

## Saddle Up!

The N.C. Division of Parks and Recreation's first equestrian center was dedicated at South Mountains State Park in 2001. The 12-acre facility offers a 4,800 square foot stable surrounded by 15 campsites and opens onto 29 miles of bridle trails. In 2008, the division updated its master plan for the state's largest park, which calls for upgrading the popular equestrian center and trail system.



*The equestrian facility at South Mountains State Park. N.C. Division of Parks and Recreation.*



## A Greenway Explosion

Hiking, walking and jogging along greenway trails have emerged as popular activities in North Carolina. Many communities consider trail systems as a "must-have" component. The State Trails Program within the Division of Parks and Recreation is a clearinghouse for ideas and a conduit for state and federal grant money for trail projects.

Since 2000, more than \$10 million has been awarded to government agencies and nonprofit organizations for trail and greenway projects through the federal Recreational Trails Program, which is administered through the State Trails Program in North Carolina. In addition, in the past eight years the Department of Environment and Natural Resources has awarded 264 Adopt-A-Trail grants. State trails specialists have also been working with local governments to coordinate greenway and trail systems as well as advise on land acquisition, construction and grant efforts.



## Places to Hike, Bike and Paddle

The N.C. Office of Environmental Education has been producing the Discover North Carolina's River Basins booklet and brochures on each of the state's 17 river basins since 2001. While these materials have been extremely popular, especially among teachers, the office wanted to reach more of the adult population in North Carolina. As part of this endeavor, the 2007 updated version of the river basin brochures included a new page with information on where people could hike, bike and paddle in each basin.

**BROAD RIVER BASIN**

The scenery and natural heritage of the Broad River Basin have captivated tourists and ecologists alike. Hollywood even memorialized some of these places on the big screen, including in battle scenes filmed for the 1992 movie "Last of the Mohicans" at the 404-foot Hickory Nut Falls.

The Broad River originates in the mountains of western North Carolina and flows southeast through the foothills and Piedmont before entering South Carolina. Major tributaries include the Green, First Broad, Second Broad and North Paolet rivers. There are also four major man-made lakes, including the popular tourist destination Lake Lure, which was built in 1926 to supply electricity. Other reservoirs include Lake Adger and Kings Mountain Reservoir, also known as Moss Lake. Municipalities in the basin include Forest City, Kings Mountain, Chimney Rock Village, Lake Lure, Rutherfordton, Shelby and Spindale.

Some of the best-known natural beauties of the basin are Hickory Nut Gorge, Chimney Rock Park and Lake Lure. Perhaps lesser known is the incredible diversity of flora and fauna within the basin. The Broad River Basin shelters 111 rare animal and plant species, including the bog turtle, which is federally listed as a threatened species. The green salamander, a state-listed endangered species; mole salamander; and crevice salamander also are among the basin's rare

**profile:**  
 Total miles of streams and rivers: 1,513  
 Total acres of lakes: 1,954  
 Municipalities within basin: 27  
 Counties within basin: 8  
 Size: 1,513 square miles  
 Population: 342,282 (2000 U.S. Census)

Big turtle

Big Bradley Falls (left)  
 Broad River (below)

The new brochures were promoted through outdoor retailers including camping stores, canoe/kayak stores and biking stores. This avenue not only increased the awareness of the general public as to their ecological whereabouts, but also helped promote the connection between health and environmental education, which is a focus of the Office of Environmental Education. This initiative fit very well into the office's Informed Consumer Initiative, which highlights some of the environmental impacts of our consumer choices and how these choices affect one's ecological address and help determine one's ecological footprint.

*Updated river basin brochures let people know where they can hike, bike and paddle in each basin.*



*Paddling the Bogue Sound with an aquarium educator. Claire Aubel, N.C. Aquariums.*



