

THE NORTH CAROLINA ENVIRONMENTAL EDUCATION PLAN



Special thanks to all the environmental educators and organizations that contributed to the North Carolina Environmental Education Plan.

The North Carolina Environmental Education Plan, Third Edition, was developed by the North Carolina Office of Environmental Education in partnership with the North Carolina Environmental Education Advisory Council.

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The North Carolina Environmental Education Plan

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Foreword

Environmental education is a resource that transcends the classroom—both in character and scope. Regardless of where, how or to whom it's provided, the end goal is the same: environmental literacy. More than ever, children and adults need to know how ecological systems work and why they matter. Some people have become so disconnected from the natural resources that sustain them, they don't know where their food comes from or where they get their drinking water. People require knowledge, tools and sensitivity to successfully address and solve environmental problems in their daily lives. The health of the environment is inseparable from humans' well-being and economic prosperity.

Environmental education is a lifelong process for the learner. Those who provide environmental education in classrooms and who serve the public at parks, museums and nature centers are a powerful presence in North Carolina. The state has long been recognized as a leader in the field of environmental education, and we want to continue that legacy. By supporting environmental educators in North Carolina, we can multiply efforts to help young people and adults understand their connection to the world around them.

We continually seek the most efficient, effective ways to deliver knowledge and to inspire academic excellence. What you hold in your hands is the guiding instrument for the tremendous strides North Carolina is making in service to environmental education. It is also the blueprint for forward progress.

“We often forget that all education is environmental education - by what we include or exclude, we teach the young that they are part of or apart from the natural world.

An economist, for example, who fails to connect our economic life with that of ecosystems and the biosphere has taught an environmental lesson all right, but one that is dead wrong. Our goal as educators ought to be to help students understand their implicatedness in the world and to honor mystery.”

- Dr. David Orr



Acknowledgements

The North Carolina Environmental Education Plan Third Edition was made possible through the work of the N.C. Environmental Education Council and through contributions from dedicated environmental education professionals throughout the state. The Council worked tirelessly with the staff of the N.C. Office of Environmental Education to draft the plan. The draft plan was reviewed by key environmental education stakeholders, including Environmental Educators of North Carolina, the N.C. Environmental Education Fund, the N.C. Department of Public Instruction and the North American Association for Environmental Education. The Office also provided the broader environmental education community the opportunity to review the plan and to provide input. The new edition recommends statewide goals for environmental education and identifies areas that need strengthening. It describes strategies to improve environmental literacy and gives people tools for making informed decisions about environmental challenges in North Carolina. The Office would like to thank Council members who provided their time and expertise to help develop the plan.

The North Carolina Environmental Education Advisory Council

The N.C. Environmental Education Advisory Council is made up of representatives from the academic, business, cultural arts and environmental communities. The council advises, consults with and makes recommendations to the N.C. Office of Environmental Education on the programs and policies of the office. The council also advises the office on its educational efforts and strategic direction and updates the office on trends in education, government, business and the nonprofit sector. The office works closely with council members to determine how it can effectively provide quality environmental education programs and materials that improve academic achievement and increase environmental literacy among the state's citizens. For more information on the council and its members, visit www.eenorthcarolina.org.

Introduction

The N.C. Office of Environmental Education published the first N.C. Environmental Education Plan in 1995 following an 18-month process that included a statewide conference and regional meetings. However, the roots of the plan date back to the 1973 Environmental Education Act, the resulting 1974 Master Plan for Environmental Education and the 1993 North Carolina Environmental Education Act. The plan provides goals and objectives for environmental education in North Carolina and strategies for reaching those goals.

The 1995 Environmental Education Plan allowed the state's environmental education community to provide input in defining and interpreting the legislated mission of the N.C. Office of Environmental Education and the overall direction of environmental education in North Carolina. The plan outlined a broad, long-range vision, and it has performed extremely well as a guiding framework for the office and other environmental educators in North Carolina. In 1999, minor edits were made to a Second Edition of the plan, and photographs were added.

In fall 2006, members of the N.C. Environmental Education Advisory Council began the process of drafting the Third Edition of the Environmental Education Plan. The council met over the next 16 months to develop a draft plan. Though the third edition retains the core goals and definition of environmental education reflected in the 1995 Environmental Education Plan, the plan is enhanced by the perspectives and ideas of a broader selection of academic, environmental, cultural arts, business and agricultural contributors. The result is an effective guidebook for environmental education in the 21st century.

The Case for Environmental Education

In the classroom and beyond, the desired outcome of environmental education is environmental literacy.¹ People who are environmentally literate understand how natural systems function and how humans and the environment are intertwined. To that end, environmental education strives to provide learners with sound scientific information and the vital skills of problem-solving, critical thinking and decision-making. At one time or another, individuals will be compelled to address and solve complex environmental problems affecting the economy, public health or shared natural resources. Environmental education provides the necessary tools.

The National Science Foundation's Advisory Committee for Environmental Research and Education noted that "in the coming decades, the public will more frequently be called upon to understand complex environmental issues, assess risk, evaluate proposed environmental plans and understand how individual decisions affect the environment at local and global scales. Creating a scientifically informed citizenry requires a concerted, systematic approach to environmental education."²

For Children and Students

In the PreK-12 classroom, environmental education takes its cue from children's natural curiosity about animals, plants and other elements of nature. Teachers report that environmental education captures their students' attention more readily than many other topics. In addition, environmental education has consistently engaged students who are hardest to reach.³ Its value is not limited to students—environmental education reduces burnout among educators and invigorates their teaching.⁴

Environmental education holds great promise for improving the quality of learning in America's classrooms.⁵ When teachers use the environment as a context for learning, they report better student performance on standardized measurements of academic achievement in reading, writing, math, science and social studies; reduced discipline and classroom management problems; increased engagement and enthusiasm for learning; and greater pride and ownership in accomplishments.⁶

Environmental education in schools can help produce motivated students, high-performance lifelong learners, effective future workers and problem-solvers, thoughtful community leaders and individuals who care about the people, creatures and places that surround them.⁷



Students examine aquatic animals at Riverworks at Sturgeon City. Photo courtesy of Riverworks at Sturgeon City, © City of Jacksonville

For Adults and Families

American adults, many of whom may have missed opportunities to receive environmental education in school, have a hunger for environmental literacy. In a survey of 2,000 American consumers ages 18 and older, half said they “do not have the information to be personally involved in increasing their green behavior.”⁸

Forty-nine percent stated they would do more for the environment if they only knew how. Fifty-two percent of respondents said that they seek environmental education so they can protect their personal/family health; an equal number said that they want the information so they can “personally protect the environment.”⁹

A 2001 survey commissioned by the National Environmental Education Foundation found that the public’s top environmental concern is the protection of health and family health. Sixty percent of adults responding said that the main reason to protect the environment is to keep people safe from pollution.¹⁰

Environmental education is a promising conduit for reducing obesity, particularly among children. Besides its immediate benefits, physical fitness can help children develop lifelong healthy habits. “Children in America are suffering from the effects of obesity and inactivity at unprecedented levels,”

says Chris Fanning, executive director of

The Outdoor Foundation. “Teaching youth the benefits of a healthy, active, outdoor lifestyle will ensure healthier children, healthier communities, and healthier businesses.”¹¹ The Centers for Disease Control asserts that parks and nature have potential for improving and maintaining physical, mental and social components of the health of children and adults.”¹²

A nationwide survey study published in the American Journal of Public Health in 2004 found that exposure to natural settings in after-school and weekend activities significantly reduced the symptoms of ADHD in children ages 5 to 18 who had been diagnosed with the disease.¹³ Green outdoor activities reduced symptoms significantly more than did activities conducted in other settings, even when activities were matched across settings. The study authors suggested that daily doses of “green time” could alleviate or reduce symptoms of ADHD.

For the Workforce

Environmental education can provide hands-on environmental learning experiences that translate into job skills—whether or not this knowledge applies to a career in science. Charles O. Holliday Jr., chairman and former CEO of DuPont, declared that “an environmentally sustainable business is just good business, given the growing concern for environmental problems across America. A key component of an environmentally sustainable business is a highly educated workforce, particularly involving environmental principles.”¹⁴

For the Community

Environmental literacy gives individuals the tools to be good stewards of the environment in their neighborhoods and communities. Educated citizens are vital engines for addressing, preventing and solving local environmental problems — be it through monitoring local streams for pollution or participating in strategic planning for sustainable development. Environmental education also frequently spurs interest and participation in public service and leadership projects with multiple beneficiaries, e.g., schools, faith-based organizations, public parks, impoverished neighborhoods, senior citizens.



The Office of Environmental Education

The N.C. Office of Environmental Education in the N.C. Department of Environment and Natural Resources was established to increase environmental literacy and natural resource stewardship in North Carolina by encouraging, promoting and supporting environmental education programs, facilities and resources throughout the state. The office serves as North Carolina's clearinghouse, or central source, for all of the environmental education resources in the state and is responsible for disseminating information on those resources to PreK-12 schools, colleges and universities, government agencies, nonprofit organizations, environmental education centers, citizen groups, business and industry, libraries and the general public. The office is responsible for implementing the N.C. Environmental Education Act; establishing policies to guide the development of environmental education materials and programs; and drafting North Carolina's Environmental Education Plan and achieving the goals of the plan through community involvement, innovative partnerships and collaboration.

Mission Statement:



The mission of the N.C. Office of Environmental Education is to encourage, support and promote environmental education programs, facilities and resources in North Carolina for the purpose of improving the public's environmental literacy and stewardship of natural resources through planning, policy development, community involvement, innovative partnerships and collaboration.

The Definition, Principles and Goals of Environmental Education

The field of environmental education owes its origins to two United Nations-sponsored meetings held in the 1970s and the two seminal documents that emerged. The International Workshop on Environmental Education, held in Belgrade, Yugoslavia in 1975, produced the Belgrade Charter¹⁵, which stated a single goal for environmental education. In 1977, delegates to the Intergovernmental Conference on Environmental Education in Tbilisi, Georgia (USSR) built on the Belgrade foundation in adopting the Tbilisi Declaration¹⁶.

The Belgrade Charter stated a single goal of environmental education:

To develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones.

The Tbilisi Declaration expressed three broad goals for environmental education:

- Foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural areas.
- Provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment.
- Create new patterns of behavior among individuals, groups and society as a whole toward the environment.



As the field of environmental education has evolved, so have its definition and principles.¹⁷ Yet in their many iterations, the goals and principles of environmental education still contain core concepts expressed at the very beginning.

