place them back overboard to help turn the tide on declining oyster stocks. Recycled oyster shell reefs are being built on several sanctuaries already successfully established in coastal waters to enhance existing brood stocks of native oysters.

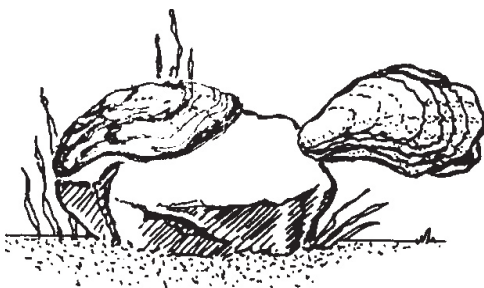
And why is this necessary? Because oysters are much, much more than just a seafood treat. A mound of oyster shells, placed in brackish water with good tidal flow, will quickly become colonized by a multitude of marine organisms, including oysters.

This mound, also called an oyster reef, serves a number of purposes - first and foremost, it helps produce oysters. Secondly, it provides habitat for other beneficial organisms, such as worms, barnacles, crabs, small minnows and fish. The small fish attract a diversity of larger fish and before you know it, you have a veritable metropolis of critters congregating at your reef and all you did was put the shells in the right spot. Thirdly, oysters can dramatically improve water quality by filtering sediments and impurities from water at a rate of 2.5 gallons of water per hour, or 50 gallons per day per oyster!

Oyster reefs also help to control erosion and provide natural breakwaters that protect our shoreline. Oysters are a keystone

species in the estuary environment and the health of the oyster population can be considered a barometer that gauges the health of an entire creek.

During the summer months, oysters spawn and release free-swimming larvae, called spat, into the water column. The spat are carried by tides and currents and, after spending a couple of weeks at the will of the water, they search for a suitable surface to attach to and begin secreting their own shells of calcium carbonate.



Unless disturbed, oysters will spend the remainder of their life cycle where they have initially attached. Centuries of oyster cultivation experience has proven that the oyster shell, also known as cultch, is one of most advantageous materials for the ensuring the growth of young oysters. However, when oysters and their shells are removed from the system, it interrupts this natural life cycle, and without this hard substrate to settle on, the immature oyster will die. By carefully replanting recycled oyster shells, we ensure the future of oyster stocks and other marine life by providing habitat, as well as enhancing the environment, improving water quality and saving precious landfill space.

By pooling our shell resources, researchers and scientists can construct large reefs in prime

oyster growing areas, enhancing oyster productivity and providing hook-and-line fishing opportunities for the public. So take your shells destined for the trash heap and turn them into an estuarine treasure by participating in the North Carolina Oyster Shell Recycling Program.

The recycling program has established specific facilities to collect shells. Drop your shells off at a designated disposal site and feel good that you are helping conserve this important natural resource.

In Wilmington, Cape Fear River Watch, 617 Surry Street, 762-5606, accepts oyster shells from individual residences for recycling. When dropping off shells, please be sure to separate shells from trash. And do not put freshly shucked oyster shells into coastal waters yourself because the shells need to be dried for at least 30 days and be free of contamination.

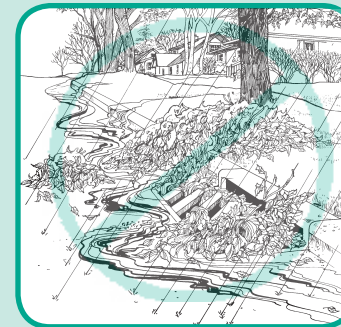
“OYSTERS DRAMATICALLY IMPROVE WATER QUALITY BY FILTERING SEDIMENTS AND IMPURITIES FROM WATER...”

Volunteers and recycling sites are still needed to expand the program in the Wilmington area. The program is looking to establish sites in the Wrightsville and Carolina Beach areas. Trailers and dump trucks are also available to collect large amounts of oyster shells, such as from festivals and community oyster roasts.

