



*Environmental Literacy
in New Jersey:
A Call to Action*



DRAFT

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Environmental Literacy in New Jersey: A Call to Action



Contents

Feedback will be processed in November and the plan will be finalized in January 2010. Once approved, copies of it will be presented to the Governor, the New Jersey State Legislature, members of the cabinet, and select leadership representing environmental education, education, environmental and science-based organizations. Copies will also be available at New Jersey's annual Environmental Education conference at the end of January. It will be promoted electronically to all New Jersey environmental education providers and practitioners and interested persons.

This plan will serve as a five-year strategic plan for 2010 – 2015.

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Environmental Literacy in New Jersey: A Call to Action



Executive Summary

“There is encouraging evidence that the public can learn about the environment and complex ecological relationships. That we are far from succeeding in making this a reality is due to the absence of a comprehensive coordinated approach to environmental education.”

- Kevin Coyle, **Environmental Literacy in America – What Ten Years of NEETF/Roper Research and Related Studies Say About Environmental Literacy in the U.S.** The National Environmental Education and Training Foundation, 2005 (pg. IX, Executive Summary).

There is increasing urgency for today’s adults and youth to be aware of and to understand society’s complex environmental and ecological challenges and how to address them. Just as importantly, people must understand how the problem or issue involves them directly because of their practices or behaviors, as well as how the problem or issue may affect people’s health and quality of life. Having this knowledge and set of skills describes what it means to be environmentally literate.

Environmental education provides a foundation for in-depth, lifelong learning about the environment by providing people with opportunities for experiencing natural and built systems and learning about the complex relationships that exist between nature and people. The collective experiences and lessons that occur throughout a person’s lifetime help cultivate that individual’s environmental literacy.

Motivated by increasing needs and uses for environmental education, the New Jersey Commission on Environmental Education and Interagency Work Group revised New Jersey’s plan for environmental education in the state. The commission and work group are state level groups charged with developing and administering New Jersey’s environmental education master plan.

The purpose of *Environmental Literacy in New Jersey: A Call to Action* is to cultivate an environmentally literate citizenry. This revised New Jersey environmental education master plan is intended for use by environmental education professionals as a five-year planning and action plan, with a timeframe for delivery between 2010 through 2015. Its targeted audiences are New Jersey’s environmental education providers and practitioners and the ultimate benefactors of *A Call to Action* are New Jersey adults, families and youth of all ages.

A Call to Action provides direction and recommends specific state-level actions that would improve the state’s capacity to support the delivery of environmental education throughout New Jersey for all citizens. This plan is focused on four goal areas:

- I. Know and Understand how Ecological Systems Work;
- II. Care for Ecological Systems;
- III. Keep the Environment and People Healthy; and
- IV. Plan for Today and Tomorrow’s Quality of Life.

It provides direction and recommended actions for locally-based environmental education providers and large-scale coalitions, networks and organizations that deliver environmental education programs, services and resources.

This plan also calls for state environmental education leaders and affiliates to strengthen New Jersey's existing capacity to support environmental education by improving upon the infrastructure already in place. While the recommended actions in *A Call to Action* include some new tasks to help achieve this, they primarily depend upon existing services and resources already being provided by the commission and work group, or support made available by the State Departments of Environmental Protection, Education, the Alliance for New Jersey Environmental Education, and other affiliate organizations.

When combined, both sets of actions work together to help unify and coordinate, increase, improve, promote, inform, recognize and track environmental education efforts throughout the state.

The importance and relevance of environmental education for all ages is becoming increasingly clear. The urgency to advance its delivery throughout New Jersey, even during such challenging times, validates the ongoing efforts of the commission and work group and reinvigorates state level commitments to ensure that state support is purposeful, relevant, responsive and effective.

This strengthening of structure and support should, over the next five years, help align and improve environmental education and increase the public's participation in these activities.



Environmental Literacy in New Jersey: A Call to Action



Section 1 New Jersey Commission on Environmental Education, Interagency Work Group and Affiliate Agencies and Organizations

The New Jersey Commission on Environmental Education and Interagency Work Group are state level groups statutorily charged with implementing a master plan for environmental education in New Jersey.

The commission has formally existed through Executive and Administrative Orders since 1989. The commission and work group were statutorily established in 1996 (without funding) with passage of the New Jersey Environmental Education Act (N.J.S.A. 18A:6-91.1 et seq.). Both groups are “in but not of” the New Jersey Department of Environmental Protection (DEP). Department management provides guidance regarding state environmental priorities and environmental education staff provide administrative support and have secured limited funds for commission and work group activity during this time. The DEP is committed to the work of the commission and work group as a means for helping to achieve the department’s mission in environmental protection.

The New Jersey Department of Education (DOE) was instrumental in helping to establish the commission and has maintained active leadership and membership on the commission since its inception. The inclusion of environmental education in the New Jersey core curriculum content standards and high school graduation requirements has more recently been established, as well as opportunities for its integration into curriculum and instruction, professional development, after-school programs, career and technical education, and assessment. The DOE is committed to assisting with the implementation of this revised plan in order to help further the delivery of comprehensive and rigorous environmental education in New Jersey schools.

The commission is a voting body comprised of twenty-nine seats. The majority of its members are private citizens representing select groups with interests in environmental education delivery, such as public and private schools, nature centers and museums, colleges and universities, local government, civic and environmental organizations, labor and industry, and others. Some of these citizens also represent specific organizations, such as the New Jersey Education Association, the New Jersey Principals and Supervisors Association, and the New Jersey School Boards Association. Finally, the commission includes government designees representing state agencies with interests in environmental education. These include the state departments of Environmental Protection, Education, Higher Education, Law and Public Safety and Health and Senior Services. Commission members have helped plan and implement certain environmental education activities featured in the founding statute and/or the New Jersey environmental master plan, advised DEP and other state agencies regarding their environmental education efforts, and helped promote environmental education news, resources and programs to New Jersey environmental education professionals as well as to the public at large.

The Interagency Work Group is a non-voting body comprised of representatives of select government agencies, such as the New Jersey Departments of Environmental Protection, Education, Agriculture, Human Services, Community Affairs, Children and Families, and others. The common ground uniting

work group members is that their work in some way supports the delivery of environmental education. During challenging economic times in the mid-1990s when the state's environmental education statute was still being formalized, the Interagency Work Group replaced the creation of a new environmental education office that would have been dedicated to commission and work group activities. Work group members have helped implement the state's master plan for environmental education by providing expertise, in-kind services and guidance to the commission, as well as limited fiscal resources.

The commission and work group's web site features additional information about how they were established, past contributions, and current activities. The site also features New Jersey's environmental education master plans, a list of commission and work group members, meeting information and links to relevant environmental education resources. Visit the web site at www.nj.gov/dep/seeds/njcee.

This revised master plan is being introduced during another economically challenging time for New Jersey when state funds and services are severely restricted and staffing is limited. However, opportunities to receive federal funds for environmental education or for stimulus-related projects have either taken place or hold promise for the future, state priorities in environmental protection and formal education offer consistent opportunities for environmental education and public interest in green, sustainable activities, stewardship, and nature exploration are on the rise.

The importance and relevance of environmental education for all ages is becoming increasingly clear. The urgency to advance its delivery effectively and efficiently throughout New Jersey, even during such challenging times, validates the ongoing efforts of the commission and work group and reinvigorates the commitments that DEP, DOE and other state-level government agencies and organizations have to help ensure the successful implementation of this revised environmental education master plan. This plan refocuses the work of the commission and work group to:

- Assist with implementation of an environmental literacy plan for grades pre-K-12 (described further in other sections of this plan) that supports learner goals in environmental literacy for all students;
- Promote environmental literacy plan to NJ environmental education providers and encourage them to align local school-based environmental education initiatives with its goals and priorities;
- Promote the knowledge, attitudes and values, skills and behaviors in this plan to NJ environmental education providers and encourage them to align local adult, youth and family-oriented informal programs with them, and help implement the plan's four strategic initiatives;
- Assist with promotion of a statewide system for green jobs training and employment, workforce development and environment-related career opportunities and support the inclusion of sustainable, green practices in all career and workforce training programs;
- Encourage the inclusion of education-based school design features in new school construction plans, so that new facilities and grounds can be linked with green school curriculum and instruction;
- Bring together, through environmental education forum(s), the plans and needs of New Jersey's larger-scale environmental education efforts, such as those that focus on sustainability, campus and green school activities, environmental justice and environmental health education efforts;
- Promote the use of national guidelines for excellence regarding environmental education programs, training and materials, to NJ environmental education providers;
- Assist with promotion of a statewide coalition and campaign to get children and families outdoors;
- Collaborate on the leveraging of federal, state and private funds in order to further the delivery of specific components of this revised environmental education master plan for all citizens;

- Increase electronic communications between the commission and work group and NJ environmental education providers and the promotion of environmental education grants as well as new research, resources and services, through DEP's *EEdNEWS* service and announcements;
- Assist with the development and promotion of an electronic NJ environmental education directory of resources, expertise and services; and
- Track select activities that are part of this plan and provide reports annually on results and progress.

The commission and work group work in partnership with the Alliance for New Jersey Environmental Education (ANJEE). ANJEE is New Jersey's professional statewide not-for-profit organization for environmental education professionals and is supported by volunteers. It offers members an array of services, such as an annual statewide conference and leadership retreat, regional programs, a newsletter and web site, and electronic resource-sharing services. Alliance leadership will revise ANJEE's strategic plan in order to help implement *A Call to Action* during the next few years. It is also committed to promoting the use of national environmental education guidelines for excellence and determining the value of having a formal certification program for formal and/or informal environmental educators. Finally, ANJEE began advocating at national and state levels for policies that would advance the field of environmental education for all ages. To learn more about ANJEE, visit www.anjee.net.

ANJEE is New Jersey's affiliate member of the North American Association for Environmental Education (NAAEE). NAAEE is the nation's only professional association for environmental education. Its members strive to promote professional excellence in informal organizations, K-12 classrooms, universities (both instructors and students), government agencies, and corporate settings throughout North America and in over 55 other countries. Its demonstrated leadership in environmental education research, standards and best practices, advocacy, enrichment and other activities are referenced throughout this plan. The NAAEE has also taken a leadership role to help further federal support for environmental education, such as through passage of the *No Child left Inside* bill and the reauthorization of the federal Environmental Protection Agency's Environmental Education Act, which are mentioned later in this plan. To learn more about NAAEE, visit www.naaee.org.