The Tbilisi Declaration defined environmental education as:

“A process aimed at developing a world population that is aware of and concerned about the total environment and its associated problems, and which has the knowledge, attitudes, motivations, commitments, and skills to work individually and collectively toward solutions of current problems and the prevention of new ones.”

Some critics have questioned whether environmental education should include the promotion of advocacy or be based solely on scientific principles. The U.S. Environmental Protection Agency revised its definition in 1996 to specify objectivity:

“Environmental education enhances critical thinking, problem solving and effective decision-making skills. It also teaches individuals to weigh various sides of an environmental issue to make informed and responsible decisions. Environmental education does not advocate a particular viewpoint or course of action.” (Federal Register, Dec. 10, 1996, p. 65106)

According to the Tbilisi principles, environmental education should:

- Consider the environment in its totality—natural and built, technological and social (economic, political, cultural-historical, ethical, aesthetic).
- Be a continuous lifelong process, beginning at the preschool level and continuing through all formal and nonformal stages.
- Be interdisciplinary in its approach, drawing on the specific content of each discipline in making possible a holistic and balanced perspective.
- Examine major environmental issues from local, national, regional and international points of view so that students receive insights into environmental conditions in other geographical areas.
- Focus on current and potential environmental situations while taking into account the historical perspective.
- Promote the value and necessity of local, national and international cooperation in the prevention and solution of environmental problems.
- Explicitly consider environmental aspects in plans for development and growth.
- Enable learners to have a role in planning their learning experiences and provide an opportunity for making decisions and accepting their consequences.
- Relate environmental sensitivity, knowledge, problem-solving skills and values clarification to every age, but with special emphasis on environmental sensitivity to the learner's own community in early years.
- Help learners discover the symptoms and real causes of environmental problems.
- Emphasize the complexity of environmental problems and thus the need to develop critical thinking and problem-solving skills.
- Utilize diverse learning environments and a broad array of educational approaches to teaching, learning about and from the environment with due stress on practical activities and firsthand experience.

Key Characteristics of Environmental Education ¹⁸

- Relates to an environmental topic or issue.
- Uses the outdoors as a learning environment.
- Is a lifelong learning process.
- Is interdisciplinary and draws upon many fields of study and learning.
- Is relevant to the needs, interests and motivations of the learner.
- Is based on accurate and factual information.
- Presents information in a balanced, unbiased manner.
- Inspires critical thinking and decision-making.
- Motivates people to take responsible action.
- Improves learner achievement and outcomes.



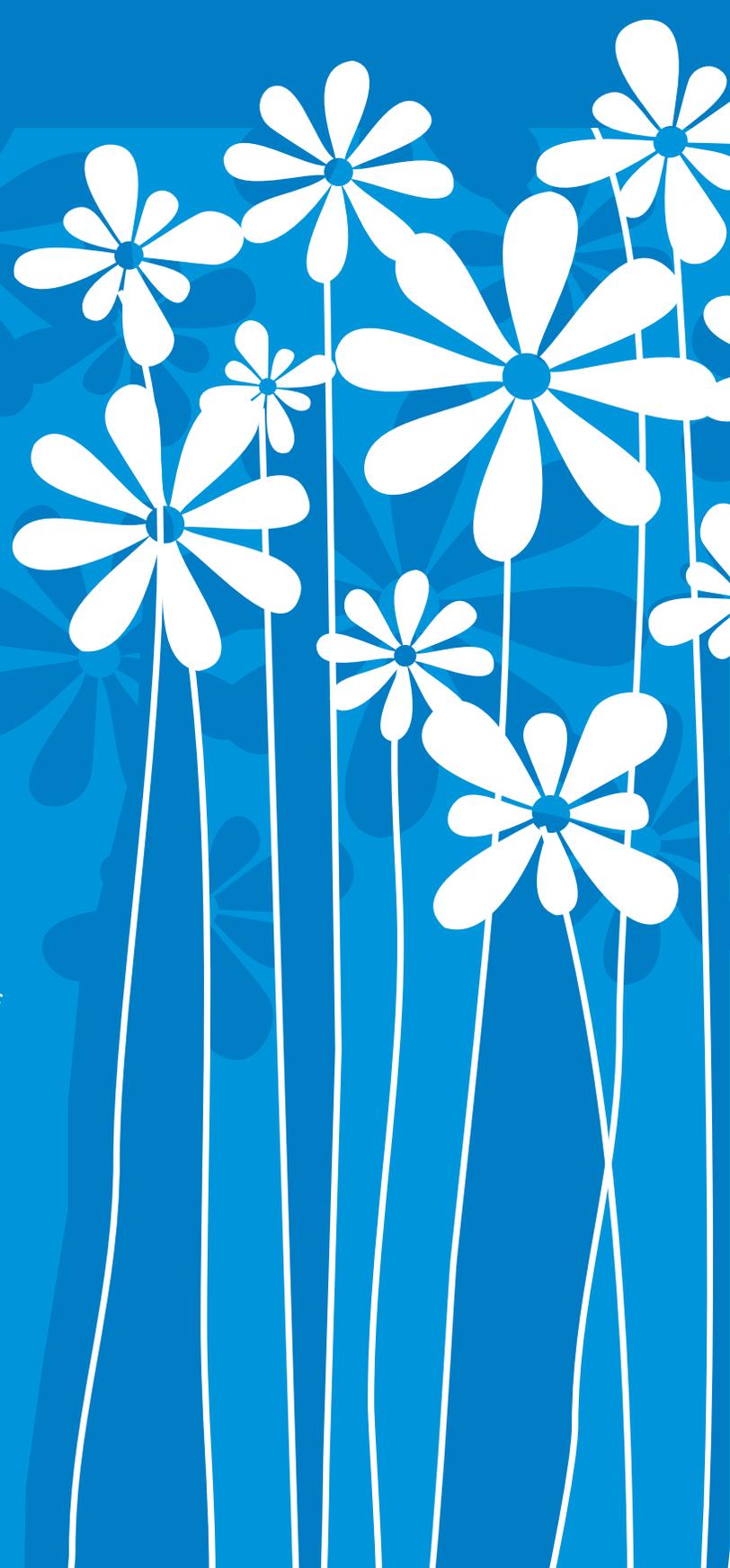
History of Environmental Education in North Carolina

In 1969, Congress passed the National Environmental Policy Act “to encourage harmony between humans and the environment, promote efforts to prevent or eliminate damage to the environment, stimulate the health and welfare of humans and enrich the public’s understanding of ecological systems and natural resources nationwide.” In 1970, Congress passed the National Environmental Education Act “to promote teaching about the environment in K-12 classrooms.”

These laws stimulated leaders at the state level, including North Carolina, to develop strategies to address environmental literacy among their residents. In 1971, then-Gov. James Holshouser Jr. established an Environmental Education Task Force to develop a formal plan for environmental education. In 1973, the General Assembly passed the North Carolina Environmental Education Act to encourage, promote and support the development of programs, facilities and materials for environmental education in North Carolina.

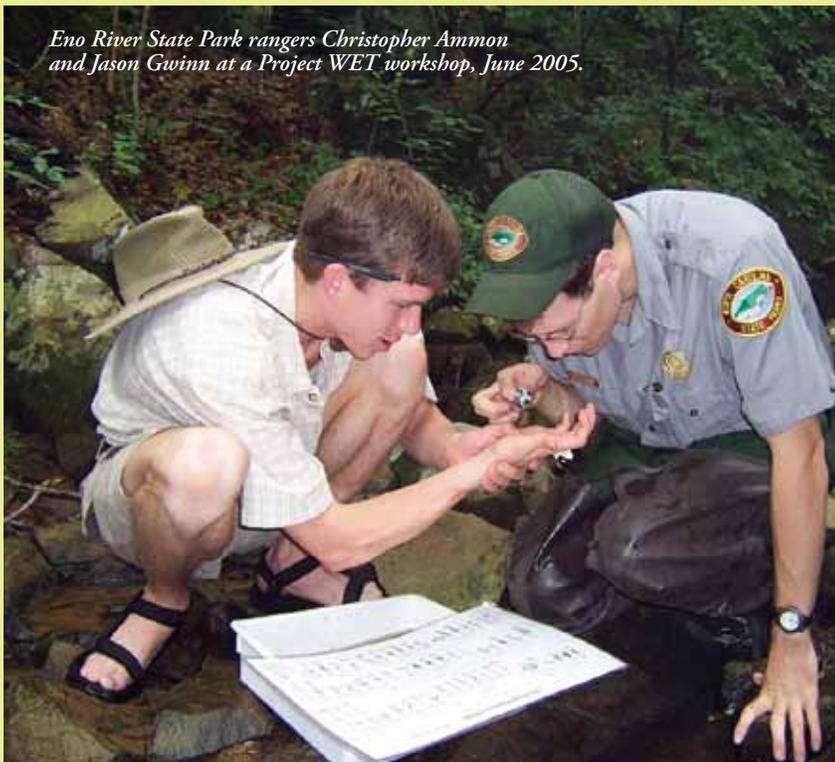
With the support of the N.C. Department of Administration and a grant from the federal agency then known as the Department of Health, Education and Welfare, the task force published *A State Master Plan for Developing Environmental Education Programs in North Carolina* in 1974. The plan identified several priorities for environmental education, including recommending the creation of a central coordinating agency. The plan called for better coordination of environmental education efforts and information; a cataloging of existing programs, materials and facilities; and a statewide program to train teachers in environmental education. Unfortunately, continued funding for implementation of the 1974 General Master Plan was not made available. Thus, responsibility for furthering environmental education within state government fell back into fragmented programs with little financial support.

In 1989, Bill Cobey, the Secretary of the agency that is now the N.C. Department of Environment and Natural Resources, announced that environmental education would be the highest priority in the department. He asked that immediate steps be taken to review the effectiveness of current educational efforts, to identify opportunities for new or expanded activity and to recommend a plan of action.



In March 1990, an agency Environmental Education Team presented its *Final Report and Recommendations* to the Secretary. Building on the previously published Master Plan, the report called for these actions:

- Eliminating the duplication of delivery of environmental education to public officials and the general public.
- Creating a central office that could supply answers to public inquiries about environmental education resources.
- Providing a means of communication between programs.
- Developing a set of commonly acceptable guidelines to be used by everyone who plans environmental education programs.
- Conducting a systematic evaluation of environmental education materials, and supplying guidelines for teachers trying to select materials.
- Creating a comprehensive catalog of existing personnel, materials or facilities that would be useful in environmental education.
- Creating a central record of environmental education sources.
- Assigning responsibility for the planning of environmental education.
- Developing a statewide program for training teachers in environmental education.
- Producing a cadre of teachers in each independent school administrative unit who are qualified and experienced in using environmental education materials.
- Producing a standardized requirement for environmental education proficiency on a statewide basis.