For more information on the program, please contact Stephen Taylor, NC Division of Marine Fisheries, 395-3900, Stephen.Taylor@ncmail.net or Ted Wilgis, Cape Fear Coastkeeper, North Carolina Coastal Federation, 790-3275, coastkeeper-cf@nccoast.org

YARD WASTE: POLLUTING OUR WATERWAYS

DID YOU KNOW THAT YARD WASTE CAN HAVE SERIOUS IMPACTS ON OUR LOCAL WATERWAYS? YARD WASTE SUCH AS GRASS CLIPPINGS, LEAVES, PINE STRAW, SOIL AND OTHER YARD DEBRIS CAN BE CARRIED INTO OUR WATERWAYS BY STORM WATER RUNOFF OR IMPROPER IRRIGATION METHODS.



Consider this. When it rains, rainwater has three basic options: to soak into the ground, evaporate or runoff. In natural settings, such as a forest, rainwater is slowed and filtered by plants and soil and able to soak back into the ground. In contrast, when rain falls on hard, or “impervious surfaces”, such as rooftops, roads, and parking lots, it does not soak into the ground. Instead, this water flows off of impervious surfaces as storm water runoff. Storm water runoff picks up pollutants such as pet waste, litter, motor oil, and yard waste from impervious surfaces and carries them into local waterways.

Storm water runoff does not go to a treatment plant. Instead, it is channeled into a complex, interconnected system of pipes, ditches, retention ponds and creeks that diverts runoff from streets and property. Approximately 60 miles of creeks, like Hewletts Creek and Burnt Mill Creek, form the backbone of this drainage system in Wilmington. Runoff, and the pollution in it, drains into these creeks and then into the Cape Fear River and Intracoastal Waterway.

SO HOW DOES YARD WASTE POLLUTE?

Yard waste becomes a major problem for the drainage system and local waterways when it is left on impervious surfaces or blown into storm drains, ditches or streets. Yard waste clogs storm drains and drainage routes and greatly increases the risk of flooding and property damage. Yard waste can obstruct water flow and even cause bank erosion in creeks.

Yard waste also negatively impacts aquatic habitat. Nutrients in yard waste cause algae blooms, which upon decomposition, consume oxygen in the water that aquatic life, like fish, need to survive. Decomposing yard waste and algae also create foul odors and are very unsightly. These impacts reduce the use of recreational waters for fishing, boating, swimming and shellfish harvesting. Finally, improperly discarded yard waste results in time-consuming, costly maintenance and cleanup activities for City Storm Water crews.



REMEMBER...YOU ARE THE SOLUTION TO STORM WATER POLLUTION!

Fortunately, all of these negative impacts can and should be prevented. ***In fact, did you know that Wilmington City Ordinance (Section 11-3) prohibits the discharge of yard waste into storm drains, drainage ditches and streets? Violations of this ordinance can result in civil penalties.***

Fortunately, there are several ways for City residents and businesses to properly dispose of yard waste. First, be sure to collect yard debris off of streets, driveways and sidewalks. For yard waste collection day, loose yard waste such as grass clippings, leaves, pine straw, pinecones, and vines must be put in a bag or container and placed neatly in the right-of-way. Yard waste is collected on the same day as your regular trash and recycling. Collected yard waste is taken to a vegetative processing facility where it is ground and sold as boiler fuel. *Please do not use the City trash cart or recycling bin for yard waste and do not mix non-organic items like roofing tiles, scrap lumber, or rocks, with the waste. Yard waste is not permitted in the Landfill.*

One of the best alternatives is to recycle grass clippings by leaving them on the lawn after it is mowed. Grass clippings return moisture and nutrients to the lawn and reduce the need for fertilizer. Another environmentally-friendly alternative is to compost yard waste and use the composted material as a mulch or soil conditioner for your flower beds, garden or landscape beds. Landscaping companies and citizens without yard waste pickup service, must collect yard waste and dispose of it at vegetative processing facilities located throughout the County. Yard waste should not be put in the trash because it is banned from the County Landfill.

Please do your part to protect our waterways. Dispose of yard waste properly. It's actually very simple and can make a positive difference for water quality, for wildlife and for us. Remember, you are the solution to storm water pollution. If you would like more information about yard waste disposal, please contact the City of Wilmington Solid Waste Management at 790-2376 or Storm Water Services at 343-4777.