



N.C. Department of Environment and Natural Resources

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North Carolina's Environment in 2008 – The Year in Review

RALEIGH – *To assist reporters with year-in-review stories, the N.C. Department of Environment and Natural Resources has compiled its annual list of environmental accomplishments.*

Drought Response

As North Carolina confronted its worst drought on record, Gov. Mike Easley, the department and a host of partners worked on ways to more effectively respond to this and future droughts.

Gov. Easley appeared in television and radio commercials as part of a drought education campaign asking residents to conserve water. The governor also unveiled a Web site, www.savewaternc.org, as part of the ongoing effort to educate people about water conservation. The Web site, developed by the departments of Environment and Natural Resources and Crime Control and Public Safety, includes conservation tips for specific audiences and interactive tools such as water conservation calculators so people can figure how much water they are saving.

In June, DENR's Division of Environmental Health awarded \$10 million in low interest loans to three public water system projects to help them prepare for drought-related emergencies.

Easley requested legislation to improve drought response and encourage better water supply planning, conservation and cooperation. The new law, enacted by the General Assembly in July, gives the department the authority to require local governments to adopt and enforce water conservation measures. The divisions of Water Resources, Water Quality and Pollution Prevention and Environmental Assistance have begun implementing the law; one of the first steps has been to work with water systems to meet new water shortage planning requirements.

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Land, soil and water conservation

The state parks system brought 4,647 acres of land into conservation with support from the Parks and Recreation, Clean Water Management and Natural Heritage trust funds. Also, an agreement was reached for the state to purchase 2,456 acres on Grandfather Mountain for a new state park, along with a conservation easement on 749 acres to remain in Grandfather Mountain Inc. ownership.

The General Assembly authorized two state natural areas in Avery County. The Yellow Mountain natural area will be established with an initial acquisition of 850 acres through the Southern Appalachian Highlands Conservancy. The Bear Paw natural area will be established with an initial acquisition of about 350 acres through the High Country Conservancy.

Haw River State Park was expanded by 974 acres; Jones Island was added to Hammocks Beach State Park; and a boating access area was acquired at Lake Waccamaw State Park.

A comprehensive study from the department and N.C. State University found that North Carolina's state parks contribute at least \$289 million to local economies annually and \$120 million to local residents' income.

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DENR developed a series of maps of North Carolina's natural features that will be used to help prioritize conservation funding decisions and inform land use planning efforts. The maps, known as the One N.C. Naturally Conservation Planning

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Tool, streamline the state's process of identifying and prioritizing the areas of North Carolina's landscape that are essential for conservation. Examples include areas near other environmentally-significant land under state protection, as well as farms, forests or habitat for rare plant and animal species. The maps will help North Carolinians prioritize land conservation funding decisions and enable better planning. The maps can be found at www.oneNCnaturally.org.

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The Conservation Reserve Enhancement Program was expanded so that landowners in 76 North Carolina counties are now eligible for funding. The expansion means that 28,000 more North Carolina farms are now eligible for funding. The program – a \$274 million partnership between the U.S. Department of Agriculture's Farm Service Agency and the state Division of Soil and Water Conservation – enables landowners to enroll farmland in permanent conservation easements and provides cost-sharing funds to reimburse landowners who install forested riparian buffers and other practices to protect water quality.

The Community Conservation Assistance Program – a voluntary, incentive-based program to improve water quality using best management practices on lands not directly involved in agricultural production – was launched in North Carolina and is administered by the state Division of Soil and Water Conservation. The Soil and Water Conservation Commission allocated \$175,000 in state appropriations and reallocated \$988,000 to participating districts in North Carolina.

Emergency response

Crews led by the N.C. Division of Forest Resources fought for more than three months one of the state's largest wildfires in 25 years. The Evans Road Fire started June 1 from a lightning strike in Hyde County, and was contained on Sept. 4. Dry air, high winds and deep-burning pocosin vegetation fueled the blaze, which grew to more than 40,000 acres. Crews were called in from throughout the nation to help suppress the blaze. As local and state firefighters battled the blaze, the Division of Air Quality was called in to test air quality and alert the public when to look for unhealthy air quality caused by the fire's dense smoke. Also, staff with the Division of Water Quality served in an administrative role during the fire while others tested nearby canals, lakes and rivers for increased water salinity brought on by a lack of rain and increased water usage.