Eno River State Park rangers Christopher Ammon and Jason Gwinn at a Project WET workshop, June 2005.

- Delivering environmental information to a larger sector of the citizenry than is normally reached through formal education programs.
- Establishing a repository for bibliographies and reference materials on environmental education.

The report recommended, among other things, the establishment of an Office of Environmental Education, a long-term funding base for environmental education programs, and designated education specialists in each division of the department. In April 1990, then-Gov. Jim Martin asked Linda Little, the director of the Governor's Waste Management Board, to lead the office, which was to be the state's clearinghouse for environmental education.

In 1993, the General Assembly passed the second generation Environmental Education Act and authorized continued funding in the state budget for the Office of Environmental Education's staff and operations. North Carolina was among more than 30 states that passed similar legislation. Although many other states passed similar legislation, only a few have state-funded offices dedicated to environmental education.



Sarah Palmer, a teacher from Wiley Elementary School in Raleigh, identifying a plant at the Earth Partnership for Schools Institute, July, 2008. Photo by Ed Pembleton

In 1995, the Office of Environmental Education presented the first N.C. Environmental Education Plan to Martin's successor, Gov. Jim Hunt, and the General Assembly. The plan was developed over an 18-month period. During that time, the office solicited input from more than 1,300 people at seven regional public meetings.

For more than a decade, the Office of Environmental Education has guided and supported the work of individuals and organizations that provide environmental education in North Carolina. The state's environmental education plan has served as a guiding framework for its work.

Our Audience

The N.C. Office of Environmental Education's clearinghouse disseminates information to a broad, diverse audience, including PreK-12 teachers, nonformal educators, home-school parents, colleges and universities, government agencies, nonprofit organizations, environmental education centers, citizen groups, business and industry, libraries, faith-based organizations, the media and the general public.

Though it has created materials for specific target audiences, such as consumers, families (parents) and outdoor recreation enthusiasts, the office's primary focus is on providing support to formal and nonformal educators to improve their effectiveness (capacity building) and on increasing the number of educators who provide environmental education. Professional development for environmental educators is considered key to increasing the breadth and quality of environmental education in formal and nonformal settings and strengthening environmental learning and academic achievement among people of all ages.

Formal Education: a publicly approved system in which participants are required to learn and demonstrate certain competencies. This type of education takes place in public and private preschools, elementary schools, middle schools, secondary schools, colleges and universities. Home schools are also under the umbrella of formal education. Other types of formal education include courses, seminars and workshops for certification or licensing and trips to environmental education centers or special events as part of a school curriculum.¹⁹



Nonformal Environmental Education: education about the environment that takes place in nonformal settings such as parks, zoos, nature centers, community centers, youth camps, etc., rather than in a classroom or school; any organized educational activity about the environment that takes place outside the formal education system.²⁰

Informal Environmental Education: any unstructured environmental education activity outside the formal system in which people learn from exhibits, mass media and everyday living experiences.²¹

Accomplishments Since 1995

The Office of Environmental Education has accomplished many of the major goals expressed in the original Environmental Education Plan and has become a powerful means through which program providers and educators communicate.

Goal: Improve Access to Environmental Education

Established an environmental education clearinghouse

The office created an online environmental education clearinghouse that many other states have modeled. Any individual or educator now has easy access to environmental education programs, events, resources and facilities in North Carolina. The Web site receives more than 390,000 visits annually. It won the American Association of Webmasters 2007-2008 Bronze Web Award and the World Wide Web Awards 2007 Gold Web Award.

Any North Carolina educator or program provider can add events to the Web site's online interactive calendar, which promotes environmental education events across the state. The calendar usually lists more than 100 events each month. More than 300 organizations involved in environmental education have joined the office's online database.

Georgia's Department of Natural Resources selected the office's Web site as the pilot for a U.S. Environmental Protection Agency grant that connects seven Southeast states through interactive Web sites. The office's Web site includes searchable databases of resources, schools, facilities and events in all of these states.

Integrated environmental education into the N.C. Department of Public Instruction's Standard Course of Study

One of the objectives in the 1995 Environmental Education Plan was to correlate environmental education curricula to North Carolina's state curriculum standards. Since that time, the office has broadened this objective to focus on initiatives that not only correlate to state standards but also encourage integration of environmental education across PreK-12 disciplines.

In 1997, the office was instrumental in effecting a major change in graduation requirements for North Carolina students. High school students must now take an earth/environmental science

Children celebrating Earth Day at the Schiele Museum of Natural History in Gastonia, N.C. Photo by Monica Williams



Volunteers from the N.C. Coastal Federation work to restore oyster reef habitat in Everett Bay.

course before they can graduate. The office was part of a diverse coalition that brought about this achievement, including educators from industry, the North Carolina public school system, the N.C. Department of Public Instruction, the N.C. Aggregates Association, the N.C. Geological Survey, North Carolina State University and sister agencies in the Department of Environment and Natural Resources. The office coordinated input from the department and helped develop the earth/environmental science course outline.

The earth/environmental science requirement took effect with the freshman class of 2000 and has boosted the number of teachers providing environmental education in



*Teachers explore Bogue Sound during a week-long water quality Environmental Education Teacher Institute.
Photo by Alan Felker*

the formal PreK-12 classroom. Environmental education providers have successfully correlated their programs and materials to the state curriculum standards, which has made it easier for teachers to use environmental education in an interdisciplinary manner within many subject areas. The office has also advised the Department of Public Instruction in the development of support documents for the Earth/Environmental Science course. These documents provide practical lessons and resources for teachers to use as they implement the earth/environmental science standards in their classroom.

As it has since its inception, the office continues to work closely with the Department of Public Instruction in developing North Carolina's science standards. Using the environment as the context for inquiry-based learning, North Carolina's students have benefited in all science areas. The office provided input on the National Assessment of Educational Progress (NAEP) content standards for science, a significant contribution because the North Carolina Excellent Schools Act mandates that state performance standards align with NAEP's. The office is also providing expertise to the Department of Public **12.**

Instruction as a member of the writing team for North Carolina's new Essential Standards in Earth/Environmental Science and will review standards in other content areas through the lens of environmental literacy. These new standards are part of the overall revision of the state curriculum standards in response to the State Board of Education's *Framework for Change*.

Most recently, the office has partnered with the Department of Public Instruction to create an environmental literacy plan for the state. This plan's purpose is to ensure that environmental education is fully, efficiently and appropriately integrated into formal education. It will enable school systems to expand and improve their environmental education programs and to produce graduates who are environmentally literate.

Developed a model for environmental education library and resource collections

The office manages a collection of environmental education resources, including books, journals, electronic media and curriculum guides. The resource collection is a model for other school libraries and public libraries across the state. The collection is available through an online catalog that is promoted to educators in a wide variety of academic settings. The office hosts online resource lists and

bibliographies categorized by audience, grade level and topics. Staff in the office are available to assist teachers, nonformal educators, universities, libraries, government agencies and the public in finding and accessing quality environmental education materials and resources.



An educator participates in a N.C. Museum of Natural Sciences Teacher Trek at Pocosin Lakes National Wildlife Refuge.

The office supported the development of environmental education library collections across the state through the Project Tomorrow Environmental Education Model Library Grant Program. The Project Tomorrow grants were awarded to schools, libraries and environmental education centers to help build environmental education library collections and to encourage the integration of environmental education into the teaching of North Carolina's Standard Course of Study. From 1995 to 2005, the office provided \$685,050 in funding to 497 recipients in 93 counties. The grants were awarded to 388 K-12 public and private schools, 41 libraries and 68 environmental education centers.

Goal: Build Leaders and Organizations throughout the State that Provide Quality Environmental Education

Established the first Environmental Education Certification Program in the nation

Under the office's leadership, North Carolina became the first state to create a professional development program for environmental educators. Other states have followed North Carolina's lead, using the program as a model for creating their own.

More than 800 North Carolina educators, both formal and nonformal, have completed the Environmental Education Certification Program, which establishes standards for professional excellence. The goals of the program are to improve environmental literacy among educators, provide practical environmental education teaching methods and foster community leadership. The program requires that teachers complete seven instructional workshops, 50 hours of outdoor environmental education experiences and 30 hours of experiences that promote awareness of the state's environmental education resources.

The certification program has:

- Helped institute a set of commonly acceptable guidelines to be used by everyone who plans environmental education programs and helped institute guidelines by which to evaluate materials.
- Helped teachers find professional development opportunities and environmental education curricula.
- Helped create a catalog of existing programs and materials available to teachers and nonformal educators for professional development.
- Trained educators to teach earth/environmental science, which has recently become a required course for graduating high school students.
- Improved environmental education outreach to nonformal educators in the state.



*Park Ranger Joseph Shimel leads a group of educators during the Carolina Beach State Park Environmental Education Learning Experience (ELEE).
Photo by Terri Taylor*

North Carolina has recently modified its certification program to align with guidelines that the North American Association for Environmental Education developed for accrediting state-level environmental education certification programs. The revisions became effective January 2009. The changes will strengthen North Carolina's program in several areas, including teaching methods and foundations of environmental education.