Commission and work group activities would include hosting environmental education leadership forums during the next five years with representatives of New Jersey's larger-scale environmental education initiatives and statewide providers. Initiatives to be highlighted at the forums would include sustainability education, campus and green school activities, environmental justice, conservation education, citizen science and community leadership, nature study, gardening and outdoor classrooms, environmental careers and green collar jobs, and environmental health education. The purpose of the forums is to bring together leaders in these areas for planning, information sharing, collaboration and networking. The sharing of reports between these groups would be supported on an ongoing basis.

Committee work would also be conducted by the commission and work group and would focus on priority tasks identified in this revised environmental education master plan. Interested professionals and members of the public would be invited to participate on these committees.

Many of the recommendations in this plan, along with much of the commission and work group's ongoing work, are based on findings and recommendations from numerous national and state resources that are recognized in a reference list provided in the appendices of this plan.



Environmental Literacy in New Jersey: A Call to Action



Section 2 Purpose, Goals and Design of the Plan

The purpose of *Environmental Literacy in New Jersey: A Call to Action* (referred to as *A Call to Action*), is to cultivate an environmentally literate citizenry. The commission and work group adopted a description for environmental literacy that is based on descriptions used by the Environmental Education and Training Partnership and Environmental Literacy Council. It reads as follows:

An environmentally literate citizen understands that:

- *Natural systems and the interactions between the living and non-living environment;*
- *Choices they make as humans, including as consumers, affect the environment;*
- *Choices can either help or harm the environment and the earth's ability to sustain human and other life;*
- *How to deal sensibly with problems that involve scientific evidence, variability, uncertainty, and economic, aesthetic and ethical considerations; and,*
- *What they need to do – individually or as part of a community – to keep the environment healthy, sustain its resources, and create a good quality of life for themselves, their children, and future generations.*

An environmentally literate person is able to understand the complex relationships that exist between nature, people, and the ways in which people live their daily lives. Using this understanding, this person can become motivated to think and act responsibly regarding the environment. The cultivation of an environmentally literate person transpires over many years through an individual's collective experiences and lessons about natural and built systems, green practices, and sustainability.

The field of environmental education provides the necessary foundation for in-depth learning about the environment. In New Jersey, environmental education experiences and information are delivered daily into peoples' lives by various media forms as well as through classrooms, homes, the outdoors, workplaces and employers, communities and technology. Environmental literacy thus depends greatly upon the efforts of numerous environmental education providers and practitioners. This relationship between environmental literacy and environmental education is explored further in **Section 3**.

The ultimate benefactors of *A Call to Action* are New Jersey adults, families and youth of all ages. The targeted audiences for using *A Call to Action* are New Jersey's environmental education providers and practitioners. Providers include the governmental agencies, schools, colleges and universities, educational facilities, nature centers and parks, organizations, companies, foundations and media sources that develop, provide or support environmental education and that are largely based in New Jersey. Practitioners include the teachers, professors, naturalists, instructors, scientists, counselors, scout leaders, volunteers, public and private sector employees, parents and youth who deliver environmental education in various instructional settings throughout New Jersey.

Environmental Literacy in New Jersey: A Call to Action, is New Jersey’s third environmental education master plan. It is intended for use by environmental education professionals as a five-year planning and action plan, with a timeframe for delivery between 2010 through 2015. *A Call to Action* is designed to guide, align and coordinate, improve and recognize, promote and monitor environmental education initiatives in New Jersey, in school-based settings as well as informal instructional settings.

During such economically challenged times, *A Call to Action* puts into motion state level strategies to increase opportunities for partnerships, collaboration and the leveraging of funds, without stressing already-limited services and resources. These strategies will enable state leaders to more effectively and efficiently coordinate environmental education activities between and within agencies and with large-scale educational efforts, as well as share with environmental education professionals information about the state’s priorities and any new resources and opportunities related to the field.

The center-piece of *A Call to Action* is New Jersey’s Environmental Literacy Plan (ELP). The intent of the NJ ELP is to cultivate the environmental literacy of students in grades pre-K through 12. This plan provides a framework for New Jersey schools to expand and improve their environmental education programs. It reflects many of the priorities of the NJ Department of Education and how resources are already being used to integrate environmental content and skills into various school-based initiatives, as well as how federal funds for environmental education will most likely be used, pending passage of the *No Child Left Inside* bill. Regardless of whether this bill passes, the NJ ELP will provide useful guidance to the NJ environmental education providers that provide services to New Jersey students. Details regarding state and national trends in environmental education are discussed further in **Section 4**. Plans to accommodate these federal initiatives, along with state-level action strategies to be carried out by the commission, work group and other partners, are described in **Section 5**.

This plan also issues a “call to action” directly to New Jersey environmental education providers and practitioners to take ownership of it by participating in its implementation, contributions and results. It unites all environmental education efforts by identifying the overarching purpose of environmental literacy and introduces four goal-oriented strategic initiatives that can be supported locally. They are:

- I. Know and Understand how Ecological Systems Work;
- II. Care for Ecological Systems;
- III. Keep the Environment and People Healthy; and
- IV. Plan for Today and Tomorrow’s Quality of Life.

Each strategic initiative is accompanied by background information, the overarching goal of the initiative, what the environmental education community can do to help implement or support it, actions recommended for specific audiences, and metrics for measuring success. These actions and a timeline are presented in chart form and address three broad audiences: adults (in any and all capacities as individuals, community members, business leaders, parents or consumers), educators (formal and informal, all ages), and youth. The four strategic initiatives are explored further in **Section 6**.

By moving forward this framework of realistic and practical state level and locally based strategies, *A Call to Action* will help strengthen New Jersey’s ability to cultivate an environmentally literate citizenry. Through its implementation New Jersey should benefit, even during economically constrained times, by improving upon the delivery and use of existing environmental education resources and services and by laying proper groundwork for the use of fiscal resources secured during the years ahead.



Environmental Literacy in New Jersey: A Call to Action



Section 3 Environmental Literacy and Environmental Education

Information about problems and issues related to environmental quality, natural resources and human health are featured daily in the news and range from local concerns to global phenomena. The Internet, television, radio and print media feature information about such topics as wetlands, indoor and outdoor air quality, climate change and energy use, water supply and flooding, smart growth, soil contamination and endangered species, to name but a few. Decisions regarding farmland preservation, open space and land use/zoning and development are part of public ballots and local decision making processes. Organizations, businesses, government agencies, institutions and citizens are promoting and adopting green building and sustainable practices as ways to address such challenges. Social networking circles feature electronic conversations about green activities, exploring nature, and outdoor pursuits.

There is increasing urgency for today's adults and youth to be aware of and to understand society's complex environmental and ecological challenges and how to address them. Just as importantly, people must understand how the problem or issue involves them directly because of their practices or behaviors, as well as how the problem or issue may affect their own health and quality of life. However, sometimes the environmental and scientific information people acquire throughout their lives is fragmented and seldom enough to comprehensively cultivate the depth of understanding and variety of collective experiences and skills needed to inform, engage and motivate people to take appropriate actions or alter their daily practices.

The field of environmental education provides the foundation for in-depth, lifelong learning about the environment. Environmental education provides people with opportunities for experiencing natural and built systems and the complex relationships that exist between nature and people through the ways people meet their basic needs and live their daily lives.

Environmental education is designed to help people of all ages develop the knowledge, attitudes, values, skills and behaviors needed to maintain, protect and improve the environment through routine activities at home, in the workplace, at school and within the community at large.

Environmental education experiences include classroom, research, laboratory and field studies that focus on the sciences, social studies and geography, natural resource management, environmental quality, sustainability, development and design, environmental health, careers and technology, and "green collar" training. These experiences are typically engaging learning opportunities that are designed for targeted ages and can take place in a variety of formal and informal instructional settings.

In a classroom setting for children, environmental education experiences are known to help increase the performance of students on standardized tests. It engages them in the use of critical and creative thinking and problem solving skills and involves them in inquiry-based learning and investigations. Environmental concepts and themes are used for integrated studies in multiple subjects, such as by linking scientific inquiry with learning goals in mathematics, language arts, social studies, health and the fine arts.

Studies have suggested that environmental education and outdoor experiences help decrease student absenteeism and disciplinary actions that typically take place in classroom settings, largely by emphasizing student engagement. Structured outdoor activities and creative play are also recognized methods for combating weight and obesity issues, as well as the increasing amount of time spent by youth using various forms of hand-held technology, computers and television. Environmental education is also used to enhance self awareness and develop leadership and group socialization skills.

Community-based environmental projects, service learning, volunteerism, ecotourism and “citizen science” action programs are known to help increase engagement in community stewardship activities and help empower participants to become active in local decision-making and leadership. Adult environmental education leadership courses offered by organizations, government and educational institutions help nurture more knowledgeable and engaged local leaders, and community-based sustainability models help unify local interests in long-term community planning and design.

Corporations and businesses investing in environmental technologies, sustainable industrial practices, green building and green behaviors often educate employees and clients, as well as local communities, about their environmental investments and changing workforce needs. Such commitments demonstrate positive models to be replicated while showcasing the environmental and economic benefits of sustainable practices in the workplace. Colleges, universities and career prep programs are also investing in green buildings, cleaner technologies and services and other green campus practices, and are incorporating new green collar training programs into course offerings and campus activities.

Informal environmental education experiences offered to families, youth, adults, groups and classes by museums and nature centers, zoos and aquariums, parks and conservation organizations facilitate lifelong learning about ecology, human health, environmental protection and sustainability. Nature study and outdoor recreational pursuits, such as canoeing, fishing, hiking, hunting and camping, engage people of all ages in the discovery, enjoyment and understanding of the environment.

All of these types of environmental education activities, supplemented by the ever-present array of media sources on scientific, environmental and green topics, such as television shows, Internet content, periodicals, and celebrity spokespersons, provide citizens with diverse opportunities for learning about the world. These collective experiences and lessons encountered throughout a person’s lifetime help cultivate that individual’s environmental literacy.