Staff members with the state Division of Forest Resources constructed an emergency river crossing using a logging bridge mat after eight inches of rain from Tropical Storm Hanna washed away the only access road for 80 residents in a Moore County community. Crews installed the bridge mat overnight, replacing it a week later with a more durable portable bridge.

Protecting air quality

The Division of Air Quality and the Climate Action Plan Advisory Group completed a report that analyzes ways to reduce and mitigate greenhouse gas emissions in North Carolina. The report also evaluates the costs and economic benefits of reducing those emissions. The department and DAQ are providing staff support for the Legislative Commission on Global Climate Change as it considers climate change policy issues such as a potential state cap on greenhouse gas emissions.

In May, the Division of Air Quality and the department awarded \$800,000 in grants for projects to reduce air pollution from motor vehicles. This year's grants included projects such as retrofitting school buses with controls to curb diesel emissions and expanding biodiesel storage and distribution equipment.

Sustainability, pollution prevention, recycling and energy efficiency

The N.C. Zoo in January launched the Solar Pointe picnic pavilion, the state's largest solar power project. The zoo constructed a 104-kilowatt, 9,600 square-foot grid-tied photovoltaic solar system mounted on three picnic pavilions, thanks to help from the Carolina Solar Energy and Randolph Electric Membership Corporation. The annual production is projected to be 130,000 kilowatt-hours per year, which is enough energy to power 13 average homes.

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The Division of Pollution Prevention and Environmental Assistance launched the "2 Million by 2012" initiative to challenge local governments to improve the performance of their recycling programs by achieving an annual rate of 2 million tons of recycling through municipal and county recycling programs.

Protecting public health, water quality, wetlands and water resources

The Clean Water Management Trust Fund awarded \$121 million in grants to help purchase land to protect water quality,

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manage stormwater runoff, restore waterways and improve wastewater treatment facilities and septic systems. Key projects included land purchased in Ashe County's Big Horse Creek, Rutherford County's Hickory Nut Gorge and money to help the North Carolina aquariums design systems for rainwater collection as well as stormwater and wastewater treatment systems.

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The Division of Water Quality fined the town of Dallas \$141,123 – the division's largest-ever fine for illegal wastewater treatment practices – for improper operation and maintenance of its wastewater treatment plant resulting in discharges of poorly treated or untreated wastewater to Dallas Branch that blanketed a half-mile of the stream with inches-deep sludge.

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The Division of Environmental Health began implementing legislation requiring permitting and inspection of newly constructed drinking water wells. Under state training, technical guidance and direction, health departments statewide now issue permits for private drinking water wells, inspect well construction and sample for chemical contaminants.

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Division of Water Quality staff members identified dozens of private drinking water wells in Montgomery and Richmond counties that had been contaminated by pesticides used during previous farming activities. State officials warned people not to drink or bathe using the contaminated water and used the state's Bernard Allen Emergency Drinking Water Fund to provide bottled water to protect their health. Water quality officials are working with local officials to identify practical, long-term water sources for residents with contaminated wells.

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The state Environmental Management Commission in May approved rules to reduce the amount of nutrients that enter B. Everett Jordan Reservoir from wastewater discharges, agriculture, development and other activities. Jordan Lake has had recognized nutrient problems since 1983 and is listed as impaired because of excessive amounts of chlorophyll a, an indicator of algae growth that results from high levels of nitrogen and phosphorus. The rules – which can go into effect only after legislative review – require water quality buffers, stormwater controls and tighter limits on wastewater discharges, and also provide criteria for trading nutrient reduction requirements among different sources of nutrients to achieve the most cost-effective reductions.

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The lagoon conversion program, administered by the Division of Soil and Water Conservation, selected three swine producers to receive funding for converting existing anaerobic lagoons to innovative waste management systems. The state will award grants up to 90 percent of the cost of approved technology with a maximum of \$500,000 per applicant.