A major newspaper in North Carolina lauded the office's efforts to create a certification program, remarking on the importance of "teaching concepts rather than advocating positions. There's nothing wrong with provoking students to think by exposing them to a point of view. But there needs to be balance, and they need the tools of critical analysis. Otherwise, we shortchange their education and ill-equip them to earn a living and play a civic role as adults."²²

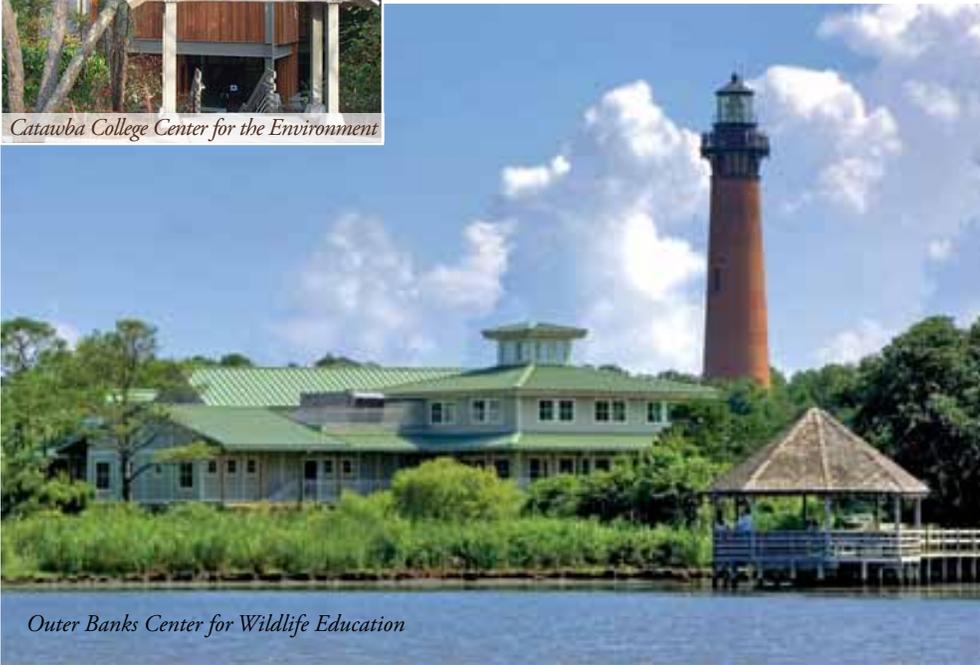


Catawba College Center for the Environment

Identified the state’s environmental education centers

The N.C. Environmental Education Act of 1993 directed the office to “utilize existing programs, educational materials or facilities, both public and private, wherever feasible.”

The best way to accomplish this was to find and identify existing facilities that offered environmental education programs and exhibits, and then assist and promote them. The office now supports and promotes more than 180 environmental education centers throughout North Carolina.



Outer Banks Center for Wildlife Education

The office defines an environmental education center as a place that offers quality environmental education programming for the public, including outdoor experiences and exhibits. An eligible facility must be committed to professionalism and cooperation with other environmental education facilities and programs. The office publishes and frequently updates

the *Guide to Environmental Education Centers in North Carolina* and hosts an online searchable directory of these centers.

In 1996, the office helped found the N.C. Association of Environmental Education Centers. Representatives from centers comprise the board, which meets annually. The association is a valuable partner of the office, providing an essential infrastructure for environmental education in North Carolina.

Experiencing the environment at an environmental education center is one of the best ways for people to begin acquiring the knowledge and sensitivity to address and solve complex environmental problems affecting the economy, public health and shared natural resources.

By conservative estimates, more than 23 million people visit North Carolina’s environmental education centers annually. A recent study conducted at North Carolina State University estimated that North Carolina’s state parks contribute potentially \$289 million to local economies annually and \$120 million to the incomes of local residents.

Environmental education centers and nonformal educators are critical for the education and inspiration of children and adults; they contribute significantly to local economies and local communities in North Carolina; and they are helping to preserve our land and ecological heritage for generations to come.



Goal: Enhance Environmental Education for Adults

Launched the *Discover Your Ecological Address* public education campaign

In 1996, the office launched the *Discover Your Ecological Address* adult education campaign at the urging of a state legislative committee assigned to investigate water pollution in the Neuse River Basin. In response to a prolonged period of fish kills in

the Neuse River estuary in 1995, the public was galvanized to help the beleaguered estuary. The state realized that the surrounding communities needed tools for finding solutions. The Senate Select Committee on River Water Quality and Fish Kills invited the office to develop an education campaign to help the 1.5 million people in the Neuse River Basin understand how river basin systems function and understand how their actions influence—for better or for worse—surrounding water quality. The resulting campaign—“Do You Know Your Ecological Address?”—raised awareness about the connection between human activity and the health of the river basin. Ultimately, the office expanded its work in the Neuse into a statewide campaign to provide all North Carolinians with the information and tools necessary to protect their own river basins from harm.

Over the years, the campaign has grown in popularity and expanded the numbers and types of resources it offers and the information channels it uses. The materials, all free, include the *Discover Your Ecological Address* brochure, *North Carolina's River Basins* poster, *Discover North Carolina's River Basins* booklet and supplemental inserts for each of the state's 17 river basins. More than 980,000 of these materials have been distributed since the campaign began.

Originally published in 2002, the river basin booklets and 17 inserts were revised and updated in 2007. To reach a greater adult audience, the office added information on outdoor recreation opportunities in each river basin. School teachers, nonformal educators, conservation organizations, environmental consulting firms, outdoor gear retailers and the general public continue to enthusiastically request these materials.

In 1999, the *Discover Your Ecological Address* campaign added signs along major roadways, bearing the name of the river basin. Through

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 Pacolet 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.

Big snail



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



Big Turkey Falls (left)
Broad River (below)



profile:
Total miles of streams and rivers: 1,313
Total acres of forest: 1,954
Municipalities within basin: 27
Counties within basin: 8
Size: 1,513 square miles
Population: 542,262 (2000 U.S. Census)

Only one of these activities can help reduce your child's ADHD symptoms.

An increasing amount of research shows that spending time outdoors has many positive impacts on a child's physical and mental health and development.

Kids who spend more time outside tend to:

- Be more physically active and less likely to be overweight
- Score higher on standardized tests
- Have fewer symptoms of ADHD
- Experience less stress than children who spend less time outside!

We all want to... Encourage your kids to...

PLEASE PICK UP MY POOP.

Cleaning up pet waste is good for your health and the environment! Seriously. Pet waste left on the ground, especially near streets and sidewalks, gets washed into storm drains and drainage ditches which flow to your local waterway...without being treated! Bacteria, parasites, and viruses found in pet waste can be harmful to water quality and human health. Not only is picking up after your pooch the neighborly thing to do, it's the healthy thing to do... for you and the environment!

Know what's grosser than picking up dog poop?

Stepping in it. Know what's even grosser than that? Swimming in, fishing from, and drinking water that has dog poop in it! Please pick up after your pooch.

For more information, please visit our Informed Consumer section at www.eenorthcarolina.org

Courtesy of NCCDH's Office of Environmental Education

a partnership between the office and the N.C. Department of Transportation, all 17 basins now have signage at major tributaries identifying river basins and their boundaries. The signs call motorists' attention to the concept that river basins are as much a part of one's address as a zip code or city name.



Pickards Mountain Eco-Institute

Established the Informed Consumer Initiative

In 2006, the office launched the Informed Consumer Initiative as a way to educate adults about the links between everyday choices and natural resources. It does not advocate for any particular choice, but rather informs people about the range of consumer options and the costs and benefits associated with them.

Shortly after the initiative began, the office developed postcards aimed at dog owners explaining the connection between pet waste left on the ground and polluted runoff entering waterways. These postcards were initially distributed through veterinary clinics across the state. More than 80,000 of the post cards have since been requested by veterinarians, homeowners associations, county soil and water offices and the public. A second informed consumer postcard highlighted facts about commercial vegetable production and how to find sources of locally grown produce. The card was distributed at farmers markets and other retailers carrying local goods.

In addition to providing a searchable online database of events, resources and facilities, the office continues to use innovative technologies and social marketing/networking strategies to reach the widest possible adult audience.

Launched the *Discover the World Outside* campaign

The office began the *Discover the World Outside* campaign in 2007 with the goal of relaying the benefits of spending time outdoors. The campaign provides resources—including literature and Web-based avenues—to help educators, parents and the public have quality outdoor experiences. The office developed a series of educational postcards directed at parents and young adults containing information (including current research findings) on the benefits of outdoor activity and a link to resources providing destinations and outdoor events.

The office has also partnered with several other agencies within and outside of the department to promote outdoor activities, events and resources. It created and maintains a Web site section specifically for parents, which contains many resources aimed at lowering the barriers to taking their children outside.

Goal: Support preparation and professional development of teachers

Since its creation, the office has been a resource for public and private school teachers seeking professional development opportunities and environmental education curriculum materials. In designing the Environmental Education Certification Program, the office ensured that much of the content/experiences would enable participants to simultaneously earn professional continuing education units for teacher licensure.

Hundreds of teachers have come to rely on the office's online calendar and the electronic mailing list to find out about professional development opportunities, materials and other resources. The office also provides an online resource database that gives teachers quick access to a multitude of curriculum materials, resources and programs that can be found in North Carolina.

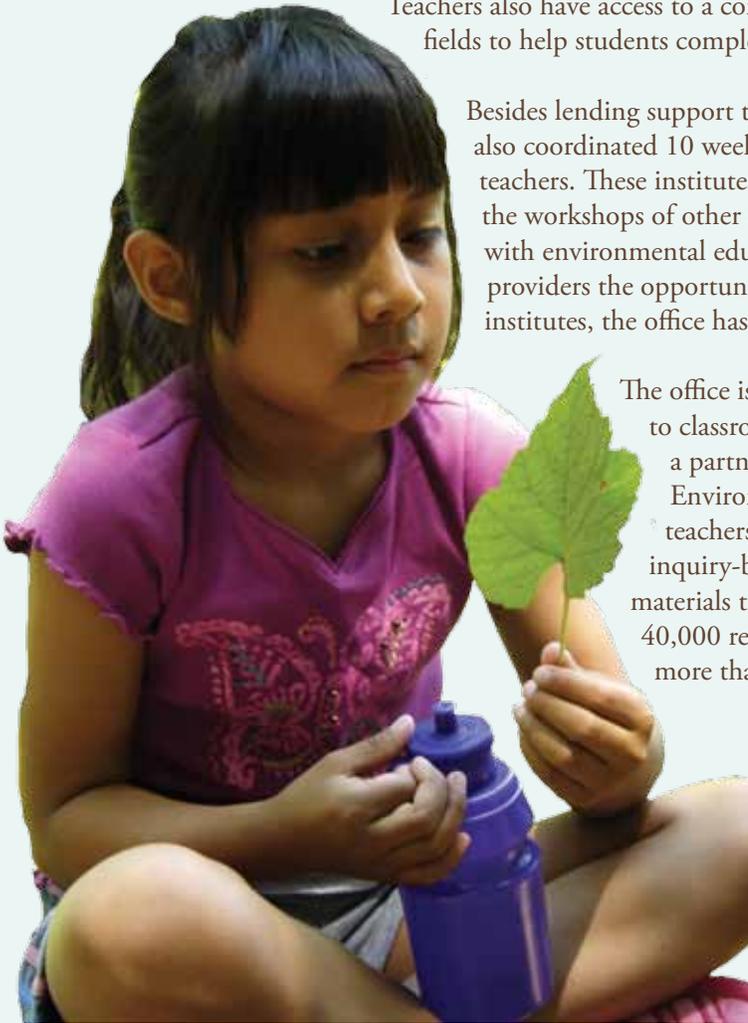
Teachers also have access to a comprehensive listing of potential mentors in environmental fields to help students completing a required graduation project.