Environmental Literacy in New Jersey: A Call to Action



Section 4 Environmental Education Priorities at State and National Levels

New Jersey typically stands out from other states due to numerous environmental concerns linked to its high population density, building and development patterns, legal and political subdivisions, industrial history and economy, and many of the individualized actions and behaviors of its citizenry. These concerns are numerous and complex, and often impact the state's richly diverse natural resources and fragile ecosystems, human health and quality of life issues, and overall environmental quality. The consequences of these environmental concerns cannot be resolved solely by the enforcement of federal or state regulations and local ordinances.

New Jersey is neither alone with these struggles nor does it stand alone regarding solutions. Scientists, educators and other professionals worldwide agree that people must be more informed and understand how their decisions and lifestyles affect the natural and built systems that people require in order to live. They must get involved with implementing solutions leading to constructive and sustainable change through formal and informal learning, research and investigation, workplace practices and vocational pursuits, private and public sector leadership, community planning and public discussion, and enjoyment of the natural world.

Since the early 1900s, New Jersey has pioneered pursuits in nature study, outdoor science and ecology, conservation and natural resource education, residential environmental education, teacher training, camps and outdoor recreation, and agriculture. Numerous natural and cultural history interpretive centers, as well as outdoor education programs, were established in public and private parks, forests and protected open space areas. Most of these facilities, organizations and programs are still active and thriving today.

Environmental education policy and practice began to flourish in New Jersey during the 1960s – 70s, when Earth Day attracted international attention regarding air and water pollution, noise and waste. Since that time the scope of environmental education learning opportunities has grown to include resources on ecological systems, natural resource management, biodiversity of species, air and water quality, solid and hazardous waste, recycling and waste reduction, pollution prevention, energy and global climate change, watershed and stormwater education, and numerous environmental health issues. Hundreds of New Jersey organizations, facilities, consultants, government agencies, companies and public institutions now offer expertise, programs and services on these topics, for students as well as for residents of all ages. A plethora of New Jersey educational media and technology-based resources also exist on these topics.

Finally, environmental education supplements New Jersey's emerging green school and campus efforts and its green buildings activities, its adult and community-based stewardship and leadership programs, and its community-based sustainability education efforts. The field's existing resources that attract youth to environmental careers are beginning to embrace the cutting edge needs and interests regarding green collar jobs and training.

The common thread running through these necessary and valuable initiatives is education about the environment. Yet, the state known for its environmental challenges still must strengthen its statewide infrastructure of support for environmental education so that the solutions to these challenges that require public education are attainable. The environmental literacy of New Jersey's residents rests upon the opportunities and resources made available to them for high quality environmental education learning experiences throughout their lifetime.

Why the growing urgency for environmental education? One reason is because many of today's environmental challenges cannot be solved by government regulations alone. Numerous remedies require the public to take action because problems are caused in part by contributions from, or the actions of, many individuals. Healthy ecosystems, habitat protection, global climate change, nonpoint source pollution and waste reduction all have potential solutions but require the regulated community as well as private citizens to be informed and responsive.

Second, there are a growing number of environmental challenges with direct effects on human health and quality of life for all citizens and especially those who can suffer greater from risk of exposure, such as the elderly, children, pregnant women, and persons living in developed communities. Air and water quality, water supply, and pesticide use are just some of the environmental challenges with human health implications. These understandably stimulate public concern and increase the need for people to understand the causes, consequences and risks associated with them and, when appropriate, to take actions to minimize or prevent exposures.

Third, the growing emphasis on sustainable green building and green practices foster opportunities for companies, businesses, institutions, communities and individuals to develop or adopt new processes, designs, products, services and technologies to reduce their impact on the environment while often stimulating the economy and community development. The need for environmentally literate educators, planners, architects, medical and health experts, engineers, lawyers, business managers, economists, journalists and other professionals is growing. The need for a workforce trained to respond to emerging green collar job and environmental career requirements is also emerging. Finally, the inclusion of courses that incorporate environmental and sustainability principles and learning experiences as part of all formal, higher and adult education learning opportunities will help ensure that future decision-makers and employees act as informed environmental stewards in the professions they pursue.

Fourth, studies have suggested that students who participate in environmental education programs have improved performance on tests, increased interest in subject matter, and reduced issues with discipline and absenteeism. Throughout the United States as well as in New Jersey, environmental education is being incorporated into school curriculum as a focus of study and as interdisciplinary themes, in addition to being part of outdoor learning experiences, community service and student action projects and field trip opportunities. Environmental education experiences are recognized as opportunities for the use of inquiry, critical and creative thinking, investigative research, and laboratory and field studies.

Finally, studies also have suggested that outdoor activity may provide solutions for certain health concerns, such as childhood obesity, attention deficit disorder, social isolation and childhood depression. Children who participate in passive outdoor play and exploration, along with structured outdoor activities like gardening, enjoy and learn about nature while being physically active. These "hands-on,

minds-on” activities can help reduce their dependence on computer and electronic games, cell phones and social networking, and television.

Presented below are recent (2008-09) national activities that demonstrate the increasing need for environmental education to be organized and supported within each state, as well as how most of these national efforts will/are being carried out in New Jersey and are supported by the implementation of this plan (details for most of these can be found in the list of resources and reports included in this plan’s appendices):

- **Inclusion of environmental education in the reauthorization of the federal No Child Left Behind (NCLB) Act through passage of the No Child Left Inside (NCLI) Act.** A coalition of senate and congressional representatives, with over 1,300 environmental education and education organizations representing over 45 million Americans, are spearheading the inclusion of environmental education in the reauthorization of the NCLB Act. If approved, the NCLI Act will make funds available to states like New Jersey that have an Environmental Literacy Plan in place for grades pre-K-12 and that identifies environmental literacy learner goals and directs the use of federal funds in the state for environmental education grants, teacher training, and the integration of environmental education across disciplines. This plan provides details regarding the development of a New Jersey Environmental Literacy Plan. Even if the federal NCLI Act is not passed, such a plan developed with the NJ Department of Education would provide valuable guidance for environmental education professionals that provide services for New Jersey schools in support of the core curriculum content standards, professional development, afterschool programs, career and technical education, and other areas (see **Section 5** for details).
- **Three proposed bills and an amendment, all supportive of environmental education, were introduced in Congress and/or the Senate.** They feature a new grants program for university sustainability programs; increased financial support for environmental education through the Environmental Protection Agency’s environmental education grants program; funds to the National Science Foundation to establish a global warming education program; and, an amendment added to the 2009 energy bill to authorize funds for five years for job training programs for sustainable and alternative energy technologies at the nation’s community colleges, career and technical/vocational programs, trade schools and high schools. In New Jersey, there already exist agencies, organizations and coalitions that are doing work related to these initiatives and that could apply for, and benefit from, these potential funding sources. Strategies in this plan can help guide, align and strengthen such proposals, ensure that appropriate parties learn of these opportunities, help them collaborate with possible partners, promote and communicate these announcements statewide, use and publicize the results of these initiatives, and ensure that these funded projects are leveraged with other funds being pursued.
- **Richard Louv’s book, titled *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder*, has spearheaded public campaigns to connect youth with nature.** Louv’s recognized publication highlights the reduction of time being spent by youth outside. If children reconnect with nature and the outdoors then this could combat the rise of obesity among children as well as their increased reliance on being indoors to access television and

electronics during leisure time. In New Jersey, the Afterschool Care Coalition was so motivated by Louv's work that they embarked on a multi-year campaign to introduce environmental education in the state's afterschool programs. Implementation of this plan will assist their programs with finding appropriate expertise and resources for their increasing environmental education needs. This plan also recommends that New Jersey implement a "getting kids outdoors" public education campaign so that youth as well as all citizens can appreciate nature and outdoor activities while learning to be effective stewards of the public lands that New Jerseyans strive to preserve. Finally, the NJ Department of Education has a grant-funded healthy schools network that is interested in outdoor play in order to improve upon the physical health and wellbeing of students. Their efforts would be collaborated with the implementation of this plan.

- **The National Association for Environmental Education (NAAEE) added environmental education course standards to protocols used by the National Council for the Accreditation of Teacher Education (NCATE).** Sixty percent of the nation's colleges and universities that certify teachers are accredited by NCATE. To be certified, educational institutions must now document environmental education courses offered by the institution are meeting NAAEE standards – even if they are not offered through the School of Education. This initiative would effect such courses being taught in New Jersey's colleges and universities, and information about these courses would be tracked and shared by the commission and work group.
- **Millions of teachers and students throughout the United States participated in the annual, mid-April National Environmental Education Week in 2009, the largest organized environmental education event in the United States.** This effort increases the educational impact of Earth Day by creating a full week of educational preparation, learning, and activities in K-12 classrooms, nature centers, zoos, museums, and aquariums. Through the efforts of DEP, the commission and work group, New Jersey has celebrated Environmental Education Week and Earth Week annually for over twenty years and an estimated 75 – 125+ New Jersey schools and communities annually conduct some type of environmental learning experience during this time.
- **The National Project for Excellence in Environmental Education was initiated by NAAEE and features a series of guidelines that set standards for high quality environmental education.** These guidelines support the development of balanced, scientifically accurate and comprehensive environmental education resources and can be used for developing or assessing learner outcomes for grades K-12; educational materials and programs; and, professional development and training programs for environmental educators. The Alliance for New Jersey Environmental Education endorsed the use of NAAEE's guidelines for excellence in 2007 and the commission and work group are committed to promoting these guidelines to the state's environmental education providers and practitioners as part of the implementation of this plan.

New Jersey's environmental education providers and practitioners often operate individually or in small groups, are not networked together as a whole, and generally do not receive guidance, information, promotional services and resources, communications or recognition from the state level agencies that

share their goals. A *Call to Action* provides the framework needed to unify, increase, improve, promote and track such efforts throughout the state. It also increases New Jersey's ability to obtain needed federal funds and private funds, as well as utilize and leverage existing environmental education funding opportunities and resources, as effectively and efficiently as possible during the next five years.