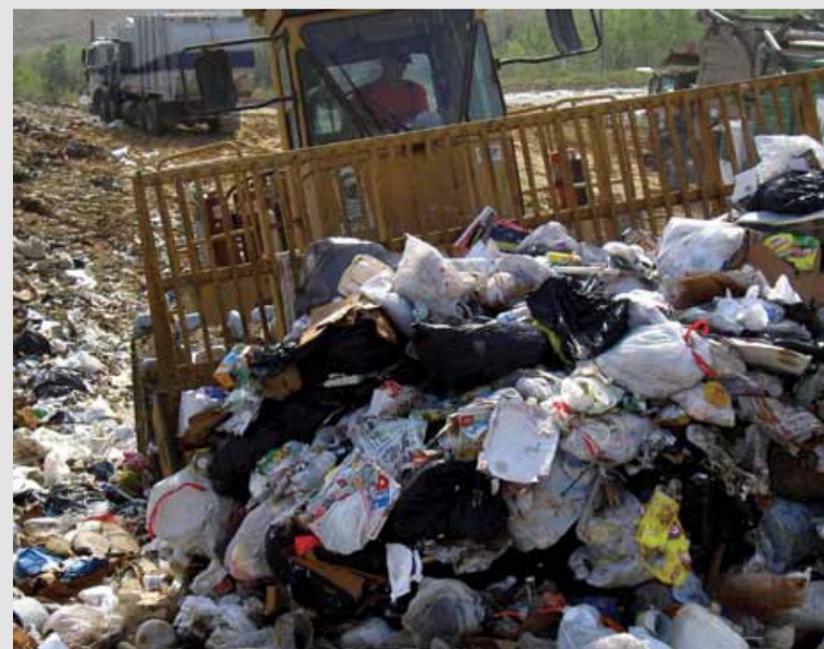
# Waste Not Want Not

Many producers and consumers are now considering the sources of an item's raw materials. Researchers are studying and promoting alternative uses for waste products. A life-cycle assessment of the manufacturing process used to be cradle-to-grave, but now a cradle-to-cradle approach is becoming more common. The Department of Environment and Natural Resources is proud to be a part of the efforts being made to reduce waste, find innovative uses for the waste stream and educate the public about what they can do.

## Solid Waste Management Act of 2007

The Solid Waste Management Act of 2007 was the result of a year-long study of North Carolina's and other states' regulations and laws regarding solid waste. It provided major advancements in environmental protection, modernization of regulations and cleanup of old landfills. The N.C. Division of Waste Management works to ensure adherence to the rules established under the Solid Waste Management Act.

Several components of the act provide for an increased level of standards for landfill development and maintenance. Increased buffer areas around new landfills are required, and enhanced standards address leachate collection and containment and liner testing. The act also established a solid waste disposal tax of \$2 per ton to provide funding for local governments for solid waste activities and for the cleanup of old landfills. The Solid Waste Management Act of 2007 was a major step forward in protecting the citizens and environment of North Carolina.



The city of Greensboro's White Street landfill. N.C. Division of Waste Management.

## Making Recycling Cool Again

In 2004, the Division of Pollution Prevention and Environmental Assistance was running a successful recycling campaign for younger audiences, but knew that their message was not resonating with teens or the 20-something crowd. That all changed in 2005 with the creation of the RE3.org Campaign. Just look what folks have been saying about it...

"We give RE3.org t-shirts out at skateboarding competitions and still see kids wearing shirts around town instead of balling them up in a drawer somewhere."

Lisa Grant, Keep Onslow Beautiful

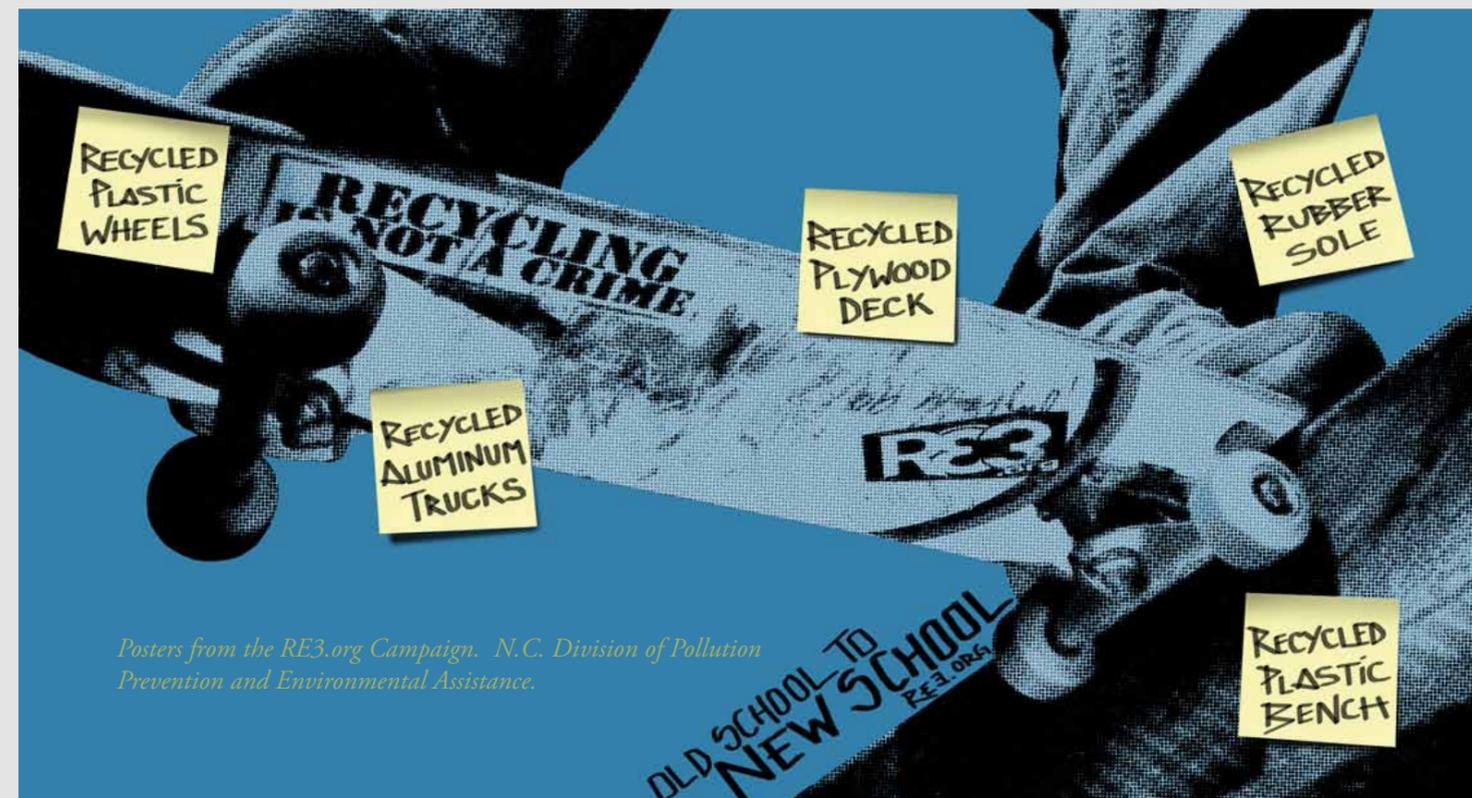
"Your RE3.org flicks are great, and they target a generation that is sometimes hard to reach. Mr. Mutton Chops is my favorite, and it's perfect to stream through college dorm TV – especially dorms equipped with trash chutes. Thanks so much for making the world of recycling sexy again!"