Besides lending support to other agencies that provide teacher training, the office has also coordinated 10 week-long Environmental Education Institutes for classroom teachers. These institutes provide training on environmental topics not addressed by the workshops of other agencies and organizations. The office networks extensively with environmental education providers to conduct the institutes, giving these providers the opportunity to promote their individual programs. Through these institutes, the office has served 228 teachers from more than 60 counties since 2002.

The office is also well-known for providing curriculum materials directly to classrooms. The Love-A-Tree Environmental Education program, a partnership with the International Paper Foundation and the Environmental Education Fund, has supplied upper-elementary teachers with resource packets since 1996. The packets contain inquiry-based, experiential, environmental education lessons and materials that can be used inside and outside the classroom. More than 40,000 resource packets have been distributed to teachers, reaching more than 1 million students. In addition, middle school and high school teachers use the *Discover North Carolina's River Basins* booklets and 17 inserts to supplement their science courses. Thousands of class sets are distributed each year.

Built an environmental education community

When North Carolina began developing a master plan for environmental education in the 1970s and revisited the task in the 1990s, one of the most pressing concerns was the lack of coordination and communication within the environmental education community. The office's efforts have focused on building an environmental



Young girl explores nature at the N.C. Arboretum in Asheville

education community in North Carolina and providing a central source for distributing information for this community. The office was able to improve communication and distribution of information largely through its Web site and electronic mailing list. It also focused on building a community of environmental educators through statewide conferences and community-based meetings at environmental education centers in every region of the state. Between 1997 and 2007, the office hosted 53 community-based meetings at environmental education centers, reaching more than 2,300 people, and also hosted three statewide conferences and a department-wide environmental education forum. The office continues to be the central source for information on environmental education resources, facilities and events.

The Status of Environmental Education in North Carolina

The National Environmental Education Advancement Project has identified key components of state-level comprehensive environmental education programs.²³ These components have been designated as critical for successful development of state-level environmental education programs that increase environmental literacy. North Carolina has many of these key components in place, including a strong infrastructure for environmental education, with more than 800 certified environmental educators, more than 180 environmental education centers, a state Office of Environmental Education, a state master plan and a state association. However, the Office of Environmental Education has experienced substantial budget cuts since 2001, losing half its staff and a significant portion of its small operating budget. In addition, notably absent from North Carolina is a dedicated funding source, such as a trust fund, for supporting existing and future environmental education programs and providers.

The components of a comprehensive state-level environmental education program fall under three categories: Structure, Program and Funding.

Structure Components

Components provide support to environmental education through policy, funding, administration and implementation.

1. State EE Master Plan
2. State EE Board or Advisory Council
3. State EE Office
4. State-level EE Centers
5. State Interagency Committee
6. State EE Association
7. Online Database of EE Resources
8. State Curriculum/Resource Guides
9. K-12 EE Instruction Requirements

Program Components

Components provide support to environmental education through instructional requirements, teacher resources, training programs and other elements.

10. EE Correlations to State Standards
11. EE Guidelines and Standards
12. State Assessment that includes EE
13. Coordinated Teacher Inservice Program
14. EE Training for Preservice Teachers
15. EE Training for Teacher Educators
16. EE Training for Nonformal Educators
17. EE Model or Resource Schools

Funding Components

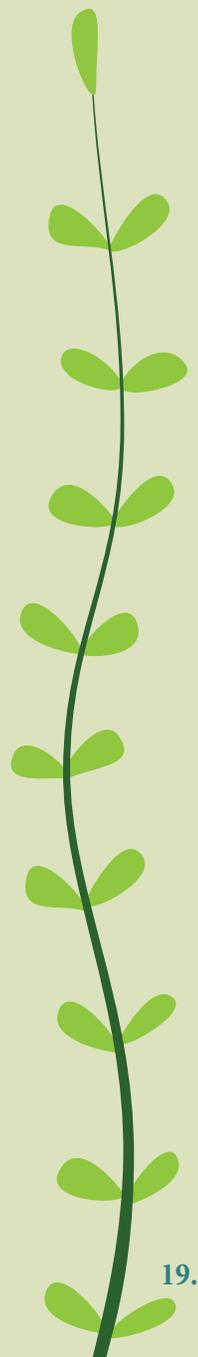
Components are related to sources, strategies and training that support both the programming and structured components of environmental education.

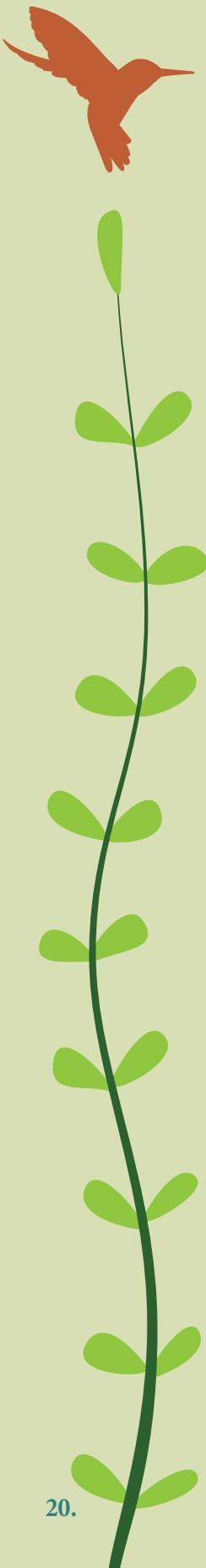
18. Fees, Fines, Taxes and Lottery
19. Public/Private Grants and Donations
20. EE Grants Program
21. EE Trust Fund
22. General Revenue

How Does North Carolina Measure Up?

The following is a brief assessment of North Carolina's progress on each of the recommended components of a comprehensive state-level environmental education program:

1. State EE Master Plan: North Carolina has had an Environmental Education Plan in place since 1995.
2. State EE Board or Advisory Council: The Office of Environmental Education established the N.C. Environmental Education Advisory Board in 2006. This diverse council includes members from organizations and agencies representing the academic, agricultural and environmental communities. Members represent teachers, universities, business and industry, environmental nonprofit organizations and government agencies (including the N.C. Department of Public Instruction and the N.C. Department of Commerce).
3. State EE Office: The Office of Environmental Education was established in 1993 within the Department of Environment and Natural Resources.
4. State-level EE Centers: The office has identified more than 180 environmental education centers. An environmental education center is defined as a facility that is open to the public and provides a variety of environmental education experiences. North Carolina's Environmental Education Centers include facilities within the Department of Environment and Natural Resources (including state parks, educational state forests, aquariums, coastal reserves, the N.C. Zoological Park, the Museum of Natural Sciences and Prairie Ridge Ecostation for Wildlife and Learning); national parks and refuges, city and county parks and nature centers; university-operated learning centers; private attractions and nonprofit and corporate-sponsored facilities. The office hosts an online searchable directory of Environmental Education Centers on its Web site.
5. State Interagency Committee: An interagency committee was established in the Department of Environment and Natural Resources in 2008. The Environmental Education and Outreach Working Group consists of educators, public information officers and other employees from approximately 22 agencies within the Department of Environment and Natural Resources. The office has also established interdepartmental committees including the N.C. Environmental Education Certification Committee and the Environmental Literacy Plan Working Group.
6. State EE Association: The Environmental Educators of North Carolina (EENC) is North Carolina's state association, and it is the affiliate of the North American Association for Environmental Education. EENC's mission is to promote excellence in professional development and facilitate networking opportunities, inspiring educators to create an environmentally literate citizenry.
7. Online Database of EE Resources: The Office of Environmental Education's Web site hosts a searchable online database of environmental education resources and a calendar of environmental education events and programs. Georgia's Department of Natural Resources selected the office's Web site as the pilot for a U.S. Environmental Protection Agency grant that connects seven Southeastern states through interactive Web sites. The office's Web site now serves as a model for these other states.



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8. State Curriculum/Resource Guides: North Carolina does not have an environmental education curriculum guide or other state publication providing direction for the development of an environmental education program at the school district level. The state has numerous resources for teachers and administrators who want to integrate environmental education into the curriculum. Many local and state agencies offer national environmental education programs, including Project WET (Water Education for Teachers), Leopold Education Project, Project WILD, PLT (Project Learning Tree), FLP (Food, Land and People), and numerous state-specific programs. The Department of Public Instruction also provides support documents that list resources for the high school earth/environmental science course.
 9. K-12 EE Instruction Requirements: North Carolina does not have a requirement for K-12 environmental education instruction. However, the State Board of Education made a significant step forward in environmental education in 1997, when it approved a change in high school science graduation requirements to include one unit in earth/environmental science. North Carolina is thought to be the first state to require such a course. The new graduation requirement became effective in the fall 2000. The course equips every high school graduate with knowledge about the importance of the environment to our economic development, health and well-being and helps increase environmental literacy. The course will also help students develop the skills to deal with ever-increasing environmental issues facing our state and nation. The Department of Public Instruction has not developed an end-of-course test for the earth/environmental science course. The K-8 science standards provide the underpinning for the earth/environmental science course.
 10. EE Correlations to State Standards: The majority of program providers in North Carolina have correlated their curriculum guides and programs to the state's curriculum standards. The Office of Environmental Education serves as a resource for facilitators and program providers interested in correlating their programs and curricula to state standards.
 11. EE Guidelines and Standards: The Office of Environmental Education adopted the North American Association for Environmental Education's Guidelines for Excellence in Environmental Education in 2006. The office encourages organizations across the state to apply the guidelines in the development of programs, materials and services. The office promotes the guidelines among its constituents and supports the implementation of the guidelines in the education field. The office also has staff members trained in using the guidelines, and they serve as consultants for program providers.
 12. State Assessment that includes EE: North Carolina does not have a state assessment that includes environmental education.
 13. Coordinated Teacher Inservice Program: The North Carolina Environmental Education Certification Program provides quality environmental education training and professional development for inservice, preservice and nonformal educators, including many educators who train teachers. The certification program is a partnership with numerous local, state, public and private agencies that provide quality environmental education programs, including many national programs. Program providers in the state often work directly with university professors to provide programs for preservice training. Some North Carolina universities, including UNC-Greensboro and UNC-Charlotte's College of Education, provide specific environmental education workshops for their inservice and preservice teachers each semester. The Department of

Environment and Natural Resources provides a vast amount of environmental education to teachers each year—in 2007 alone, the Department provided 289 environmental education workshops that served 4,688 teachers and nonformal educators.