Environmental Literacy in New Jersey: A Call to Action



Section 5 Strengthening Statewide Structure and Support For Environmental Education in New Jersey

New Jersey’s environmental education providers and practitioners, whether they operate at local, county, regional or statewide levels, are scattered geographically throughout the state in isolated towns, sprawling bedroom communities and busy metropolitan areas. While all of them operate independently, many are also involved in partnerships or in membership with others having similar goals and interests, such as through coalitions, councils and organizations.

Many of these networks, coalitions, councils and organizations focus directed efforts on such topics as conservation and land use, habitats and biodiversity, recycling and waste management, environmental quality, environmental justice, ecotourism and sustainability, to name but a few. Others cater to specific audiences, such as parks and recreation managers, environmental commissions, afterschool and pre-school programs, religious organizations, environmental health professionals and college and university campuses.

One activity these particular groups have in common is that they educate New Jersey residents – students, families, adults, teachers, employees, community leaders – about some aspect of the environment, as part of the means for achieving their mission. This educational process is environmental education and on a day-to-day basis, the educational services and resources provided by these groups helps facilitate environmental literacy among residents.

These groups, as well as individual providers, would benefit from being part of a responsive statewide system of structure and support for environmental education providers that is:

- Attuned to their activities and needs;
- Keeps them informed of state and national priorities in environmental education, formal education, environmental protection, and related fields;
- Promotes new resources, opportunities, research and enrichment;
- Encourages collaboration and partnerships and leveraging of funds;
- Communicates with them electronically;
- Promotes their efforts to the public through directories, networks and media; and
- Tracks and reports on select activities and accomplishments.

The establishment of a state level infrastructure to carry out initiatives like these is referred to as “capacity building.” According to the Environmental Education and Training Partnership:

“Environmental education (EE) capacity building efforts strengthen organizations and individuals who are working toward the implementation and maintenance of comprehensive EE programs at state and local levels. EE capacity building efforts target leaders at state and local levels because these leaders have the ability to effect action to achieve comprehensive EE programs.”

- ***Capacity Building for Environmental Education: How Does it Help Teachers?*** EETAP Resource Library (October, 1999, No. 57).

New Jersey has a basic infrastructure and services in place to support environmental education but this structure is being improved upon, especially during fiscally challenging times, in order to accommodate the functions being described. While the actions in this section suggest some new tasks to help achieve this, they primarily depend upon the existing staff or programs already being provided by the commission and work group, the State Departments of Environmental Protection, Education, the Alliance for New Jersey Environmental Education, or others.

One new initiative recommended in this section is the development and use of a New Jersey Environmental Literacy Plan (NJ ELP). The intent of this plan is to cultivate the environmental literacy of New Jersey students in grades pre-K-12. It is to be administered by the NJ Department of Education (DOE), supportive of the state's graduation requirements and core curriculum content standards, and part of a formal assessment system.

At the national level, the guidance and rationale for such state plan strongly supports New Jersey's vision for transforming education in New Jersey in the years to come, and states:

“It is critical that every American understands how our community, economy and the environment are connected and mutually dependent. Environmental education prepares all citizens with 21st century essential skills that contribute to healthier, more environmentally sustainable, and economically prosperous communities.”

- ***Developing a State Environmental Literacy Plan***, NAAEE (August, 2008).

If the federal *No Child Left Inside* bill is passed in 2009-10, the NJ ELP must be in place if New Jersey is to obtain federal funds from the federal Department of Education for specific environmental education uses, such as professional development, support for best practices and integration models, and other priority initiatives. The leveraging and collaborative use of these funds, in conjunction with other federal, state and private funds that collectively help further environmental education in NJ schools, would be beneficial during such constrained economic times. The cooperative interagency efforts of the commission and work group and their ability to engage with the localized work of NJ schools and individual environmental education providers would be both valuable and practical.

The NJ ELP will be a sub-set but yet a cornerstone feature of *A Call to Action*. While the purpose of *A Call to Action* is to cultivate environmental literacy among NJ citizens of all ages and in both formal and informal instructional settings, the NJ ELP can serve as the guide for school-based environmental education initiatives conducted throughout NJ.

If the federal *No Child Left Inside* bill is not passed in 2009-10, the development and use of a modified NJ ELP regardless of federal support, would still provide valuable guidance for environmental education providers by helping to determine school-based priorities and activities in environmental education, showcasing DOE's existing efforts to advance environmental education in New Jersey schools, and providing support for the pursuit of grants and other funds. Though the scope of the NJ ELP would largely depend upon the fiscal support it receives long-term, even an unfunded version would provide schools and providers with a blueprint for environmental education delivery in grades pre-K-12 statewide.

The other new action recommended in this section is the development of a New Jersey initiative for getting children and families outdoors in nature, to compliment the nation's concerns with the physical health and wellbeing of today's youth. Such campaigns already in place in other states depend upon the expertise, facilities and outdoor spaces administered by informal environmental education providers. Having a mechanism in place to conduct a program or campaign on this topic would be another cornerstone in *A Call to Action* and would provide support for the state's informal environmental education experiences that contribute towards environmental literacy.

As stated in previous sections, the strengthening of New Jersey's existing structure and support for environmental education as well as the undertaking of these new initiatives will occur during a challenging time, when the need for environmental education services is growing but the economy is severely restricted and staffing and resources are limited. The actions recommended in this section demonstrate sensitivity toward the state's economic challenges as well as its priorities and needs in education and environmental protection. They strive to better serve the needs of the state's environmental education providers through improved use of the existing infrastructure and state level commitments already in place, as well as the leveraging of state, federal and private resources being used to advance environmental education. These actions also improve upon the state's system for collecting and sharing information and data, whether it is findings from forums and research, the availability of grants, opportunities for enrichment, and the promotion of models and best practices.

As these actions are implemented over the next five years they will help unify and build on existing educational efforts, validate productive partnerships, encourage collaboration and planning based on priorities, and track certain results. These actions will also enable state leaders to more effectively coordinate environmental education activities between and within agencies as well as with other large-scale educational efforts in New Jersey.

As a result of these actions the ongoing work of the commission and work group, in cooperation with partners, will be more purposeful, relevant, responsive and effective. This strengthening of structure and support should, over the next five years, help align and improve environmental education activities and increase audience interest and participation in them throughout New Jersey.

Long-term, *A Call to Action* will help provide a more firm and supportive foundation for educators, scientists and other professionals to address the emerging needs and challenges of a changing global society and planet, while cultivating the environmental literacy of the state's present and future residents.

Recommended Actions for Strengthening Statewide Structure and Support For Environmental Education in New Jersey

The actions recommended in this section outline the work to be performed in the next five years (2010 – 2015) by the commission and work group, in cooperation with the State Departments of Environmental Protection and Education, the Alliance for New Jersey Environmental Education, and other agencies, organizations and groups.

Most actions include background information, lead agencies, timeframe, tasks to be completed and anticipated outcomes. All actions are based upon the availability, participation and support of existing staff, services and programs in the groups mentioned. Should staff resources change in the future, then the work of the commission and work group would need to be reviewed and altered accordingly.

Recommendations from various models and reports were used as guidance and reference for the actions in this section. A list of these resources is provided in the appendices.

Action #1: Develop and implement a five-year (grades pre-K-12) New Jersey Environmental Literacy Plan (NJ ELP) that provides a framework for New Jersey schools to expand and improve their environmental education programs.

Lead Agency: NJ Department of Education
NJ Department of Environmental Protection
NJ ELP Advisory Team and others

Timeframe: 2009 – 2010 – development
2011 – 2015 - implementation

Background: Development of, and priorities regarding, the NJ ELP will be overseen by a team of individuals led by the NJ Department of Education (DOE) and/or DEP with representatives from select organizations, agencies and institutions, as determined by federal NCLI statute and/or DOE. Scope and implementation of the plan would be determined by passage of the NCLI bill and related fiscal support received during the next five years. If the bill is not passed, DEP, the commission and work group would work with DOE to develop a modified NJ ELP blueprint, either by securing outside funds or by developing and using it through in-kind support.

Proceedings related to the NJ ELP would be discussed at commission and work group meetings and environmental education forums, posted at the commission web site and communicated to NJ environmental education providers. Methods for tracking or gathering key information related to the NJ ELP would need to be developed. As per the NCLI bill, DOE would be expected to report on NJ ELP activities and results. These reports would be shared by DOE and the NJ ELP team with the commission and work group and would be reported to leaders in state government, education, environmental protection, and environmental education, as well as to ANJEE members, as part of *A Call to Action's* communications and reporting process.

Components of the NJ ELP could include (based on federal NCLI recommendations):

- A. Identification of specific 2009 NJ Core Curriculum Content Standards (CCCSs) for all grades as well as HS course requirements necessary to develop environmentally literate students;
- B. Course details and assessment findings from HS environmental science course as well as environmental content embedded in other science courses and STEM initiatives, as they are aligned with NJ ELP CCCS goals;
- C. Goals, implementation and assessment findings from DOE Career and Technology Education Program to integrate environmental content and green practices into career program areas;
- D. Goals, implementation and assessment findings from DOE Career and Technology Education's agriculture, natural resource and environmental systems programs;
- E. Support for, and/or promotion of, curriculum resources and classroom programs that integrate environmental content and/or skills in grades pre-K-12 in all academic programs, including those for special needs students and districts in need of improvement, as they are aligned with NJ ELP CCCS goals;
- F. Support for, and/or promotion of, in-service professional development programs for teachers in grades pre-K-12 that integrate environmental content and/or skills in grades pre-K-12, as they are aligned with NJ ELP CCCS goals and DOE guidance for professional development;
- G. Support for, and/or promotion of, pre-service instruction and program models for teachers in training that integrate environmental content and/or skills in grades pre-K-12, as they are aligned with NJ ELP CCCS goals and DOE guidance for professional development;
- H. Support for, and/or promotion of, curriculum resources, classroom programs and professional development that integrate environmental content and/or skills in grades pre-K-12 in DOE service learning, after-school and early childhood education programs, as they are aligned with NJ ELP CCCS goals;
- I. Support for, and/or promotion of, professional development programs, resources and other assistance for NJ environmental education providers to develop or adapt their services and programs directed towards NJ schools so that they are aligned with NJ ELP CCCS goals;
- J. Methods for measuring and reporting on student progress regarding environmental literacy performance and achievement in grades pre-K-12; and
- K. Process for revising or updating the NJ ELP.