Jessica Sankey, Chittenden Solid Waste District

"Our Kenny poster was stolen. At first I was ticked off, but then I thought, who's ever heard of a recycling poster getting stolen? You know you rock when your free recycling poster was stolen off the wall!"

Marty Wiggins, Office of Environmental Education

The RE3.org program continues to grow. RE3.org commercials can be found on YouTube, recycling and waste management information is posted on the RE3.org blog and thousands visit the Web site each month. From 2007 to 2008, brand recognition of the RE3.org logo more than doubled. Now that's pretty cool.



Posters from the RE3.org Campaign. N.C. Division of Pollution Prevention and Environmental Assistance.

## A Greasy Situation

In 2005, the N.C. Zoological Park received a grant to partner with Piedmont Biofuels. The organizations worked together to construct a biofuel processor that produces biodiesel from vegetable oil from the zoo's five restaurants. The zoo uses this fuel to help power 20 trams and buses that transport visitors around the zoo, as well as equipment that is used to maintain the park.

*A worker mixes a batch of biofuel, now used in all diesel vehicles at the N.C. Zoo. N.C. Zoo photo.*



## Recycling Across Borders

In 2003, the Albemarle-Pamlico National Estuary Program partnered with the Cooperative Extension Service, local Soil and Water Conservation Districts, three Resource Conservation & Development Councils and the Virginia Department of Conservation and Recreation to help farmers deal with used oil. Prior to the project, used oil from farm equipment was often stored for long periods in steel drums, plastic buckets or dumped on the ground. Containers would leak and oil was contaminating the ground and surface waters.

The partners worked to provide farmers with used oil recycling tanks that would not leak and could easily be collected by commercial oil recyclers. In a little more than a year after beginning the project, 29,805 gallons of used oil had been picked up for recycling from farms in the Chowan River Basin of North Carolina and Virginia. This program is now self-running, requiring no further input of public funds.

*A North Carolina farm. N.C. Division of Soil and Water Conservation*



*Waste Reduction Partners staff Dave Lowles and small business owner Renee Fisher show off recycled demonstration floor made with recycled wood pallets at the Grove Arcade in Asheville. N.C. Division of Pollution Prevention and Environmental Assistance.*

## Partnering to Reduce Waste

The Waste Reduction Partners program became part of the Department of Environment and Natural Resources in 2000 when the Division of Pollution Prevention and Environmental Assistance partnered with the Land-of-Sky Regional Council of Government in the western part of the state. The council had a "retired engineers" technical assistance program called Waste Reduction Partners that they were looking for someone to manage. The division had limited staffing and no regional presence in western North Carolina. It was a win-win scenario.

"The Waste Reduction Partners program engages the talents and 'brain power' of the state's growing baby-boomer demographics for both economic and environmental benefits," said Terry Albrecht, director of the program in western North Carolina. Through the program, retired engineers, scientists and architects provide pro bono technical surveys for business, industry and public institutions on ways to reduce energy use, conserve water and promote waste reduction strategies.

