The Resource

A Publication of the City of North Augusta
Stormwater Management Department

Update on USC Aiken's Research in North Augusta

River Club Wetlands Remove Pollutants from Stormwater

by Michele Harmon, PhD

Wetlands located at the River Club Golf Course

When rainwater runs off lawns and pavement into storm drains, it flows into small streams that eventually flow to the nearest river without any type of treatment. This water carries sediment and contaminants such as motor oil, dissolved metals, pesticides, and fertilizers that get picked up along the way. This is called non-point source runoff because it is impossible to locate the specific source of each contaminant. It is important to remember that each lawn, every car, and each bit of pavement contribute to the contamination. So, as towns like North Augusta grow and prosper, non-point source runoff becomes a major concern with regard to the health of the local river.

Through our research at USC Aiken, we are attempting to determine some of the impacts of non-point source runoff as it flows through town and into the Savannah River. Over the past several months, we have been researching the stream system in the Waterworks Basin of North Augusta. This series of small, constantly-flowing streams runs from the area behind North Augusta Plaza, through Waterworks Park, under East Buena Vista Avenue, through The River Club golf course, and finally, into the Savannah River. During clear weather these are shallow, clear streams. However, during periods of rain, they become muddy and deep as rain water pours through storm drains located in this part of the city. During the heaviest rains, this stream system can even overflow and flood East Buena Vista Avenue.

A first step in our research was to characterize this stream system during times when it was not raining. We were particularly interested in how The River Club golf course wetlands changed the quality of these streams as they flowed through.

When building The River Club, designers decided to preserve the outstanding wetland that can be seen from the 13th Street Bridge. While this wetland adds an element of beauty to the area, it also provides a natural filtering system for the water that flows through on its way to the river.

Although it is still early in our study, we have already determined that the wetland reduces the concentration of nitrate (probably from fertilizers) in the stream as it runs through the wetland. The nitrate concentration gets lower and lower as it goes through the wetland system. In the coming months we will attempt to determine the amount of other contaminants, particularly oil and pesticides, that are being filtered by this wetland during periods of rain.

EPA and SC DHEC Tour

North Augusta's Constructed Wetlands Project

In late 2006, South Carolina's Watershed Manager, Craig Hesterlee, of the Environmental Protection Agency, and Savannah Basin Watershed Coordinator Richelle Tolton, of South Carolina Department of Health and Environmental Control, toured the constructed wetlands ecological park project that is underway near Hammond's Ferry *(The Resource, Fall 2006)*. Dr. Gene Eidson and staff of the Southeastern Natural Sciences Academy, Bobby Bagwell of Hammonds Ferry, and city stormwater personnel led the tour and explained the plans for the nature park.

Hesterlee commented that this is exactly the type of project that merits national attention due to the partnerships and cooperation between municipal and private entities that ultimately benefit the entire community and natural ecosystem.

Following the tour, Hesterlee met with local officials and presented information at the "Middle Savannah Watershed Outreach and Partnership Meeting". Future editions of *The Resource* will include updates of the project as it develops. For more information about the project, visit our website for prior editions of *The Resource* at: *www.northaugusta.net.*

Dr. Gene Eidson describes constructed wetlands project to Craig Hesterlee.

Species Profile

Ring-Necked Duck *(Aythya collaris)*

South Carolina and other southeastern states provide winter habitat to at least 50 percent of the waterfowl in the Atlantic Flyway (see map). Among these is the ring-necked duck *(Aythya collaris)*. These diving ducks have been seen in several wetlands and ponds in North Augusta.

Ring-necked ducks are freshwater birds that gather in small flocks in migration and winter in lakes, ponds, swamps, and smaller rivers. They migrate to our area in the fall from Canada and the northern United States. They begin returning to their breeding grounds in February and March. Ring-necks sometimes flock with other types of diving ducks. This duck is strong and fast and can take flight directly from the water without a running start.

Although named for the buff colored ring around their neck, the ring is not always easy to see. An easier marking to see is the white ring around the end of the black-tipped bill. The yellow-eyed male has a large body and his head, neck and breast are shiny black. The flanks of the male are gray. There is a white crescent that separates the flanks from the breast. The female has tan sides, a brown back and a white belly. Her bill ring is less pronounced than the male and she has brown eyes.

Ring-neck ducks favor heavily vegetated shallow water. They feed by diving for plant seeds and roots, mollusks, and insects. The ducks are silent most of the time, but the male gives a quiet whistling during breeding season. Ring-necks breed across most of Canada and in parts of the western United States.

The nests of the Ring-necked duck are built on floating islands or in open marshes. The males and females are usually in separate groups until mating season. The female selects the area to build a nest. The male just stands by the female, but does not participate in the work. The female starts laying her eggs during the month of May. The female typically lays 8 to 10 eggs and incubates them for 25 to 29 days. Twelve to 24 hours after the ducklings hatch, they head to the water where they feed themselves. The female tends the young, and may continue to brood them at night for some time.

If you would like to learn more about birds and waterfowl that use North Augusta streams and wetlands, visit our website at: *www.northaugusta.net* and follow the stormwater links.

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Ring-necked duck (male)

UPCOMING EVENTS!

KIDS EARTH DAY

Join us for our
Kids Earth Day 2007 on
Saturday, April 21 from
10 a.m. - 2 p.m.
at Lions Memorial Field.
For more information contact
803-441-4224.

Stormwater Design Engineering Workshop

March 29, 2007 from 9 a.m. – 4 p.m.

Dr. Nadim Aziz, Chair of Clemson University's Civil Engineering Department, will be presenting a full day of information to local design engineers and developers on stormwater best management practices, stormwater calculations for South Carolina, pollutant loading and transport, sediment and erosion control, and overall stormwater management design. The cost for the workshop is $20.00. For more information contact Tanya Strickland at 803-441-4246 or email stormwater@northaugusta.net.

For additional information contact:

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North Augusta
South Carolina's Riverfront