Additional components of NJ ELP could include reports regarding:

1. Collaboration with NJ green collar job and environmental career workforce development efforts for secondary students, as they relate to NJ ELP CCCS goals (DOE, NJ Department of Labor and Workforce Development, others);
2. Collaboration with the NJ Healthy Schools Network and inclusion of environmental health education and outdoor environmental education programs in their activities, as they relate to NJ ELP CCCS goals (DOE, NJ Health and Senior Services, others); and
3. Coordination of high performance (LEED) school building construction and operations activities with NJ ELP CCCS goals, NJ green school priorities, and involvement of local educators in school design and construction, in order to link green school design with curriculum and instruction (DOE, DEP, Schools Development Authority, others).

Results from NJ ELP could:

- Ensure that environmental education activities are aligned with student graduation requirements and help achieve state education goals;
- Ensure that environmental education is effectively integrated into formal education systems;

- Ensure that professional development (pre-service and in-service) opportunities in environmental education are aligned with state education goals in environmental literacy;
- Ensure that non-formal environmental education providers are involved appropriately and effectively in environmental education activities in schools; and
- Serve as a necessary component of a comprehensive state environmental education master plan designed for all ages.

Action #2: Develop and implement a statewide initiative to promote, encourage and support nature-based outdoor experiences for children and families and establish a statewide leadership team that would guide and advance this statewide endeavor.

Lead Agency: NJ Department of Environmental Protection (or other)
Commission and Work Group, and others

Timeframe: 2009 – 2010 – development
2011 – 2015 - implementation

Background: As described in previous sections, the public is concerned with the amount of time that young people spend indoors and/or using various forms of technology during their leisure time and the resulting consequences that such inactivity has upon their health and wellbeing. It is not common for children to be allowed or encouraged to explore nature or spend unstructured free or play time outdoors, especially in urban and more developed suburban areas. In informal discussions with environmental education peers, parents and youth, it is surmised that parents and guardians are more likely to stay at home indoors or take their children to the mall, theaters and adventure parks, rather than to a state forest or wildlife management area. This phenomenon is attributed to the following reasons:

1. They don't know where to go or how to learn about such places;
2. They don't know what to do if they go to such a place;
3. They have a fear of the unknown and can over-react or have misconceptions about outdoor hazards and related health and safety issues; and
4. They have limited or no previous experience themselves with nature.

As a result, many regions, states and municipalities are initiating programs or public campaigns that are designed to address these concerns.

Components of this initiative could include:

- A. Develop and maintain web site that could feature:
1. Electronic calendar to showcase daily family and youth-oriented outdoor, nature programs held in NJ year-round and open to the public;
 2. Map of NJ that would feature geographic links to information about science and education facilities, nature centers, parks and open space properties that offer opportunities for outdoor exploration and nature investigations;
 3. Information for the public about programs, theme weeks and months, and resources that support getting people outdoors;
 4. Tips for parents and youth leaders for taking children outdoors;
 5. Information about research findings and benefits of getting people outdoors; and
 6. Feedback and data forms and e-mail list for communications with the involved NJ environmental education providers.

- B. Develop and/or promote enrichment opportunities for educators and parents that increase their knowledge, confidence and skills for taking children outdoors;
- C. Promote resources and expertise that encourage or support nature study, outdoor programs and outdoor spaces in the state's underserved communities, as well as in various types of instructional settings available to youth;
- D. Implement public education strategies that promote web site use to the public as well as to environmental education providers; and
- E. Track key information from participating educators and sites, regarding these programs.

Results from this initiative could:

- Increase public participation (families and children) in programs hosted on park and public lands that enhance their discovery and enjoyment of nature and natural resources;
- Increase public attendance at science facilities, museums, zoos and aquariums that provide nature and science-based activities for children and families;
- Increase opportunities for underserved communities to access and explore parks and public lands, especially in New Jersey's metropolitan areas;
- Increase opportunities for children to experience nature during after-school hours; and
- Increase public involvement with volunteerism and service learning opportunities on park and public lands.

Action #3: Conduct a New Jersey Environmental Education Leadership Forum annually.

Lead Agency: NJ Department of Environmental Protection
 NJ Department of Education
 Commission and Work Group, and others

Timeframe: 2010 and annually through 2015

Background: The purpose of the NJ Environmental Education Leadership Forum is to bring together professionals in environmental education, formal and higher education, non-formal education and environmental protection, to plan and discuss environmental education activities.

The forum agenda would include time for state leaders to share and discuss state priorities, trends, plans, funding issues, and resources. State leaders would also listen to updates from coalitions, organizations and providers about their plans, needs and accomplishments. Opportunities for collaboration would be discussed. Forum proceedings, findings and other information would be shared with NJ environmental education providers.

Action #4: Develop and maintain a New Jersey electronic directory and/or searchable database of New Jersey environmental education providers.

Lead Agency: NJ Department of Environmental Protection, with
 Alliance for New Jersey Environmental Education
 Commission and Work Group, and others

Timeframe: 2009 – 2010 – Development
 2011 – Ongoing - Use

Background: New Jersey does not have a comprehensive electronic directory or searchable database that promotes environmental education resources for all ages, for use in formal and informal instructional settings. Such a collection would feature information and links for:

- **People:** Consultants, experts, speaker programs, trainers and professional development providers, organizations, companies, businesses, coalitions, networks, etc.;
- **Places:** Museums, parks, zoos, parks, nature centers, educational facilities, etc.; and
- **Things:** Curriculum packages, information and data sources, contests, awards, audiovisuals, software programs, etc.

Components of this initiative could include:

- A. Development of directory contents, design, format and means of operation;
- B. Inventory to collect and store data and information from NJ environmental education providers;
- C. Incorporation of data into the directory system;
- D. Promotion of directory to educators, families and the public at large; and
- E. Monitoring and tracking of directory use and ongoing updating of contents.

Features and services of this directory could include:

- Electronic searchable database or separate e-listings of resources, data and links;
- Companion resource publication for ANJEE members (as per grant for project);
- Marketing tools to promote new directory to users and EE providers (ads, articles, flyer, etc.);
- Methods (electronic and hard cc mail) to gather resource information for directory; and
- Means of establishing and maintaining the directory (host site costs, etc.).

Action #5: Improve communications between environmental education providers by strengthening the electronic network between them (in cooperation with the Alliance for New Jersey Environmental Education).

Lead Agency: NJ Department of Environmental Protection, with
Alliance for New Jersey Environmental Education
Commission and Work Group, and others

Timeframe: 2009 - Ongoing

Background: DEP compiles and circulates the *EEdNEWS* bimonthly e-mail listing (announcements regarding environmental education resources and initiatives) and the *EEdNEWS* electronic library. ANJEE maintains for its members electronic *ANJEE ONLINE* and *ANJEE ALERT* electronic announcements. In addition, DEP circulates announcements to numerous other e-mail lists to constituent groups interested in environmental education.

The strengthening of this information and dissemination network would include:

- A. Modify contents, design and delivery of *EEdNEWS* and the *EEdNEWS* e-directory, based on new priorities and needs in environmental education;
- B. Modify contents, design and delivery of *ANJEE ONLINE* and *ANJEE ALERT* based on new priorities and needs of ANJEE and/or its membership;
- C. Promote these services to all New Jersey educators and environmental education providers to increase and diversify these distribution lists; and
- D. Track the use of these services and update contents regularly.

Action #6: Align the ongoing work of the NJ Commission on Environmental Education and Interagency Work Group to either directly, or through partnerships with others, carry out the activities described in this section and in support of their statutory charge.

- A. Identify additional state employees to help implement specific tasks and/or committee activities;
- B. Promote and collaborate on the leveraging of state and federal funds when pursuing grants, use of in-kind state resources, and the potential pursuit of state revenue or other source of generated income to be used for environmental education;
- C. Pursue linkages between *A Call to Action* and the development or revision of other state plans that include some type of environmental education component;
- D. Conduct inventory of governmental programs, services, expertise and programs that support environmental education in New Jersey;
- E. Assist with developing and promoting the NJ environmental education electronic directory;
- F. Assist with the implementing and promoting the annual celebration of New Jersey Environmental Education Week and Earth Day;
- G. Assist with promoting *NJ EEdNEWS* service and announcements e-mail list; and
- H. Assist with developing year-end reports to be shared with leadership and constituents in government, education, environmental protection and environmental education.

Action #7: Engage the Alliance for New Jersey Environmental Education to assist with the implementation of *Environmental Education in New Jersey - A Call to Action*.

- A. Assist with development, implementation and follow-up for the NJ environmental education leadership forums;
- B. Provide enrichment and networking opportunities for NJ environmental education providers through annual state environmental education conference, regional meetings and programs;
- C. Provide professional development and promote resources for the NAAEE Guidelines for Excellence (for materials, programs and training programs) and promote resources and guidance for the evaluation and assessment of environmental education initiatives;
- D. Advocate for the delivery of environmental education for all ages in NJ by monitoring and reacting to federal and state legislation and policies that would effect the field;
- E. Monitor environmental education and natural history interpretation certification programs for formal and/or non-formal providers (nationally and in other states) and determine if, how and when such certification programs should be administered in New Jersey;
- F. Improve and maintain the communications network between ANJEE members through the use of *ANJEE ONLINE* and *ANJEE ALERT*; and
- G. Promote environmental education opportunities and information to the public by participating in the annual celebration of NJ Environmental Education Week and Earth Day and by promoting ANJEE services and initiatives, as appropriate.



Environmental Literacy in New Jersey: A Call to Action



Section 6 The Strategic Initiatives

This section introduces four goal-oriented strategic initiatives that the commission and work group believe environmental education providers should focus some of their efforts on delivering (and many providers are already doing substantial work in these areas). These four initiatives address relevant needs and priorities in environmental education. As programs in these areas are implemented at local and regional levels they would be part of the larger system of support outlined in Section 5, all striving to cultivate an environmentally literate citizenry. They are:

- I. Know and Understand how Ecological Systems Work;
- II. Care for Ecological Systems;
- III. Keep the Environment and People Healthy; and
- IV. Plan for Today and Tomorrow's Quality of Life.