Since being incorporated into the department, the program has provided more than 115,000 hours of technical assistance to 830 agencies in 37 western counties. 168,000 tons of waste have been kept out of the landfill, 220,000 gallons of water per year have been saved and energy use has been lowered by 73,000 mega-watt hours. This successful program is now being started in the eastern part of the state through the Triangle J Council of Governments with funding from the State Energy Office.

## A Toast to Recycling

Beginning Jan. 1, 2008, the state required Alcoholic Beverage Control permit holders who sell their products for on-premises consumption to separate, store and recycle all recyclable beverage containers. The Division of Pollution Prevention and Environmental Assistance conducted and participated in workshops across the state to provide technical assistance to these bars and restaurants.

*Bars in North Carolina are now required to recycle. Photo courtesy of Owens-Illinois.*



There are groups of people in the Department of Environment and Natural Resources that aren't like most of us. They are the men and women who can include dropping 500 gallons of water at a time from an airtanker onto a forest fire a "normal" part of their job. They are the people who are contacted when threats are made that involve nuclear devices. They are the people who arrive on the scene first after a chemical plant explosion. They are the DENR risk-takers...

# The DENR Risk-takers



*A Division of Forest Resources single engine air tanker makes a drop on a fire in Bladen County. Amery Wells, N.C. Division of Forest Resources.*

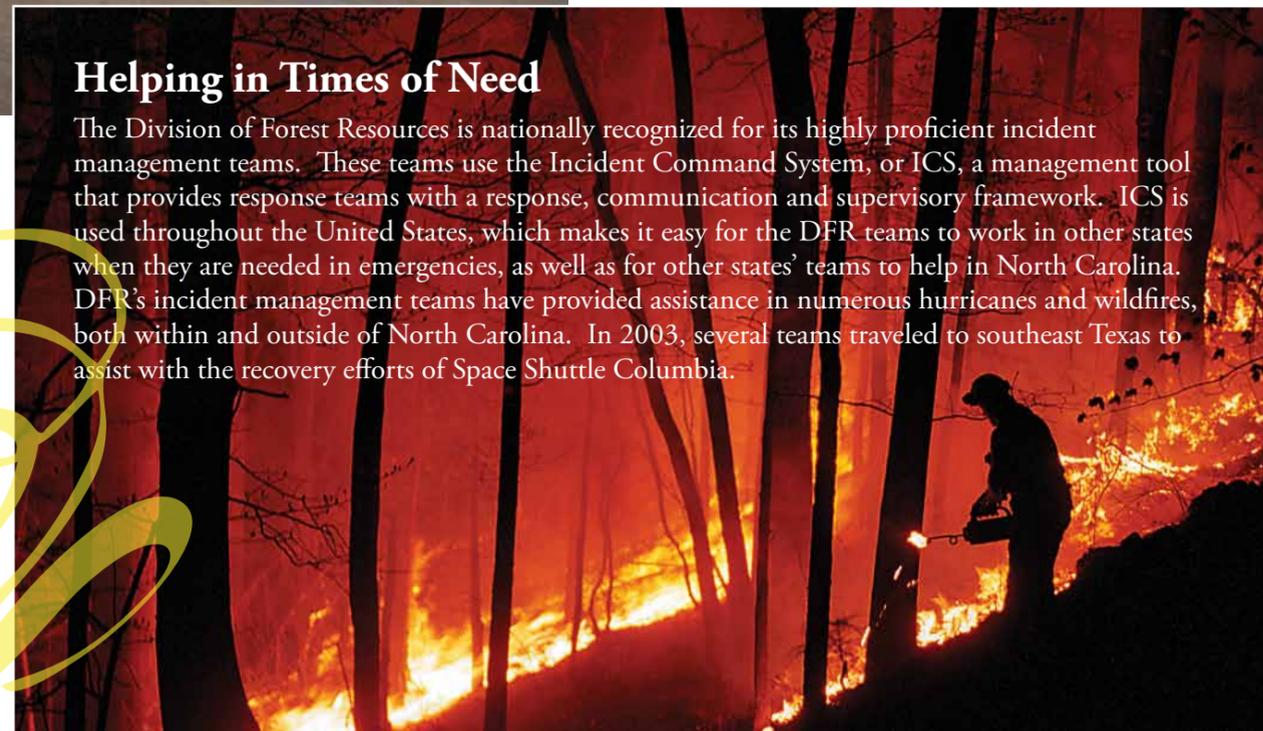


*Smoke from the Evans Road fire shrouds the Raleigh skyline. N.C. Division of Forest Resources.*

## Helping in Times of Need

The Division of Forest Resources is nationally recognized for its highly proficient incident management teams. These teams use the Incident Command System, or ICS, a management tool that provides response teams with a response, communication and supervisory framework. ICS is used throughout the United States, which makes it easy for the DFR teams to work in other states when they are needed in emergencies, as well as for other states' teams to help in North Carolina. DFR's incident management teams have provided assistance in numerous hurricanes and wildfires, both within and outside of North Carolina. In 2003, several teams traveled to southeast Texas to assist with the recovery efforts of Space Shuttle Columbia.