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The Ecosystem Enhancement Program continued to support responsible development in North Carolina by providing necessary mitigation of stream, wetland and water quality impacts. Since 2003, EEP has helped facilitate more than \$4.8 billion in road building without a single project delay due to a lack of mitigation. The program has fulfilled more than 3,000 mitigation requests from developers, schools, homebuilders, military bases and others in its efforts to protect, enhance and restore wetlands and waterways.

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John Dorney, a supervisor in the Division of Water Quality, received the 2008 National Wetlands Award for State, Tribal and Local Program Development. The award recognizes Dorney's development of programs that protect, restore and regulate impacts to wetlands.

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Scrap metal dealers and vehicle recyclers began complying with a new state law requiring removal of mercury-containing switches that activate hood and truck lights. The new requirements prevented 41,800 mercury switches, or about 92 pounds of mercury, from entering the environment. The switches, if not removed when the vehicle is disposed, can threaten human health and the environment by contaminating both air and water. The most recent testing at North Carolina's only recycled steel mill indicates that mercury emissions have dropped significantly since the program began.

As part of new rules aimed at eliminating illegal solid waste dumps, the Division of Waste Management cleaned up more than 100 illegal dumps statewide and began enacting penalties against offenders. The cleanup removes multiple sources of groundwater contamination and other environmental hazards.

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The N.C. Geological Survey completed a series of landslide hazard maps for Watauga County and is nearing completion on

maps for Buncombe County. The Watauga County maps are the second set of landslide maps the survey has completed since the group began the project to identify areas where landslides occurred and where they may happen in the future. The first landslide maps of Macon County were completed in 2006. The mapping project came about as a result of nearly 400 landslides in western North Carolina sparked by rain from Hurricanes Ivan and Frances. In Macon County, one of the landslides killed five people, injured two others and destroyed 15 homes. The maps are publicly available and can be used by local governments and the public to inform planning, development and emergency preparedness decisions.

The survey completed geological mapping and hazard analysis of the Blue Ridge Parkway in North Carolina. The five-year project produced geologic and geo-hazard maps with slope stability and landslide hazard analysis. This information will be used by the National Park Service for their resource and hazard assessment, education and planning programs.

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Aided by the Division of Waste Management and others, laws were enacted in 2008 that increased fees paid by owners and operators of commercial underground storage tanks. Those revenues will be used to increase the removal of leaking petroleum and other hazardous substances at underground storage tanks and meet federal inspection requirements.

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About 1,200 sites contaminated with hazardous substances such as petroleum were cleaned up to meet state standards, as a result of actions in 2008 from the Division of Waste Management.

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The Division of Water Resources is working with local governments and other water users in the Cape Fear River Basin to assess current and future water demands. The assessment should provide state and local officials with a document that can be used to guide the management of water resources in the Cape Fear basin for many years.

Coastal and fisheries protection

Water quality officials worked with state and local governments, environmental groups, developers and others to craft revisions to stormwater rules that apply to development in the state's 20 coastal counties. The new coastal stormwater rules were prompted by research showing that stormwater rules in place since the 1980s had not been effective in protecting coastal water quality, particularly in shellfish waters. The revisions require greater stormwater controls for development projects within a half-mile and draining to shellfishing waters and a new threshold for requiring engineered stormwater management in areas more than one-half mile from shellfishing waters. The state Division of Water Quality held five public workshops as the new rule took effect Oct. 1.

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For the first time since 1983, state officials increased maximum civil penalties for Coastal Area Management Act violations, state regulations aimed at minimizing the environmental impacts of coastal development. Maximum penalties for minor violations were increased from \$250 to \$1,000 and for major permit violations from \$2,500 to \$10,000. The rule change allows the division to factor in the cost the violator saved by noncompliance in determining the amount of the fine.

The Coastal Resources Commission approved changes to rules governing setbacks for oceanfront structures. The changes increase setback distances for large-scale oceanfront structures. The rules also allow for changes in the baseline for measurement of oceanfront setbacks in areas that receive ongoing, long-term and large-scale beach nourishment.

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Following a long-fought battle by the Division of Marine Fisheries, the Atlantic States Marine Fisheries Commission approved a regional management approach for spiny dogfish that allows commercial fishermen in North Carolina to catch 16 percent of the annual quota of spiny dogfish. Commercial fishermen had been disadvantaged by the spiny dogfish quota system because frequently the entire quota of spiny dogfish was caught before the fish migrated to North Carolina waters.