The commission, work group, DEP and other partners would use the environmental education forums, electronic resources, communications tools and other strategies outlined in Section 6, to promote and support the state's educational efforts about these four initiatives. Such support would include:

- Promote new information, expertise and studies useful to educators;
- Feature methods, resources and models for how they are being integrated into NJ classrooms (and in support of NJ environmental literacy plan goals);
- Feature methods, resources and models for how they are being delivered through informal instructional settings in NJ;
- Share announcements regarding grants, awards, enrichment, standards, guidance and new research findings and resources that support their advancement or improvement;
- Encourage partnerships, collaboration and leveraging of funds; and
- Collect, feature and promote information from providers about their work in these areas.

Through the commission and work group's partnership can the Alliance for New Jersey Environmental Education, the groups will work together to feature workshops and speakers about these initiatives at New Jersey's annual environmental education conference. A summary of NJ activities concerning these initiatives would be reported to leaders in state government, education, environmental protection, and environmental education, as well as to ANJEE members, as part of *A Call to Action's* reporting process.

Each initiative is accompanied by background information, the overarching goal of the initiative, what the environmental education community can do, actions recommended for specific audiences and metrics for measuring success. Recommended actions and a timeline are presented in chart form and tailored to three broad audiences: adults (in any and all capacities as individuals, community members, business leaders, parents or consumers), educators (formal and informal, school-age and beyond), and youth. Some recommended actions are duplicated across the audiences as well as across initiatives.



Strategic Initiative I Know and Understand How Ecological Systems Work

Earth is host to a complex web of natural, human and built or constructed systems. Each system, whether it is ecological or human-related, can be identified and studied, but few, if any, exist in isolation. Social systems interrelate with financial; cultural interconnect with political; environmental interact with economic. But underlying all are the basic ecological systems and cycles that power the planet. Carbon, nitrogen and water cycles; soil, weather and air systems all enable life. The earth and ecological systems establish a foundation on which all human interactions are built and upon which human life, all forms of life, depend.

In *The Machinery of Nature* (1986), Paul Ehrlich states “all human beings and human activities are embedded in and dependent upon the natural ecosystems of our planet. Ecosystems are the machinery of nature that supports lives. Without the services provided by natural systems, civilization would collapse and human life would not be possible.”

As society shifts further away from its agrarian roots, fewer people are involved directly with understanding the natural systems of the planet. This is especially true of developed and developing countries where this isolation or separation from nature and natural systems brings with it endless challenges related to resource use, pollution, and climate change. People make personal and societal decisions without understanding the ramifications they have on the earth’s ecology. It is clear that “a lack of recognition of the extent to which all things are connected and a poor understanding of basic principles that govern natural systems has been partially responsible for adverse environmental impacts, economic failures and social programs that do not work, and difficulties in achieving sustainable societies.” (*Recommendation for a Sustainable and Secure Future*. Author, date, Pg 5)

Classes and organized courses may provide basic knowledge and accepted theory about ecological systems but first-hand experiences in nature, with nature, can provide the individual with a desire to use this knowledge when making life’s decisions.

Many science, environmental and natural resource professionals, as well as citizens committed to environmental protection and conservation, attribute current professional and personal pursuits to experiences they had earlier in their lives. These are the types of experiences that compel people to understand and value natural systems and become willing to consider the functioning of systems when making decisions at home, at work or in the community.

These types of first-hand lessons, observations and real life experiences with nature and surroundings form the bedrock for environmental literacy for citizens of all ages.



Strategic Initiative I Know and Understand How Ecological Systems Work



GOAL: Individuals will gain knowledge of how ecological systems function and understand how people are an integral part of these systems.

Environmental education providers can:

- Increase opportunities for individuals to explore, learn about, and understand the natural world, natural processes, and ecological systems by offering structured and unstructured outdoor, hands-on experiences and supplemental materials; and
- Promote the benefits of outdoor experiences and outdoor learning.

Recommended actions for working with the following target audiences:

(Years One to Three)

Adults	Educators (Formal and Non-formal)	Youth
<p>Environmental education providers can:</p> <ul style="list-style-type: none"> • Develop and/or expand programs, classes and workshops in which participants experience nature. • Develop and/or expand programs, classes, workshops and seminars that nurture an understanding of natural processes and ecological systems as well as how natural areas can be created in backyards and community areas. • Develop and/or expand courses on ecological systems for local, county and state officials and other decision makers in professional capacities. • Develop and/or expand opportunities for parents or caregivers to learn about the importance of exposing their children to nature and to engage their families in frequent outdoor experiences. • Develop and/or create materials and establish long-term relationships with media and other outlets to promote the value of outdoor experiences and understanding basic ecological systems. 	<ul style="list-style-type: none"> • Support pre-service and in-service professional development opportunities that use experiential learning to teach about ecological systems, in academic courses as well as career and education programs, afterschool and pre-school programs. • Work with the NJ Department of Education to ensure that study of ecological systems, earth and environmental sciences are included in formal curricula across grade levels and are reflected in the state content standards. • Integrate natural and social sciences into educational offerings and encourage collaborative teaching among these disciplines. • Ensure that environmental science and ecology materials and programs used by educators reflect current scientific theory. • Conduct professional development for supervisors and administrators on value of ecological systems and extending classrooms outdoors, through gardens, trails, etc. 	<ul style="list-style-type: none"> • Develop and/or expand opportunities for youth to participate in outdoor ecological experiences in the communities in which they live. • Use nature study, outdoor learning and outdoor recreation experiences as a springboard for teaching ecology. • Model respect for the natural world. • Provide assistance and support for programs for youth to include nature study and ecology, such as camps, scouting, afterschool programs, clubs, youth groups, etc.

(Years Three to Five)

Adult	Educators (Formal and Non-formal)	Youth
<p>Environmental education providers can:</p> <ul style="list-style-type: none"> • Assess, improve and create exhibits and informational pieces that interpret natural processes and ecological systems. • Provide and/or increase opportunities to learn about environmental, natural history and green collar careers. • Provide or support ecotourism, theme trails (i.e., coastal heritage trail), outdoor activities for families and individuals (i.e., earth caching, geocaching, orienteering) and nature pursuits (i.e., birdwatching, kayaking, nature photography, journaling, painting). 	<ul style="list-style-type: none"> • Improve cooperation between universities and curricula designers to incorporate ecological concepts at all levels. • Develop, promote, and revise college and professional training courses for all post-secondary students that demonstrate how ecological systems function and how people are an integral part of these systems. • Provide more opportunities for educators to learn about careers associated with the environment so that they can integrate this into their secondary education and college level curricula. 	<ul style="list-style-type: none"> • Provide opportunities and/or experiences to learn about natural resource, green collar and environmental careers, especially with secondary students. • Provide opportunities for youth to be mentored and/or to volunteer with natural resource and environmental professionals.

The commission, work group and partners can collect, track, feature, promote and report on the following types of information:

- **NJ Educational resources available about ecological systems**
 - Array of ecology and nature study courses offered in schools, colleges and universities, learning centers, organizations and communities;
 - Array of ecological and nature study outreach materials, including print, Internet-based and media-generated; and
 - Providers, experts and research findings that offer services, assistance and support of ecological systems, nature study, gardens and outdoor classrooms.
- **Public interest and response to learning about ecology and nature study**
 - Public participation in nature-based outdoor programs, ecology courses and programs;
 - Attendance at nature centers and other learning centers that have ecology and nature-based exhibits, programs, outdoor learning trails and stations;
 - Attendance at professional development and enrichment sessions for educators and youth leaders on ecological systems and nature study;
 - Tracking of natural resource, environmental and green collar career programs, promotion of them, and public interest in them;
 - Tracking of NJ green school initiatives and their inclusion of outdoor classrooms, gardens, and other educational features, and their links to curriculum and instruction; and
 - Tracking evidence of student learning in formal education regarding ecological and earth systems and environmental science.



Strategic Initiative II Care for Ecological Systems



According to National Science Foundation’s Advisory Committee for Environmental Research and Education (2003), “The footprint of human activity continues to expand to the point that it is having significant impact on nearly all of Earth’s environmental systems.” This report, titled *Complex Environmental Systems: Synthesis for Earth, Life, and Society in the 21st Century*, also considers “humans [to be the] major force shaping Earth’s surface and are conscious architects of urban, rural, natural, and protected ecosystems – both terrestrial and aquatic.”

Natural ecosystems as well as those systems created and manipulated by humans are inextricably interwoven and New Jersey itself is a complex web of natural beauty and diversity, an extensive and diverse population, and dynamic communities and metropolitan areas. Early in the 20th century, Aldo Leopold used the phrases “land ethic” and “stewardship ethic” in his famous work, *A Sand County Almanac*. Throughout this book, Leopold talks about people’s relationship with the land. He wrote “that land is a community is the basic concept of ecology, but that land is to be loved and respected is an extension of ethics.”

Today, the U.S. Environmental Protection Agency defines environmental stewardship as, “the responsibility of environmental quality shared by all those whose actions affect the environment, reflected as both a value and a practice by individuals, companies, communities, and government organizations. Positive stewardship behavior demonstrates acceptance of this responsibility through the continuous improvement of environmental performance to achieve measurable results and sustainable outcomes.”

As stated earlier in *A Call to Action*, numerous remedies to the state’s environmental challenges require the public to take action because problems are caused in part by contributions from, or the actions of, many individuals. In order to achieve, restore and maintain healthy ecosystems and habitats and pursue actions regarding smart growth and sustainable practices, informed and involved citizens are needed in all sectors – government, industry, communities and schools, as well as at home. Stewardship initiatives offer people hands-on ways to experience natural systems and learn about them while helping to protect the environment.

Examples of stewardship initiatives already being offered in New Jersey by various organizations, agencies, companies and individuals include, but are not limited to: Volunteer monitoring and data collection programs, citizen science initiatives, adoption of waterway, coastal or land areas for cleanups, habitat and ecosystem restoration programs, energy and water conservation action programs, and numerous scout badge requirements.