*Back fire being lit on the Summit Ridge fire in Wilkes County in 2007. Jody Brady, N.C. Division of Forest Resources.*



## Code Purple

If you're a member of the Division of Air Quality's air toxics team, you have to keep your pager and cell phone handy at all times. These are the folks who are called upon when there is an emergency that causes major air pollution problems. It was this team that was contacted at midnight when the EQ hazardous waste facility exploded in Apex in 2006. By daybreak, a network of air quality monitors had been set up surrounding the plant and samples of chemical deposition had been collected.

The air toxics team was also there to help during the Evans Road fire in the summer of 2008, which destroyed thousands of acres in Hyde, Washington and Tyrrell counties. According to Lori Cherry, who headed up the team, even seasoned staff members were surprised at the pollution levels that were being measured. The team had set up mobile air quality monitors surrounding the fire, and they were measuring particle levels 30 to 60 times the 24-hour standard. This prompted the first ever Code Purple air quality advisory warning to be issued by the central office.

## Nuclear Knowhow

On Feb. 19, 2008, at 7:15 p.m., Lee Cox's cell phone started ringing. Cox was the N.C. Radioactive Material Branch Manager in the Division of Environmental Health. When his phone rings after hours, it usually means that he has a long night ahead of him. It definitely did on that night. One of his partners was calling to tell him that an individual had called a local television station in Wilmington and stated that there was a nuclear device that was going to explode at the port of Wilmington at 3 p.m. the following day.

The Radiation Protection Section had spent a considerable amount of time since Sept. 11, 2001, forming what they call "response relationships." This definitely helped Cox respond to the incident he had at hand. He immediately began getting in touch with his contacts. "In our business," says Cox, "it takes this entire network to be successful."

By 12:30 a.m. Cox was at the Wilmington Port along with Grant Mills, the incident coordinator for the Division of Environmental Health's Radiation Protection Section, as well as members of the U.S. Coast Guard and U.S. Customs and Border Protection. In less than 30 minutes, Cox and Mills were each leading a team. Using radiation detection equipment, both teams conducted sweeps until every container and all grounds at the port had been subjected to radiation surveys. At 6:30 a.m., a briefing was held at the offices of the U.S. Coast Guard to report that no evidence was found of a nuclear device or bomb containing radioactive material. The 3 p.m. hour passed that day without incident.

As with any incident to which the Radiation Protection Team responds, extremely detailed reports were recorded. There is one thing, however, that Cox says did not end up in the report. "Secretary Ross called me on my cell phone while we were still surveying the port the day the detonation was threatened. While immediately giving him an update on our monitoring, he interrupted me and asked how Grant and I were doing. At that moment, I remembered why I worked at DENR. It's because of the leadership."



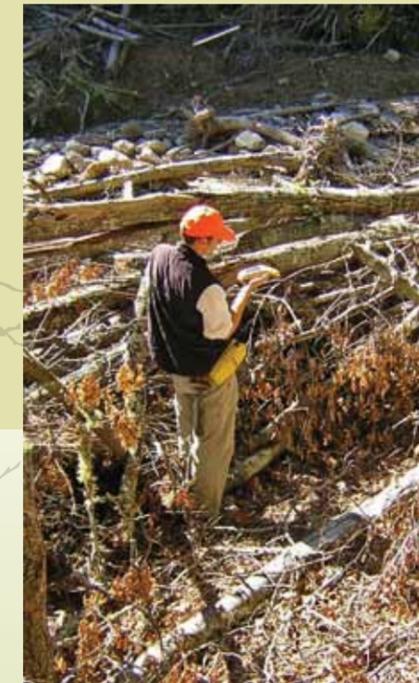
*The Radiation Protection Section in action while conducting radiation surveys during the clean-up phase of a transportation incident. Patrick Cox, N.C. Division of Environmental Health.*