14. EE Training for Preservice Teachers: See 13.
15. EE Training for Teacher Educators: See 13.
16. EE Training for Nonformal Educators: See 13.
17. EE Model or Resource Schools: The office identifies model Environmental Education Schools on its Web site. Such schools are resources for other private and public schools throughout the state. The certified environmental educators who teach at schools across the state also serve as resources for other teachers and schools.
18. Fees, Fines, Taxes and Lottery: The office is funded through a state appropriation. There are no fees or fines specifically dedicated for environmental education.
19. Public/Private Grants and Donations: In 1998, the Environmental Education Fund, a nonprofit organization, was formed as a conduit for foundations, business and industry and the public to provide financial support for quality environmental education programs.
20. EE Grants Program: North Carolina does not have an environmental education grant program in place. Several agencies have received grants from the U.S. Environmental Protection Agency's Office of Environmental Education, but funding for these grants is limited and extremely competitive. At one time, the office received a state appropriation to provide grants for environmental education library collections at schools, public libraries and Environmental Education Centers throughout the state. Funding for this program was eliminated in 2001 due to state budget cuts. The EPA continued to provide funding for the grant program until 2005.
21. EE Trust Fund: North Carolina does not have a trust fund for environmental education.
22. General Revenue: See 18.



Looking Forward...

Goals and Objectives for Environmental Education in North Carolina

Goal of Environmental Education:

The overarching goal of environmental education is environmental literacy. Environmentally literate citizens understand how natural systems and human social systems work and relate to one another, and they combine this understanding with their personal attitudes and experiences to analyze various facets of environmental issues. They have developed the skills necessary to make responsible decisions based on scientific, economic, aesthetic, political, cultural and ethical considerations and are committed to act upon these decisions, either as individuals or as members of a community.

Goals for North Carolina's Environmental Education Plan:

The N.C. Environmental Education Plan has five main goals for advancing environmental education in North Carolina:

1. Increase public participation in environmental awareness and education opportunities.
2. Strengthen the environmental education profession, elevate the status of environmental education professionals and improve the quality of environmental education materials and programs.
3. Strengthen North Carolina's ability to provide sustainable and comprehensive environmental education programs.
4. Increase the number of educators and students who receive environmental education.
5. Increase the environmental literacy of adults.



Goal 1

Increase public participation in environmental awareness and education opportunities.

Objective 1.1: Improve public access to quality environmental education materials, resources and facilities.

Action Items:

- Expand the N.C. Office of Environmental Education's clearinghouse capabilities to reach a broader audience, including formal and nonformal educators, students, parents, the general public and visitors to our state. Develop a searchable online directory of environmental education resources and market it statewide. Use Web site tracking and analysis tools to improve access to electronic resources.
- Inventory and disseminate information about opportunities for environmental education professional development, internships and grants. Build and maintain an online calendar of events for all the environmental education activities in the state and an online directory of the state's environmental education centers, grants and job openings.
- Provide an online listing of organizations, individuals and resources that support environmental education. Identify and use electronic mailing lists to disseminate information.
- Disseminate materials and resources to the public, including targeted audiences in rural and low-income regions of North Carolina.

Objective 1.2: Increase the public's use of North Carolina's environmental education centers.

Action Items:

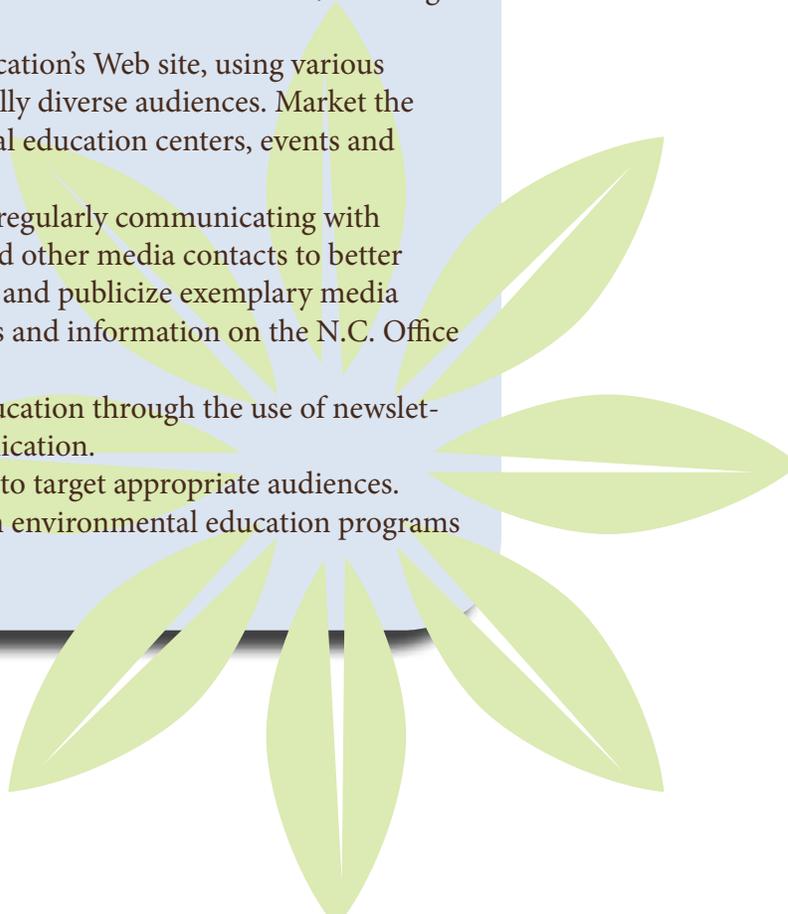
- Support and promote existing and developing environmental education centers in North Carolina through effective consultation and marketing. Assist centers in making connections with marketing and public relations representatives within state and local agencies. Work with centers to help them establish relationships with their local tourism contact people, the N.C. Division of Tourism, Film and Sports Development and the Visit NC program.
- Identify and use opportunities to assist environmental education centers and environmental education providers in working with the media.
- Assist environmental education centers and environmental education program providers with promotion and marketing tools for their events, workshops and professional development opportunities through the Office of Environmental Education's Web site, electronic mailing list and newsletter.

- Provide an updated online guide to all the environmental education centers in North Carolina. Market the guide to educators and the general public. Produce and market a printed version of the guide to increase use of the online listing and provide it as a resource to educators statewide.
- Ensure that environmental education centers communicate with one another to identify opportunities to coordinate their programs to benefit the centers and their customers.
- Support the N.C. Association of Environmental Education Centers. Explore the establishment of voluntary standards for environmental education centers.
- Facilitate sharing of information among environmental education centers, schools, the media and the general public. Provide information and resources to teachers and schools on how to safely take children outdoors for hands-on environmental education.
- Provide information to schools on how they can partner with environmental education centers to meet curriculum requirements, and encourage them to use the centers.

Objective 1.3: Increase awareness of environmental education events and promote opportunities statewide.

Action Items:

- Market environmental education resources, materials and facilities to educators, students, parents, business and industry, government agencies, nonprofits, the academic community and the general public.
- Focus marketing strategies on the N.C. Office of Environmental Education's online clearinghouse, including the calendar and the searchable directories for events, resources and facilities. Market environmental education events, tailoring publicity to a variety of audiences.
- Market the N.C. Office of Environmental Education's Web site, using various media to reach culturally and socioeconomically diverse audiences. Market the online searchable directories for environmental education centers, events and resources.
- Develop key media contacts and methods for regularly communicating with them. Develop relationships with reporters and other media contacts to better promote environmental education. Recognize and publicize exemplary media coverage of environmental education activities and information on the N.C. Office of Environmental Education's Web site.
- Become a media source for environmental education through the use of newsletters, RSS feeds and other methods of communication.
- Use social marketing techniques and research to target appropriate audiences.
- Promote the use of art and health objectives in environmental education programs to engage different audiences.



Goal 2

Strengthen the environmental education profession, elevate the status of environmental education professionals and improve the quality of environmental education materials and programs.

Objective 2.1: Increase public understanding of the value of environmental education and increase support for the field of environmental education.

Action Items:

- Track national and international environmental education policies and trends and evaluate their effects on environmental education in North Carolina. Establish North Carolina as a leader in nationwide environmental education practice and policy.
- Recognize people and organizations that provide exceptional environmental education. Promote environmental education projects and programs and exemplary environmental educators to the media and to legislators.
- Foster the development of undergraduate and graduate environmental education degree programs. Use institutions of higher education that have environmental studies programs as models for other institutions that are interested in developing similar programs. Support inquiry-based, interdisciplinary instruction in environmental studies programs.
- Build a membership of the N.C. Environmental Education Advisory Council that is representative of the state's environmental education stakeholders and solicit their expertise to better promote the N.C. Office of Environmental Education and environmental education in North Carolina.
- Educate legislators about the importance of environmental education in fostering environmental ethics.
- Promote the N.C. Office of Environmental Education and the educators who complete the N.C. Environmental Education Certification Program. Invite legislators to attend environmental education events and meetings in their area.
- Provide materials and programs that explain environmental education for target audiences.
- Investigate the possibility of the Office of State Personnel creating a job family for environmental educators to strengthen the profession within the Department of Environment and Natural Resources, ensure a continued focus on environmental education in the state and support current and future development of environmental education degree programs in North Carolina.
- Build a consortium of state-level environmental education offices throughout the nation and communicate regularly with these agencies through electronic mailing lists.
- Establish environmental education staff in every regional office of the Department of Environment and Natural Resources to enable effective communication between environmental education providers and communities and to increase communication between educators in the department.

Objective 2.2: Increase the number of students pursuing environmental careers and strive for more cultural, economic and geographical diversity among those students.

Action Items:

- Collaborate with other organizations, colleges and universities to promote diversity in the field.
- Identify research and programs that address diversity and environmental education. Provide this information to environmental educators and to the public through the N.C. Office of Environmental Education's Web site.
- Identify barriers to participating in environmental education and methods to overcome these barriers.

Objective 2.3: Increase awareness of and the use of environmental education professional standards for North Carolina educators.