Strategic Initiative II Care for Ecological Systems

GOAL: Individuals and organizations will adopt a stewardship ethic toward New Jersey’s natural resources to maintain, restore and preserve the integrity of ecological systems.

Environmental education providers can:

- Create and/or adapt materials and information about how individuals and organizations can care for natural systems in local, regional and global contexts;
- Develop or enhance programs that have active, age-appropriate stewardship components; and
- Encourage and support individual and group stewardship practices on local to global levels.

Recommended actions for working with the following target audiences:

(Years One to Three)

ADULTS	EDUCATORS (Formal and Non-formal)	YOUTH
<p>Environmental education providers can:</p> <ul style="list-style-type: none"> • Develop and/or expand opportunities to understand the value of, and become involved with, stewardship practices at home, in the community and in the workplace. • Support the development of environmental stewardship initiatives by identifying and exploring local and regional natural resources and ecological systems, associated data, and related environmental challenges. • Establish and/or strengthen educational partnerships between non-governmental organizations, businesses, government agencies and landowners in order to increase and improve stewardship programs. 	<ul style="list-style-type: none"> • Encourage inclusion of stewardship-based community service programs in schools, colleges and universities. • Use local natural resources, associated data and environmental challenges when developing education-based environmental stewardship initiatives. • Design and conduct professional development (in-service, pre-service, and non-formal education) on how to incorporate stewardship activities into service learning curricula, academic classes, club activities, afterschool programs, and youth group activities. 	<ul style="list-style-type: none"> • Develop and/or enhance educational programs that highlight stewardship activities and community-oriented programs which are “youth-driven” in scope and action. • Explore how to engage youth in stewardship programs through media, Internet and electronic social networks.

(Years Three to Five)

ADULTS	EDUCATORS (Formal and Non-formal)	YOUTH
<p>Environmental education providers can:</p> <ul style="list-style-type: none"> • Identify and recognize individuals, groups, businesses and government agencies that exemplify excellence in linking education to stewardship. • Develop and establish relationships with media, Intranet and electronic social networks to publicize the need for, status of, and value of ecological stewardship. • Provide and/or increase opportunities to learn about careers in ecological stewardship. 	<ul style="list-style-type: none"> • Work with the New Jersey Department of Education to integrate and support service learning objectives through community-based environmental stewardship. • Provide and/or increase opportunities to learn about careers associated with environmental stewardship and how to integrate that knowledge into academic and career and technology curricula. 	<ul style="list-style-type: none"> • Acknowledge youth who initiate and work on stewardship projects that make a significant contribution to the community. • Provide opportunities and/or experiences to learn about, or volunteer in, careers in habitat preservation, restoration and management.

The commission, work group and partners can collect, track, feature, promote and report on the following types of information:

- **Types of NJ stewardship programs available to the public**
 - Array and types of stewardship programs that are available;
 - Array of outreach materials, including print, Internet-based and media-generated, that offers guidance and information regarding stewardship activities; and
 - Providers, experts and research findings that offer services, assistance and support for various stewardship programs.
- **Public interest and response to NJ stewardship opportunities**
 - Public participation in various types of stewardship initiatives;
 - Attendance at nature centers and other learning centers that offer stewardship programs, training, courses, service and volunteer opportunities;
 - Attendance at professional development and enrichment sessions for educators and youth leaders on stewardship and service learning initiatives;
 - Tracking of natural resource, environmental and green collar career programs, promotion of them, and public interest in them; and
 - Tracking of NJ school and campus-based stewardship programs; and student interest and participation in them.



Strategic Initiative III Keep the Environment and People Healthy



The term “environment” is often used to describe nature. However, the Random House Dictionary defines this term as, “the aggregate of surrounding things, conditions, or influences, especially as affecting the existence or development of someone or something.” It stands to reason then, that the environment affects people who in turn, affect the environment. One positive effect the environment has is on youth. Psychologists are finding evidence that children who participate in unstructured playtime in nature are less prone to attention deficit disorder and social isolation. These findings are prompting daily outdoor play, safe community green areas, and nature programs for children and families, especially in underserved communities.

The Collaborative on Health and the Environment (CHE), a national network of individuals, organizations and agencies states, “Scientific evidence increasingly indicates a relationship between a range of environmental factors and [a diversity] of diseases and conditions.” CHE goes on to say, “Since World War II, more than 85,000 synthetic chemicals have been registered for use in the United States and another 2,000 are added each year. These pollutants have become widespread in our air, water, soil, food, homes, schools and workplaces, and thus also in our bodies.”

There is increasing evidence that a person’s health and wellbeing can be affected by one’s environment. Asthma sufferers who spend time outdoors are cautioned about increased mold spores and plant allergens as well as air pollution. However, the quality of indoor environments is just as important. Gases released from construction materials, furniture or cleaning supplies can cause allergic reactions or more serious health conditions. Or, the amount of light in a building can affect a person’s ability to concentrate. The study of indoor environments and building design and their effects on the health of persons using them have led to healthy schools and green buildings programs and research. Environmental health education is a large part of these programs.

In urban centers and aging suburban areas nationwide, studies show the disproportionate effects of exposure to environmental hazards on minority and poor children, and other residents. New Jersey’s Environmental Justice Program helps ensure fair treatment of all people, with respect to how environmental laws and policies are carried out. According to the Environmental Protection Agency’s definition for environmental justice, “no one should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations.” Public education plays a big role in empowering residents to become involved with community planning and development activities.

Each day people make numerous decisions for themselves, their families, businesses and communities. For these to be informed decisions, rational analysis and not just emotional reaction must be practiced. Not all information sources are equally valid and not all risks are equivalent. Understanding that risk is a factor that can be measured and compared, and that possibilities are not the same as probabilities, are characteristics of environmental literacy.



Strategic Initiative III Keep the Environment and People Healthy

GOAL: Individuals will follow lifestyles that improve the quality of the environment and human health.

Environmental education providers can:

- Investigate and become familiar with the environmental health concerns that are localized and/or relevant to the audiences being served;
- Utilize information and educational resources that illustrate how human actions affect environmental systems and how the health of the environment can, in turn, affect human health; and
- Provide opportunities for individuals to understand risk when making personal, business and community decisions that affect human and environmental health.

RECOMMENDED ACTIONS for working with the following target audiences:

(Years One to Three)

Adults	Educators (Formal and Non-formal)	Youth
Environmental education providers can:		
<ul style="list-style-type: none"> • Promote and support practices that protect environmental and human health. • Identify environmental health concerns that are localized or relevant to constituents being served; offer materials and programs that address the concern(s) and include discussion on causes and prevention measures, risk analysis, and any economic, cultural or social factors involved. • Create opportunities to discuss and assess short-term environmental effects vs. long-term environmental exposure related to environmental health concerns. • Encourage parents /caregivers to include activities such as hiking, walking, nature study and other outdoor pursuits in their own lives and those of their children. 	<ul style="list-style-type: none"> • Integrate appropriate environmental concepts into curricula, programs, materials and services that address human health and well-being. • Include in pre-service and in-service professional development offerings a focus on how human health and environmental health are linked. • Incorporate risk analysis about environmental and human health concerns into health, science, and other related programs or curricula for secondary and college level students. • Encourage and support healthy indoor environments at schools, campuses and other learning institutions. • Encourage physical and outdoor activity in school, pre-school and after school classes and community programs. 	<ul style="list-style-type: none"> • Incorporate in an age-appropriate manner, discussion of environmental and human health issues into programs and materials that are directed toward youth. • Provide or coordinate local volunteer and community service opportunities for youth that focus on improving the environment in order to help reduce or prevent impacts on human health. • Encourage or provide opportunities for children to play outdoors as well as in natural areas.

(Years Three to Five)

Adults	Educators (Formal and Non-formal)	Youth
<p>Environmental education providers can:</p> <ul style="list-style-type: none"> • Support web-based informational services that relate to human health and the environment. • Establish long-term relationships with media and other outlets to promote healthy lifestyles. • Provide and/or increase opportunities to learn about human and environmental health careers. . 	<ul style="list-style-type: none"> • Provide and/or increase opportunities for educators to learn about human and environmental health careers and to integrate environmental careers into curricula. • Support the construction and maintenance of schools and other learning centers that incorporate environmentally responsible practices and materials. 	<ul style="list-style-type: none"> • Provide opportunities and/or experiences that teach about careers in human and the environment health.

The commission, work group and partners can collect, track, feature, promote and report on the following types of information:

- **Types of NJ environmental health education initiatives available**
 - Methods for integrating environmental and related human health issues into course offerings in schools, colleges, learning institutions, workplaces and community groups;
 - Array of outreach materials, including print, Internet-based and media-generated, that offers guidance and information on environmental health challenges;
 - Methods and resources for educating people about risk perception and analysis; and
 - Providers, experts and research findings that offer services, assistance and support for various environmental health concerns.
- **Public interest and response to NJ environmental health education initiatives**
 - Public participation in environmental health programs, training, community meetings, environmental justice forums, etc.;
 - Attendance at schools, learning institutions, businesses and organizations that offer environmental health courses, exhibits, service and volunteer opportunities;
 - Attendance at professional development and enrichment sessions for educators and youth leaders that feature or include environmental health education initiatives;
 - Tracking of NJ healthy school program activities;
 - Tracking of natural resource, environmental and green collar career programs, promotion of them, and public interest in them; and
 - Tracking evidence of student learning in formal education regarding environmental quality and human health, such as in health and science.



Strategic Initiative IV Plan for Today and Tomorrow's Quality of Life

One commonly quoted definition of sustainability was put forth in 1987 by the Brundtland Commission (World Commission on Environment and Development) and states, “sustainable development meets the needs of the present generation without compromising the ability of future generations to meet their own needs.” As activities in communities and cities around the world become more advanced it becomes evident that individuals should have a basic understanding of ecological systems, how the environment affects human health as well as social and economic factors, and how humans affect the environment. In addition, sustainable decision making about the environment pertains to the informed and equitable use of resources today so that they are not depleted, damaged, or destroyed without regard to the needs of future generations. In recognizing the far-reaching consequences that today’s decisions can have, it becomes very important that solutions to today’s environmental challenges address short and long-term needs and factor in the causes, relationships and patterns related to that challenge.