## Team Slide

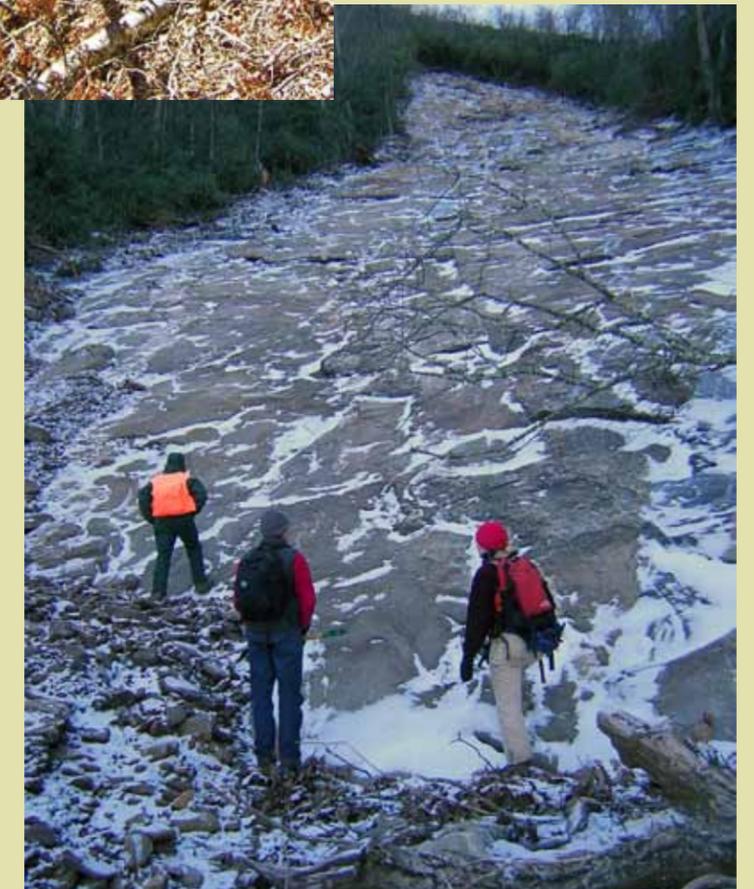
The N.C. Geological Survey's landslide hazard mapping team, known as "Team Slide," was formed as a result of the Hurricane Recovery Act of 2005. Seven geologists based in Asheville make up the team, and they all lend a wealth of knowledge and experience to their task of creating maps that show where landslides have occurred in the past and where they are likely to occur again. Their story is one of hard work – climbing mountains and unraveling the clues recorded in the ancient rock and landslide deposits. It is a story of research – looking for the answers of where landslides have happened in the past, because that is where they are likely to happen again. It is a story of working with other people – emergency managers, public leaders, scientists and landowners. It is a story of saving lives.



*Team Slide members Tommy Douglas and Jennifer Bauer collect soil permeability data at a landslide site in Macon County.*



*Stephen Fuemmeler, a member of Team Slide, collect information about the debris left behind from the landslide at Peeks Creek in Macon County. The pile of trees and boulders seen here were deposited when a debris flow moved through this area.*



*Rebecca Latham, a member of Team Slide, stands with Chip Smith of the Natural Resources Conservation Service and Dan Manning of the U.S. Forest Service on Fishhawk Mountain. The bare rock they are looking at was exposed when the soil and trees slid down the side of the mountain following heavy rainfall from remnants of Hurricane Ivan.*

# The Enforcers – Strong, Fair, Effective

Ideally, environmental regulation and enforcement would not be necessary. It would be replaced by environmental stewardship, through which everyone would take responsibility for their actions, use resources sustainably and have the greater community in mind. We all know that this ideal scenario is often not the reality. Whether due to an issue of capabilities, priorities, values or perspectives, environmental stewardship is not always adopted.

In the environmental regulation and enforcement system, the environment and North Carolina's citizens are represented by six separate yet equally important divisions.



*Billboard produced by the N.C. Division of Air Quality to educate the public about open burning.*