Action Items:

- Correlate the state curriculum standards to the North American Association for Environmental Education's PreK-12 *Guidelines for Learning*.
- Promote the use of the North American Association for Environmental Education's *Guidelines for Excellence* to environmental educators across the state. Facilitate opportunities for training on how to use the *Guidelines for Excellence* and encourage program providers to use it when developing or revising environmental education workshops or curricula.
- Incorporate the North American Association for Environmental Education's *Guidelines for Excellence* into the N.C. Environmental Education Certification Program requirements.
- Work with stakeholders and key partners to assess the N.C. Environmental Education Certification Program and incorporate changes that raise the standards for certifying environmental educators.
- Continue to evaluate the N.C. Environmental Education Certification Program to meet national standards established by the North American Association for Environmental Education.
- Incorporate training in instructional methodologies for educators seeking to earn Environmental Education Certification. Provide networking and partnership opportunities for formal and nonformal educators.
- Incorporate knowledge of the foundations of environmental education into the N.C. Environmental Education Certification Program.
- Promote resources on how to practice developmentally appropriate education.
- Assess the needs of educators and incorporate changes into the N.C. Environmental Education Certification Program that reflect environmental education standards and best practices in education.

Objective 2.4: Increase communication and coordination among environmental education professionals.

Action Items:

- Support Environmental Educators of North Carolina (EENC), North Carolina's association for environmental education, and its professional development efforts. Encourage membership in EENC.
- Support the North Carolina Association of Environmental Education Centers and encourage new facilities to join the association.
- Provide networking opportunities for educators, such as forums and conferences.
- Conduct regular meetings for N.C. Department of Environment and Natural Resources employees who have an interest in education and/or outreach.
- Promote opportunities for networking offered by organizations statewide.
- Facilitate environmental education events that showcase the resources and materials available to educators and other environmental education professionals.

Objective 2.5: Provide and improve the availability of model environmental education library collections for North Carolina educators.

Action Items:

- Develop an environmental education resource collection that serves as a model for school, university and public libraries throughout North Carolina.
- Provide support for those libraries to develop their own environmental education collection.
- Develop a formal document that outlines the Environmental Education Resource Center's role in the department and its relationship to the department's divisions.
- Develop the Environmental Education Resource Center as a resource for environmental educators, department employees, teachers and students and support educational initiatives throughout the department.
- Expand awareness of the center through Web sites, clearinghouses, newsletters and conferences.
- Provide age-appropriate resource guides and research tutorials that expand the ability of teachers and students to find environmental education resources.
- Develop environmental education bibliographies for specific audiences, including formal and nonformal educators at all grade levels.

Goal 3

Strengthen North Carolina's ability to provide sustainable and comprehensive environmental education programs.

Objective 3.1 Increase the number of leaders and organizations that provide quality environmental education across the state.

Action Items:

- Increase the number of educators in North Carolina who complete the N.C. Environmental Education Certification Program. Advertise the program to formal and nonformal educators statewide.
- Publicly recognize educators who complete the N.C. Environmental Education Certification Program. Increase their media and political exposure.
- Provide support and resources for program providers interested in offering environmental literacy programs to formal and nonformal educators.
- Provide incentives for personnel at parks, forests, zoos, museums, aquariums and other environmental education facilities that regularly interact with the public to participate in environmental education professional development.
- Provide environmental education program providers with resources to train scientists on how to use environmental education techniques to effectively engage the public.
- Survey universities and colleges to determine if and how environmental literacy and ethics are included in coursework. Determine ways to incorporate environmental education and environmental ethics into higher-education public administration and public policy programs.
- Create an interagency working team of educators to enhance the N.C. Department of Environment and Natural Resources' environmental education efforts.
- Support statewide gatherings of college and university faculty, N.C. Department of Public Instruction curriculum and licensure consultants, PreK-12 teachers and curriculum coordinators, museum and science center educators, nonformal environmental educators and government and private organization representatives to discuss improvement of environmental education programs and course offerings at the state's institutions of higher learning.
- Support environmental education efforts of state and local government.
- Partner with local governments, community groups and businesses to set environmental education goals, evaluate achievement of these goals and provide recognition for communities that demonstrate environmental stewardship.
- Serve as a resource for local, state and federal government agencies that are developing their education programs.
- Create an online directory of those schools that have integrated environmental education into their teaching (e.g., gardens, outdoor classrooms) and that have agreed to be models for other schools. Publicize the directory to schools and school districts throughout the state.

Objective 3.2: Assess and evaluate environmental education and environmental literacy in North Carolina.

Action Items:

- Develop and administer a statewide survey of environmental literacy in partnership with a market research institution or secondary education institution. Establish a baseline for environmental literacy among North Carolinians and conduct follow-up surveys to measure improvements in literacy.
- Publicize results of environmental literacy surveys through a variety of media outlets and to local, state and federal government agencies and the N.C. General Assembly.
- Assist schools in quantifying how the integration of environmental education into curricula influences academic performance and behavioral/attitude change.
- Provide resources to enable undergraduate and graduate students to research the impact of integrating environmental education into schools. Promote environmental education as a potential research topic for undergraduate and graduate projects at universities and colleges.
- Promote environmental education centers and regional organizations that have effectively evaluated and measured their environmental education achievements and their economic, social and cultural impact on their local communities as models for other organizations.
- Provide a forum through which communities can network to share opportunities and also to share successes in measuring and promoting environmental stewardship. Build partnerships among communities, local and regional environmental education centers, and organizations that focus on ecotourism, sustainable development and public awareness.
- Market reports, surveys and research in environmental education to diverse agencies and organizations to demonstrate how environmental education can help them accomplish their goals.
- Promote the use of effective methods/tools for measuring the success of environmental education. Provide models of these methods.

Objective 3.3: Increase funding for environmental education.

Action Items:

- Use statewide assessments of environmental literacy and report cards of progress in environmental education to demonstrate a need for additional environmental education funding at the local, state and federal levels.
- Work with the N.C. Department of Commerce and regional tourism entities to promote environmental education centers and experiential environmental education programs as ecotourism destinations and sustainable tourism destinations. Partner with these agencies to identify funding sources for centers and their programs.

- Promote the economic contribution of environmental education to ecotourism in North Carolina. Work with organizations to estimate the value of environmental education to the state's economy.
- Establish an Environmental Education Trust Fund or other sustainable source for increasing funding for environmental education at PreK-12 schools, environmental education centers, public libraries, and universities and colleges.
- Award grants from an Environmental Education Trust Fund to schools, communities and organizations that support and promote environmental education in North Carolina.
- Work with business and industry, civic organizations, foundations and the Environmental Education Fund, a nonprofit organization dedicated to environmental education, to support environmental education programs.
- Develop and provide an online directory of grant opportunities and publicize this information through the N.C. Office of Environmental Education's Web site, electronic mailing list and newsletter.
- Provide letters of support, relevant research and information to help assist those seeking grants for environmental education. Promote training in grant writing to the environmental education community.
- Market and promote environmental education to legislators, N.C. Department of Environment and Natural Resources divisions and key leaders in the academic community.
- Develop partnerships with organizations to increase funding for environmental education.
- Work with the N.C. Association of Environmental Education Centers to establish partnerships between environmental education centers and local businesses and civic organizations to fund local environmental education programs and projects.

Objective 3.4: Increase participation of nonformal educators in environmental education professional development programs.

Action Items:

- Publicly recognize educators who complete the N.C. Environmental Education Certification Program. Increase media and political exposure of the Program.
- Facilitate networking/professional development opportunities in partnership with other agencies and organizations.
- Improve marketing and communication to inform educators of professional development opportunities in environmental education.

Goal 4

Increase the number of educators and students who receive environmental education.

Objective 4.1: Integrate environmental education into PreK-12, college and university curricula.

Action Items:

- Develop a State Environmental Literacy Plan for North Carolina's PreK-12 public schools in partnership with the N.C. Department of Public Instruction, key stakeholders and partners.
- Promote schools that have successfully integrated environmental education across all disciplines—e.g., math, science, social studies, language arts and art—as an effective method for strengthening the entire curriculum. Target low-performing schools and work with these schools to document measures of success achieved after integrating environmental education into curricula.
- Promote environmental education to schools as a method for encouraging physical activity and a healthy lifestyle. Provide information and resources to schools on ways they can integrate environmental education into their Healthful Living curriculum and Healthy Schools Initiatives.
- Provide support and resources to teachers and students who are using environmental education to meet high school graduation requirements.
- Promote environmental education to schools as a method for engaging students in science and encouraging careers in science, mathematics and technology. Target underserved communities.
- Promote model schools that use environmental education to stimulate creative thinking in art and creative writing curricula. Inform teachers about books and other resources on ways environmental education can be integrated into language arts and art. Target underserved communities.
- Provide resources, training and support to schools for developing outdoor classrooms and using their school grounds for teaching across curricula. Identify funding to provide grants to schools for the development of outdoor classrooms and “edible gardens” on school grounds and provide resources to teachers who want to incorporate outdoor classrooms and gardens into their curricula.
- Provide teachers examples of ways to use the outdoors for learning and resources that help them feel more comfortable using the outdoors in their curricula. Highlight the benefits of using the outdoors across curricula for both students and teachers.
- Use and promote research to district-level and state-level school administrators and local superintendents and principals that documents the benefits of integrating environmental education into the state's curricula. Highlight the correlation between the integration of environmental education and improved academic achievement.

- Recognize schools and school systems that are models for promoting environmental education and that have significant teacher participation in environmental education professional development programs. Recognize schools that integrate environmental education into their curricula, participate in conservation measures, achieve a high level of community involvement and implement natural landscape improvements at their school. Develop and promote an online database of these schools.
- Track changes in state and national education policies and inform the N.C. Department of Environment and Natural Resources and nonformal education organizations about changes in policies and other educational trends that may affect environmental education.
- Provide resources and staff to help environmental education providers to correlate their environmental education activities and curricula with the North Carolina Standard Course of Study.
- Provide input on the North Carolina Standard Course of Study, curricula revisions and support documents. Provide input on national standards. Ensure that environmental content and environmental education concepts are included in the Standard Course of Study.
- Promote the use of environmental education in after school programs.
- Expand resources to enhance early-childhood environmental education.

Objective 4.2: Increase opportunities for preservice teachers to be trained in environmental education pedagogy and to learn appropriate outdoor teaching techniques.