In 2002 the United Nations General Assembly adopted a resolution that designated a ten-year period (2005-2014) as the “Decade for Education about Sustainable Development.” Conference proceedings state, “We firmly believe that a key to sustainable development is the empowerment of all people...and that a key to such empowerment is action-oriented education.” (*Decade of Education for Sustainable Development – Taking It Forward Together*, 2005, pgs. 16-17).

In New Jersey, juggling the needs and challenges of a healthy environment with the state’s economy and in an equitable manner concerning all residents can be daunting; but it becomes essential in the long-term effort to maintain the state’s quality of life, sustain a healthy business environment, and preserve biological diversity. One statewide effort to build sustainable communities is the Sustainable Jersey model, a certification and incentive program for municipalities that “want to go green, save money, and take steps to sustain their quality of life over the long term.” Dozens of New Jersey communities have signed on to this model and school and community based education are part of its design.

The NJ chapter of the U.S. Green Buildings Council has a mission to promote buildings in New Jersey that are “environmentally responsible, cost effective, productive, and healthy places to live, learn, and work.” Its Green Schools Committee pursues high performance school construction and the use of green schools curriculum and activities. This chapter, along with other regional and state level groups that administer workforce and career-based training programs, are exploring avenues for delivering green collar job initiatives in New Jersey.

Finally, an organization tracking the state’s sustainability planning efforts is the NJ Sustainable State Institute and it has the following goal for education: “A quality, lifelong education equally accessible to all New Jerseyans, whereby individuals learn to be critical thinkers and engaged citizens with an understanding of and respect for the systems that support civilization (social, economic and environmental).” The state’s accomplishments and growth of environmental education and its pursuit to cultivate an environmentally literate citizenry should and is being relied on to help advance sustainability and quality of life goals in New Jersey.



Strategic Initiative IV Plan for Today and Tomorrow's Quality of Life



GOAL: Individuals will possess the knowledge and skills needed to make decisions and plans that will benefit today's quality of life and that of future generations.

Environmental education providers can:

- Explore impacts of human activities on other living and non-living things, as well as within natural and human systems, and the short and long-term consequences of these activities;
- Engage in environmental decision making and problem solving activities and ensure that related ecological, political, social, economic, health as well as environmental considerations and/or systems are incorporated into these processes;
- Encourage individuals and decision-makers to understand that not all components of "quality of life" can be measured, quantified or monetarily assessed;
- Encourage individuals and decision makers to address environmental challenges by collecting and analyzing information and research and by participating in active discussion, consensus building and the generation of short- and long-term plans; and
- Help individuals recognize that action as well as inaction directly relates to quality of life concerns of today's individuals or communities, as well as those in the future.

Recommended actions for working with the following target audiences:

(Years One to Three)

Adults	Educators (Formal and Non-formal)	Youth
Environmental education providers can:		
<ul style="list-style-type: none"> • Develop or enhance programs and classes that incorporate a systems-oriented approach to environmental awareness and responsibility and include sustainable principles and practices. • Develop or enhance materials, exhibits and products that broaden understanding of environmental challenges and solutions so that risk analysis and short and long-term consequences are included. • Encourage active community involvement and informed participation in local decision-making processes. 	<ul style="list-style-type: none"> • Develop and/or enhance pre-service and in-service professional development that demonstrates how a systems approach to understanding the environment is valuable and can be integrated into curriculum. • Incorporate the use of real and local environmental challenges for problem solving and planning needs, through place-based simulations, role-playing and case studies, and include sustainable principles and practices. • Support efforts to involve students in environmental citizenship activities locally and at various levels of government. 	<ul style="list-style-type: none"> • Create experiences and programs for youth that use a systems approach to addressing environmental challenges and include sustainable principles and practices. • Provide opportunities for youth to practice skills related to identifying, researching, assessing, evaluating and providing short- and long-term solutions and plans that address environmental challenges and that consider sustainable principles and practices.

(Years Three to Five)

Adult	Educators (Formal and Non-formal)	Youth
<p>Environmental education providers can:</p> <ul style="list-style-type: none"> • Collaborate with environmental commissions and other local officials to encourage informed environmental decision-making. • Facilitate collaborations that transfer school-based environmental education to community practice. • Develop and establish relationships with media and other outlets to produce and publicize dialogue about environmental planning and decision making. • Provide opportunities to learn about careers in environmental decision making, including systems analysis, modeling and planning. 	<ul style="list-style-type: none"> • Pursue cross-disciplinary integration of systems-based environmental decision making and planning and inclusion of sustainable principles and practices. • Provide opportunities for educators to learn about how to incorporate sustainable principles and practices into most careers and fields, as well as in environmental decision making, such as through systems analysis, modeling and planning; and, integrate this career information into curricula. 	<ul style="list-style-type: none"> • Encourage and help coordinate civic involvement of youth in local or regional community decision-making and planning exercises, regarding environmental challenges. • Provide opportunities and/or experiences for youth to learn about careers in systems analysis, modeling and planning, as well as how sustainable principles and practices can be incorporated into most careers and fields of study.

The commission, work group and partners can collect, track, feature, promote and report on the following types of information:

- **Types of NJ planning and sustainability education initiatives available**
 - Methods, programs, materials and resources available for integrating environmental decision-making and planning into course offerings in schools, colleges, learning institutions, workplaces and community groups, for various ages;
 - Methods, programs, materials and resources available for integrating sustainable principles and practices into course offerings in schools, colleges, learning institutions, workplaces and community groups, for various ages;
 - Providers, experts and studies that offer services, assistance and support for adult and youth-focused and community based environmental education and leadership; and
 - Providers, experts and studies that offer services, assistance and support for education about sustainable principles and practices in New Jersey.
- **Public interest in NJ planning and sustainability education initiatives**
 - Public participation in community environmental planning activities and forums;
 - Public participation in community-based sustainability forums and models;
 - Attendance at professional development and enrichment sessions for educators and youth leaders that focus on environmental planning and/or sustainability;
 - Tracking of green collar career program and public interest in them; and
 - Tracking evidence of student learning about environmental planning and sustainability.



Environmental Literacy in New Jersey: A Call to Action



Section 7 Appendices

Appendix I - Guiding Principles for Environmental Education

These guiding principles are grounded in the Tblisi Declaration (1977), a watershed document for environmental education. They also strive to capture the essence of reports on environmental education, conservation education and sustainability education. Additionally these principles reflect those listed in Environmental Education in New Jersey: A Plan of Action (1993) and extensive public comment.

The New Jersey Commission on Environmental Education believes that these principles should serve as common ground for both commission members and environmental education providers. Effective environmental education should:

- Acknowledge that humans are an integral part of natural systems.
- Consider the environment as many interacting systems – natural and built, technological, social, economic, political, moral, cultural, historical, and aesthetic.
- Recognize that human health and well-being depend on healthy natural and manmade systems and that people are responsible for “meet[ing] the needs of the present without compromising the ability of future generations to meet their own needs.” (United Nations, 1987)
- Recognize the complexity and interrelated nature of environmental problems, issues and their solutions.
- Emphasize individual and collective participation in preventing environmental problems and resolving environmental issues while respecting each individual’s set of experiences, perspectives, assumptions and values.

Appendix II – Instructional Approaches to Environmental Education

The New Jersey Commission on Environmental Education believes that environmental education providers should strive to provide experiences and opportunities that:

- Engage and involve people continuously throughout their lives.
- Use strategies appropriate to the needs, cultural perspectives, learning styles, and developmental capacities of each individual.
- Encourage the use of critical, creative and long-term thinking when solving problems, addressing environmental issues, assessing risks and making quality of life decisions.
- Rely on comprehensive, interdisciplinary, accurate and up-to-date information and data.
- Provide real world, hands-on experiences that develop and deepen personal understanding and appreciation for the environment.
- Examine environmental issues within local, regional, national and global contexts as a basis for determining individual action where one lives, works and plays.
- Involve individual and cooperative efforts among individuals, families, organizations, businesses, educational institutions and government.

Appendix III – Knowledge, Attitudes and Behaviors

The New Jersey Commission on Environmental Education believes that in order for New Jersey citizens to be environmentally literate they should have knowledge of ecological and environmental concerns; possess attitudes that support and enhance this knowledge and practice behaviors that are environmentally and economically sustainable.

KNOWLEDGE

The commission encourages all individuals to understand that:

Ecological precepts:

- The earth is comprised of renewable and non-renewable natural resources.
- Natural resources are living and non-living.
- Living things depend on both living and non-living components of the environment and their interrelationships.
- All ecological components function as parts of dynamic and interactive systems
- The ability of the earth to support life and biological diversity as we know it has certain limitations.
- Change in the environment may affect species' survival.

Environmental precepts:

- The environment is the basis of our physical lives, economy and emotional well- being.
- Human actions have significant impact on the earth's ecosystems.
- Human health is directly linked to the quality of the environment.
- Historical and cultural knowledge can contribute to present and future environmental decisions.
- The manner in which each individual manages or conserves resources will affect our ability to have a sustainable economy and a healthy environment.

ATTITUDES

The commission encourages all individuals to appreciate that:

- Environmental issues transcend cultural, social, economic and political boundaries.
- Environmental issues have a moral and spiritual dimension.
- Cultural diversity has an impact on the environment and should be considered when making environmental decisions.
- The natural environment can serve as a place for regeneration of the human spirit.

And therefore,

- Humans, as stewards of the Earth, should recognize that people's daily individual and collective actions impact the sustainability and health of the environment.
- Humans must be committed to maintain, restore and regenerate ecosystems and ensure biological diversity.

BEHAVIORS

The commission encourages all individuals to:

- Use knowledge about ecosystems and how they are related in making individual, family and community decisions.
- Recognize the current and future value of biological diversity.
- Acquire a deeper appreciation for the natural world.
- Develop a lifestyle that supports and promotes environmental and human health.
- Examine and assess short- and long-term environmental gains versus the economic and societal costs associated with those gains.
- Become active participants in decision-making processes that determine environmental and human health.