*These are their stories...*

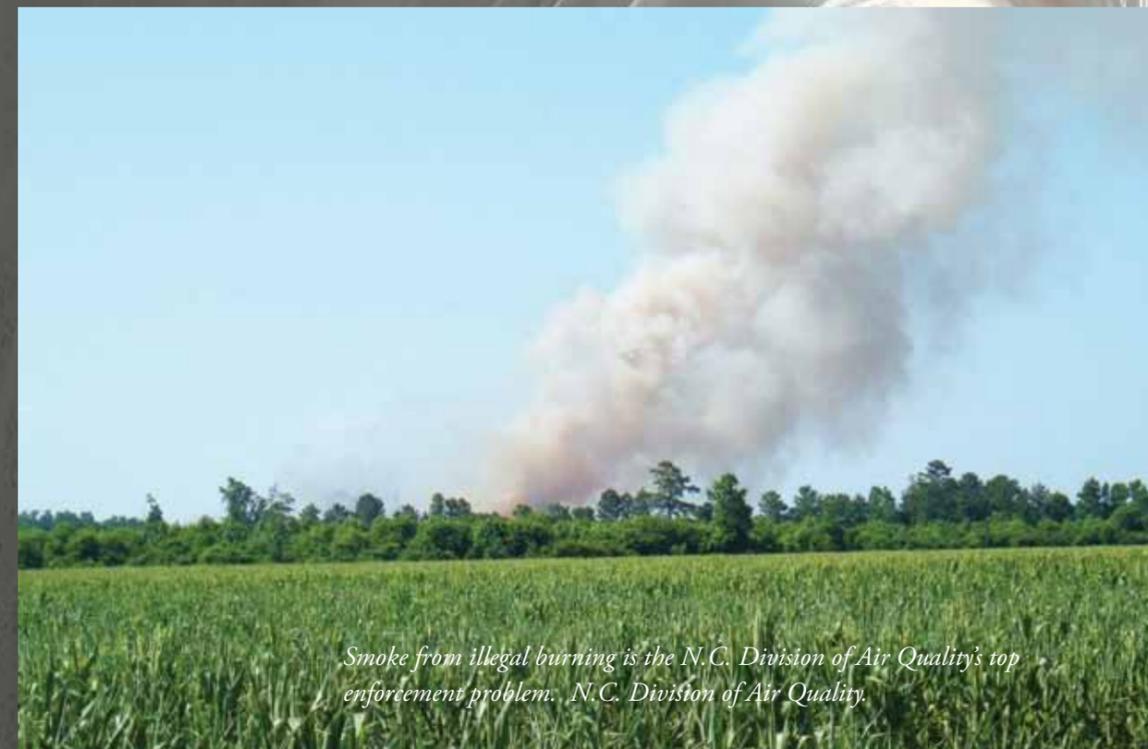
## Law & Order

In the largest civil penalty ever assessed for an open burning case in North Carolina, a Wake County contractor was fined more than \$78,000 in July 2002. The violator contested the case, and the penalty was ultimately settled for \$23,432. "We consider open burning violations to be serious because smoke from illegal fires is unhealthy to breathe, particularly for people with respiratory problems, and it harms the environment," said Keith Overcash, director of the Division of Air Quality. The U.S. Environmental Protection Agency found that backyard burning of trash is actually the largest source of highly toxic dioxin emissions.

The Wake County violator was fined for burning tires, a motorcycle, building materials, metal sheeting and pipes, bedsprings, wire and other non-permissible items in 2001 near Garner. Under the N.C. Open Burning Rule, the Division of Air Quality can assess fines as high as \$25,000 per violation. Larger fines can be assessed in cases involving repeat violations and for people who knowingly break the law. The higher-than-usual fine in this case was assessed because the contractor had already been fined five times for open burning violations since 1997.



*Open burning often contains tires, trash and other man-made materials that are illegal to burn in North Carolina. N.C. Division of Air Quality.*



*Smoke from illegal burning is the N.C. Division of Air Quality's top enforcement problem. N.C. Division of Air Quality.*

## The Northeast Interceptor

On July 1, 2005, just before a major holiday beach weekend, a sewer line pipe coupling along Hewlett's Creek in Wilmington failed, sending an estimated three million gallons of untreated wastewater into the creek. The sewage traveled down the creek to Masonboro Inlet and into Masonboro Sound. Shellfish beds were closed, and the public was warned against swimming in Hewlett's Creek. This was seen by many as the last straw in a long line of issues with this section of sewer line known as the Northeast Interceptor.

The Division of Water Quality fined the city of Wilmington just over \$51,000 in civil penalties and investigative costs. In addition, a moratorium was issued that limited sewage flow allocations that the city could make available to business and residential development. Finally, the city's local officials responded, entering into an official agreement with the Division of Water Quality in which they committed to fixing the problems along Hewlett's Creek. In 2008, repairs and upgrades made by the city of Wilmington resulted in the moratorium being lifted.



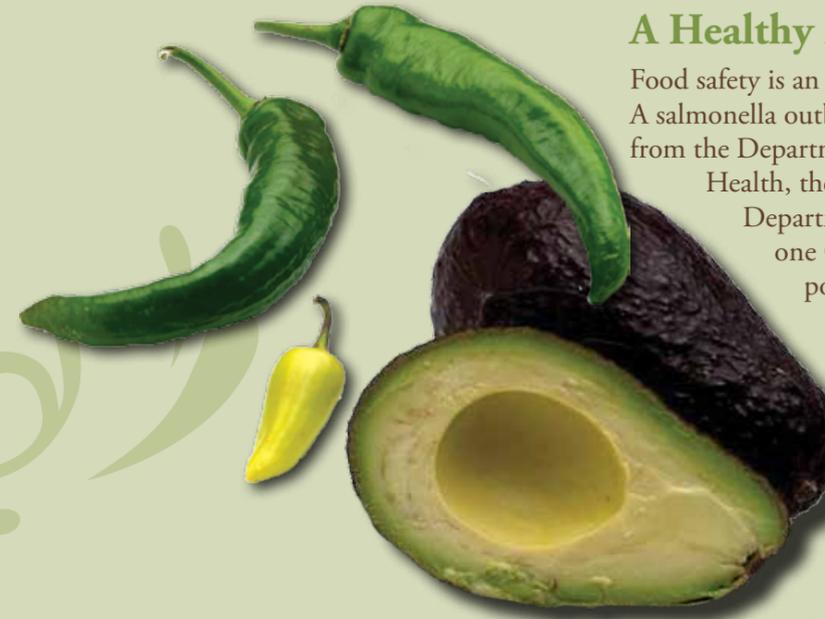
*Hewlett's Creek pump station following the sewer line failure. N.C. Division of Water Quality.*