Action Items:

- Develop stronger relationships with colleges, universities and community colleges. Meet with Schools of Education within universities and communicate the benefits of integrating environmental education into preservice curricula.
- Demonstrate the need for Schools of Education to modify preservice courses and programs to include the following components: environmental topics and classroom curricula; hands-on and inquiry-based learning opportunities; use of local environmental and community resources; field trip experiences; outdoor teaching techniques and experiences; and interdisciplinary environmental themes, including social studies, science, mathematics and the arts.
- Provide institutions of higher education with information about environmental education resources available from state agencies, environmental education centers and other sources and how these resources can benefit their students.
- Develop and promote a directory of colleges and universities offering environmental education minor and major degree programs, courses and resources, and identify departmental contacts at universities and colleges.
- Participate in the North American Association for Environmental Education (NAAEE) Preservice Environmental Education Task Force to help define the relationship between NAAEE and the National Council for Accreditation of Teacher Education (NCATE). Use the NAAEE/NCATE relationship to enhance preservice environmental education for teachers in North Carolina.

Objective 4.3: Increase participation of PreK-12 educators in environmental education professional development programs.

Action Items:

- Provide tools and resources for colleges and universities to offer professional development opportunities in environmental education. Meet with staff of public and private colleges and universities and demonstrate a need for these schools to increase their courses/programs for formal and nonformal educators.
- Develop financial support and administrative support for PreK-12 teachers to participate in environmental education professional development and to incorporate environmental education into their curricula.
- Publicly recognize educators who complete the N.C. Environmental Education Certification Program. Increase media and political exposure.
- Facilitate networking/professional development opportunities in partnership with other agencies and organizations.
- Improve the N.C. Office of Environmental Education's communication with local education agencies (LEAs) and work with their professional development coordinators to publicize environmental education opportunities.
- Ensure that professional development in environmental education counts toward teacher certification renewal credits.
- Improve marketing of professional development opportunities in environmental education to educators.

Objective 4.4: Increase access to quality environmental education resources.

Action Items:

- Develop and distribute an Educator's Guide to Environmental Education Resources and Materials.
- Form an education advisory group consisting of teachers at different grade levels and university staff working with preservice teachers. Conduct focus groups of teachers to determine their needs and how to better reach educators.
- Build partnerships and communication among institutions of higher learning, environmental education centers and program providers to help teachers obtain new content knowledge and to increase the number of educators participating in workshops at environmental education centers.
- Package and provide a sampling of environmental education activities and resources to teachers as an introduction to environmental education and specific topic areas.
- Collaborate with LEARN NC (www.learnnc.org) to ensure that environmental education activities are available and accessible through its online database of lesson plans for teachers.
- Provide bibliographies of quality environmental education books, journals, videos, CDs and other resources and provide access through the N.C. Office of Environmental Education's Web site.

Goal 5

Increase the environmental literacy of adults.

Objective 5.1: Design targeted marketing and education campaigns that highlight the interconnectedness of environmental health, human health, sustainable practices (e.g., agriculture, development) and economic vitality.

Action Items:

- Develop partnerships with health organizations to promote environmental education centers as places to get outdoors and be active.
- Educate the public about their choices as consumers through consumer education initiatives. Continue to incorporate local farms and community supported agriculture programs into the consumer education initiatives. Use media campaigns to reach adult audiences.
- Increase the extent and effectiveness of adult environmental education efforts by emphasizing how environmental issues are relevant to public health and quality of life.
- Use environmental education to emphasize the connections between food production and human and environmental health.
- Form partnerships with health-based and agriculture-based organizations to increase the number of schools that provide healthy and sustainable food choices.
- Develop public education programs that demonstrate how individual behaviors and daily choices are related to a healthy life and healthy environment.
- Develop public education programs that incorporate environmental justice issues.

Objective 5.2: Generate and market public education programs and materials that address current environmental concerns in North Carolina.

Action Items:

- Inventory adult environmental education programs and promote them through the N.C. Office of Environmental Education's Web site, electronic mailing list and newsletter. Include adult education programs in the online calendar of events.
- Build on the N.C. Office of Environmental Education's successful *Discover North Carolina's River Basins* program by finding new and innovative ways to engage adults. Promote recreational opportunities as a way to increase adult participation in environmental education and increase environmental awareness. Emphasize the health benefits of time spent outdoors.
- Provide resources and N.C. Office of Environmental Education staff support to program providers to adapt existing environmental education curricula for adults and help providers market these opportunities to the public.
- Provide and publicize environmental education resources to state government staff as a part of their employee orientation and professional development. Explore cooperative agreements with departments and divisions of state

government to incorporate environmental education principles and concepts into personnel training. Support educational programs for government employees that improve understanding of emerging environmental issues.

- Provide resources to parent organizations, faith-based organizations and neighborhood associations interested in providing environmental education.
- Market environmental education programs specifically to parents.

Objective 5.3: Increase the use of environmental education as an effective environmental management tool.

Action Items:

- Collaborate with the N.C. Department of Environment and Natural Resources divisions and other agencies to incorporate environmental education into environmental management efforts. Explore similar partnerships with other local government agencies and federal agencies.
- Consult with government entities, nonprofits and businesses on ways to use environmental education in conservation and environmental management plans and programs.
- Promote model programs that use environmental education as a critical component of their environmental management efforts.
- Encourage universities and colleges to offer environmental education courses/workshops for adults.
- Coordinate training for state and local government employees using environmental education techniques.

Objective 5.4: Form partnerships for providing adult education.

- Build partnerships with non-governmental organizations, including nonprofit and faith-based groups, conservation groups, businesses and the sustainable-agriculture community.
- Partner with continuing education and leisure providers, including Elderhostel and small businesses such as ecotourism and recreation outfitters.
- Partner with the sustainable agriculture community to support efforts to educate adults about local, sustainable food resources in North Carolina.
- Partner with environmental justice organizations to ensure that adult environmental education programs focus on increasing awareness about how environmental degradation affects human health and social problems in racial minority and low-income communities.
- Develop relationships with builders associations, grading contractors and developers to explore ways the building community can use environmental education content and techniques to educate their employees and their clients.
- Partner with conservation organizations to ensure that conservation of natural areas is included as a goal for adult environmental education programs.
- Develop partnerships with various environmental organizations to ensure that adult programs incorporate emerging issues in the environmental field.
- Assist organizations that must educate adults on new environmental legislation.
- Develop partnerships with organizations such as the N.C. Cooperative Extension, the N.C. Division of Soil and Water Conservation, the N.C. Department of Agriculture and Consumer Services and the N.C. Department of Health and Human Services to expand the outreach and content of adult programs.

Endnotes

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- ²¹ North American Association for Environmental Education. *Nonformal Environmental Education Programs: Guidelines for Excellence*. (Download at: <http://www.naaee.org/npeee/nonformal.php>)
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Enabling Legislation

SECTION 28. ARTICLE 7 OF CHAPTER 143B. PART 4B.

143B-285.20. Short title.

This Part shall be known and cited as the Environmental Education Act of 1993

143B-285.21. Declaration of purpose. The purpose of this Part shall be to encourage, promote and support the development of programs, facilities and materials for the purpose of environmental education in North Carolina.

143B-285.22. Creation. There is hereby created a North Carolina Office of Environmental Education (hereinafter referred to as 'Office') within the Department of Environment, Health and Natural Resources.

143B-285.23. Powers and duties of the Secretary of Environment and Natural Resources. The Secretary of Environment, Health and Natural Resources shall:

- (1) Establish an Office of Environmental Education to:
 - a. Serve as a clearinghouse of environmental information for the State.
 - b. Plan for the Department's future needs for environmental education materials and programs.
 - c. Maintain a computerized database of existing education materials and programs within the Department.
 - d. Maintain a speaker's bureau of environmental specialists to address environmental concerns and issues in communities across the State.
 - e. Evaluate opportunities for establishing regional environmental education centers.
 - f. Administer the Project Tomorrow Award Program to encourage school children to discover and explore ways to protect the environment.
 - g. Assist the Department of Public Instruction in integrating environmental education into course curricula.
 - h. Develop and implement a grants and award program for environmental education projects in schools and communities.
- (2) Coordinate, through technical assistance and staff support and with participation of the Department of Public Instruction and other relevant agencies, institutions and citizens, the planning and implementation of a statewide program of environmental education.
- (3) Be responsible for such matters as the purchase of educational equipment, materials and supplies; the construction or modification of facilities; and the employment of consultants and other personnel necessary to carry out the provisions of this Part.
- (4) Encourage coordination between the various State and federal agencies, citizens groups and the business and industrial community, in the dissemination of environmental information and education.
- (5) Utilize existing programs, educational materials, or facilities, both public and private, wherever feasible.

143B-285.24. Grants and awards.

The objective of grants and awards made under the provisions of this Part shall be to promote the further development of local and regional environmental education and information dissemination to aid especially, but not be limited to, school-age children. The Office shall recommend each year to the Governor recipients for the Project Tomorrow Award, which the Governor shall award for outstanding environmental projects by elementary schools in North Carolina.

Goal 1

Increase public participation in environmental awareness and education opportunities.

Improve public access to quality environmental education materials, resources and facilities.

Increase the public's use of North Carolina's environmental education centers.

Increase awareness of environmental education events and promote opportunities statewide.

Goal 2

Strengthen the environmental education field, elevate the status of environmental education professionals and improve the quality of environmental education materials and programs.

Increase public understanding of the value of environmental education and increase support for the field of environmental education.

Increase the number of students pursuing environmental careers and strive for more cultural, economic and geographical diversity among those students.

Increase environmental education and stewardship opportunities

Goal 4

Increase the number of educators and students who receive environmental education.

Integrate environmental education into PreK-12, college and university curricula.

Increase opportunities for preservice teachers to be trained in environmental education pedagogy and to learn appropriate outdoor teaching techniques.

Increase participation of PreK-12 educators in environmental education professional development programs.

Increase access to quality environmental education resources.

Environmental education profession,
environmental education
the quality of environmental
programs.

Increase awareness of and the use of
environmental education professional
standards for North Carolina educators.

Increase communication and
coordination among environmental
education professionals.

Provide and improve the availability
of model environmental education
library collections for North Carolina
educators.

Environmental literacy of natural resources

Goal 3

Strengthen North Carolina's ability to provide sustainable
and comprehensive environmental education programs.

Increase the number of leaders and
organizations that provide quality
environmental education across the state.

Assess and evaluate environmental
education and environmental literacy in
North Carolina.

Increase funding for environmental
education.

Increase participation of nonformal
educators in environmental education
professional development programs.

Goal 5

Increase the environmental literacy of adults.

Design targeted marketing and
education campaigns that highlight the
interconnectedness of environmental
health, human health, sustainable
practices and economic vitality.

Increase the use of environmental
education as an effective environmental
education management tool.

Generate and market public education
programs and materials that address
current environmental concerns in North
Carolina.

Form partnerships for providing adult
education.