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In April, the Division of Marine Fisheries announced 13 sites selected for funding from a \$20 million Waterfront Access and Marine Industry Fund approved by the General Assembly in 2007. The sites were selected to provide waterfront access to a variety of user groups, including commercial and recreational fishermen, pier fishermen, recreational boaters and the marine industry. In addition, people will soon enjoy better access to public beaches and coastal waters, thanks to \$4.8 million in grants for 17 separate coastal access projects. The grants, which are administered by the Division of Coastal Management,

can be used to pay for walkways, dune crossovers, restrooms, parking areas and piers.

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Education, research and public outreach

The zoo opened the “Watani Grasslands Reserve,” an \$8.5 million renovation and expansion of the park’s elephant and rhinoceros exhibits and holding facilities. The project, which enables the zoo to expand its rhino collection from three to nine animals and its elephant herd from three to seven, also puts the zoo at the forefront of the national effort by zoos to improve the captive care and management of these two endangered species.

The N.C. Zoo became the 2008 recipient of the N.C. Sustainable Energy Champion Award presented at the N.C. Sustainable Energy Conference. The zoo was recognized for its nearly 20 years as a state leader in environmental stewardship.

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The state’s Office of Environmental Education and Department of Public Instruction launched a partnership to develop an environmental literacy plan for North Carolina that will prepare students to address the complex environmental challenges facing them in the 21st Century. The plan’s purpose is to ensure that environmental education is integrated into the school curriculum increasing the environmental literacy of our students.

Environmental educators now have more flexibility in selecting professional development workshops that meet their interests and skills, thanks to changes this year to North Carolina’s environmental education certification program. The changes align the state program with guidelines for excellence in environmental education developed by the North American Association for Environmental Education, the national professional association for environmental education.

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A groundbreaking was held in April and work began to clear land in downtown Raleigh for the Green Square Complex, a two-block, multi-use sustainable development project that will bring together most of the state’s environmental offices and an 80,000 square-foot Nature Research Center focusing on current science research. The Green Square Complex – scheduled to open to the public by 2011 – will enable DENR to promote environmental stewardship by example to the public, while providing experiential learning opportunities focused on the current scientific research and environmental issues affecting our daily lives. The complex will be a "green" building that incorporates the most current sustainable design strategies, and is being designed to cost less to operate and maintain by employing energy- and water-efficiency techniques.

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Aquarium officials at Pine Knoll Shores – which welcomed its 1 millionth visitor since reopening after a major renovation in May 2006 – awarded \$2.2 million for the design and development of a pier on Emerald Isle. In addition, Jennette’s Pier, which was built in 1939, was demolished to make way for the N.C. Aquarium Pier at Nags Head. The pier was acquired by the N.C. Aquarium Society, and then transferred to the state for development of an educational pier and water access on the former site under the direction of the Roanoke Island aquarium. To preserve a coastal tradition that weather and economics have nearly erased from the shoreline, the aquariums want to build and run three storm-resistant ocean fishing piers – one near each of the aquariums at Fort Fisher, Pine Knoll Shores and Roanoke Island.

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In 2008, the N.C. Museum of Natural Sciences welcomed nearly 750,000 visitors – making the museum one of the state’s most visited tourist attractions and North Carolina’s No. 1 field trip destination. The museum also spearheaded the second annual Take A Child Outside Week, an effort to introduce children to the outdoors as an essential part of their education.

The museum designed, built and is hosting an exhibition of “The Dead Sea Scrolls,” widely acknowledged as the most remarkable archeological discovery of the 20th century. The scrolls, which are more than 2,000 years old, include the oldest surviving manuscripts of the Hebrew Bible, or Christian Old Testament.

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Dr. Barry Engber, who works in the Division of Environmental Health, was one of a team of scientists who investigated the occurrence of a previously unrecognized human disease in Chatham County. The disease-causing organism, known as *Rickettsia amblyommii*, was isolated from ticks previously thought to carry few pathogens.

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The Center for Geographic Information and Analysis created the N.C. OneMap Ortho Server (www.nconemap.gov) in response to a need for digital aerial photography that can be used by the public, government agencies, schools and colleges.

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