*Pipe separation at Hewlett's Creek. N.C. Division of Water Quality.*

## A Healthy Enforcement Strategy

Food safety is an issue that involves many departments in the state government system. A salmonella outbreak in Mecklenburg County in 2008 resulted in immediate action from the Department of Environment and Natural Resources' Division of Environmental Health, the N.C. Department of Agriculture and Consumer Services and the N.C. Department of Health and Human Services. NCDA&CS samples found one Charlotte distributor with avocados and jalapeño peppers that tested positive for salmonella. Division of Environmental Health staff were able to identify those food service establishments that had purchased avocados or jalapenos from the implicated distributor, and in a two-day period they had investigated 72 establishments. Several cases of potentially contaminated produce were disposed of to protect the health of North Carolina's citizens.



## Two Divisions, One Vision

The Division of Land Resources and the Division of Water Quality are both charged with the responsibility of protecting North Carolina's water quality. While they share this common goal, their authority to regulate comes from different places. The Division of Water Quality gets its authority from the Federal Clean Water Act and other related state statutes and rules dealing with wastewater discharge, turbidity and stormwater. The Division of Land Resources gets its regulatory authority from the state Mining Act of 1971 and the Sedimentation Pollution Control Act of 1972.

In order to avoid the appearance of double jeopardy on enforcement of the same violation and make the best use of regulatory tools to stop violations and restore damaged wetlands and streams, the two divisions have regularly met to discuss enforcement cases and decide what will be most effective for the case in question. Since the ultimate goal of enforcement is the conservation and protection of North Carolina's natural resources, the divisions of Land Quality and Water Quality work together to determine which division can best work towards that goal in a given situation.

The teamwork in the Winston-Salem Regional Office is noteworthy for its successes. This region's teamwork has led to the restoration of nearly 12 miles of stream. Through communication of project status and inspection efforts and coordination of enforcement efforts, the two divisions have efficiently and effectively used their regulatory authority to accomplish more together than either could have done alone.



*Stream restoration project sites in Wilkes County that resulted from the teamwork in the Winston-Salem Regional Office. N.C. Division of Water Quality.*

## CAMAraderie

The Coastal Area Management Act, or CAMA, requires permits for development in North Carolina's 20 coastal areas if planned within an Area of Environmental Concern. Areas of Environmental Concern are those of natural importance that are susceptible to flooding or erosion or have environmental, economic, social or aesthetic value to our state. Realizing the importance of protecting North Carolina's coastal resources, in 2006 Gov. Easley and the General Assembly provided the Division of Coastal Management more resources to enforce CAMA.

A staff person was added to each of the Division of Coastal Management's four district offices to focus on compliance and enforcement of CAMA rules. "This should help to prevent violations from occurring since staff will be able to provide oversight of projects as they are being constructed," said Roy Brownlow, compliance coordinator for the division. In addition to increased staff, the General Assembly authorized the Coastal Resources Commission to increase civil penalties for CAMA infractions. This increase became effective in 2008, and was the first increase for CAMA penalties since 1983. It is hoped that stiffer penalties will reduce the number of violations and give the division a way to recoup some of the costs associated with investigating violations.



*Using sandbags for temporary erosion control requires a CAMA permit.  
N.C. Division of Coastal Management.*



*Cleanup activities at the EQ site. N.C. Division of Waste Management.*

### Keeping Hazardous Waste in its Place

The evening of Oct. 5, 2006, will not soon be forgotten by residents of Apex, first responders or the Department of Environment and Natural Resources. It was on that night that an explosion and fire at the Environmental Quality (EQ) North Carolina commercial hazardous waste facility led to the evacuation of thousands of Apex citizens, weeks of environmental cleanup and months of investigation.

In the year following the EQ fire, much was done to ensure that such an incident would not happen again. The Division of Waste Management announced that EQ North Carolina would relinquish its hazardous waste facility permit and not restart operations in Apex. Through a settlement agreement, EQ agreed to pay more than \$400,000 in penalties, fees and reimbursements to the state.

In response to the incident, Gov. Easley appointed a Hazardous Materials Task Force to study related issues and facilitate the strengthening of rules governing commercial hazardous waste facilities in North Carolina. The recommendations of the task force led to the passage of a bill improving the oversight of hazardous waste facilities by requiring them to provide more information to state and local governments, making information on the facilities and their contents more readily available, enhancing financial requirements and strengthening regulations.