Mid-Atlantic Elementary and Secondary Environmental Literacy Strategy

Introduction

President Obama's Executive Order 13508 on Chesapeake Bay Protection and Restoration called for the federal government to develop an Elementary and Secondary Environmental Literacy Strategy. The Strategy—outlined in this document—draws on the full strength of the federal government to support state efforts to provide the next generation of citizen stewards with the knowledge and skills to make informed environmental decisions.

Chesapeake Bay Program Commitments Provide a Strong Foundation

> *The future well-being of North America's largest and most productive estuary, the Chesapeake Bay, its thousands of tributaries, and its 64,000 square miles of watershed will soon rest in the hands of its youngest citizens. These citizens, three million strong in kindergarten through 12th grade, are tomorrow's leaders. They also will be the stewards of the Bay's precious resources including its fish, crabs and oysters, forests and wetlands.*

This statement, which launched a federal-state partnership in the Chesapeake Bay watershed in support of environmental education on December 8, 1998, as part of Directive 98-1 of the Chesapeake Bay Program, remains as true today as the day it was written. The youngest students from that day are now entering the workforce, the oldest now assuming positions of leadership in business and government. Perhaps not coincidentally, conversations about protecting and restoring our shared environment are increasing in number and sophistication despite a challenging economic climate.

Through Directive 98-1, the forward-thinking governors from the states of Maryland, Pennsylvania, and Virginia, the mayor of the District of Columbia, and representatives from the federal government invited the state departments of education to more fully engage in the restoration and protection effort to increase the level of environmental literacy for the more than three million students who live in the region. They recognized that a student's school years are a unique opportunity in which to deliver the set of skills necessary to think critically about multifaceted and evolving environmental challenges.

> *We acknowledge our duty to impart to these young people a sense of individual responsibility and our hope that they develop the skills to form a personal ethic regarding the natural world. Further, we acknowledge that the Chesapeake Bay, its rivers and its watershed provide an authentic, locally relevant source of environmental information and data that should be used to help advance student learning skills and problem-solving abilities across the entire school curriculum.*

In the Chesapeake 2000 Agreement signed on June 28, 2000, the commitment deepened as the partners included inquiry-based, outdoor meaningful watershed educational experiences—MWEEs—for every student in the watershed as one of ten "keystone commitments" identified as essential to achieve successful Chesapeake Bay restoration and protection. MWEEs define how classroom learning can be seamlessly connected with outdoor learning to create a deeper understanding of the natural environment that cannot be achieved within the walls of a classroom. It also fostered partnerships between local education agencies, universities, natural resource agencies, and nongovernmental organizations to provide a broader suite of opportunities for both students and teachers.

The federal government has played an important role in advancing environmental education in the region. The National Oceanic and Atmospheric Administration (NOAA) has led the effort by fostering federal-state coordination and providing critical funding for the development of model programs in support of the Chesapeake Bay Program's MWEE commitment. U.S. Fish and Wildlife Service staff have worked with partners to plan and implement habitat projects on school grounds and at environmental education centers. The Environmental Protection Agency's Environmental Education grant program has funded environmental education programs in schools in the region. The National Park Service has expanded access to the Chesapeake Bay for students and teachers as well as the general public and periodically provided grants to support the use of Gateways sites by school groups. The increased coordination of these and other federal environmental education programs evidenced in this strategy along with their thoughtful alignment

with state environmental literacy objectives will leverage individual federal investments into a powerful, cohesive presence in the region.

Twenty years after the initial education agreement was signed in 1998, the robust partnerships and programs in the region have created a culture where systemic environmental education is poised to become the norm; where local education agencies increasingly embrace inquiry-based environmental education as a way to spark student curiosity, improve content knowledge and test scores, and provide critical life skills.

2009 Presidential Executive Order Ushers in New Era of Federal Leadership

President Obama's Executive Order 13508 focuses on Chesapeake Bay Protection and Restoration, calling for a new era of federal leadership, action, and accountability, brings the full weight of the federal government to address the challenges facing the Chesapeake Bay. This provides a key opportunity to better engage the broader federal community in environmental education. The strategy recognizes the importance of citizen stewardship, calling for a dramatic increase in the number of citizen stewards of every age who support and carry out local conservation and restoration. It specifically commits the federal government to develop an Elementary and Secondary Environmental Literacy Strategy that expands upon the MWEE to ensure that students are graduating environmentally literate.

This federal strategy represents the first effort by the government to create a coherent, coordinated approach across all relevant federal agencies with the broad goal of increasing the environmental literacy of our students. It builds upon the strong foundation in the region to create a regional model for federal-state-nongovernmental coordination in the field of environmental education, which is particularly important because of the highly localized nature of pre-kindergarten through twelfth grade (PK-12) formal education and the critical importance of utilizing nongovernmental environmental education providers for both student and teacher education programs.

To implement this vision for a robust elementary and secondary environmental literacy initiative, NOAA, along with the Department of Interior, reached out to key federal agencies–including the Corporation for National and Community Service, the Department of Agriculture, Department of Education, Department of Energy, the Environmental Protection Agency, the National Science Foundation, and the National Aeronautics and Space Administration—that are engaged in any form of environmental education. These organizations collaborate on education related to everything from land use to energy and water conservation to scientific observations to better understand and organize the federal investment in the region (appendix C) and create a shared vision and plan to work together to advance state environmental literacy planning and implementation.

Beyond the Chesapeake Bay Executive Order, the Administration has a suite of important environmental initiatives that call for conservation and stewardship beginning in the school-aged years, including America's Great Outdoors, the National Ocean Policy, and the new Green Ribbons Schools acknowledgement. In drafting this strategy, careful attention was paid to avoid duplication with these other Administration initiatives. This strategy is meant to integrate the relevant themes and recommendations from the national level initiatives with regional priorities into a single cohesive plan that can be used to better market and apply federal priorities, programs, and funding to state environmental literacy efforts.

Strong Partnerships Advance a Shared Vision

The Executive Order acknowledges that although the federal government should assume a strong leadership role in the restoration of the Bay, success depends on a collaborative effort involving state and local governments, businesses, nongovernmental organizations, and the region's residents. This has long been the goal of environmental literacy planning and implementation in the region, and sharpening this focus on collaboration is critical to successful federal engagement because PK-12 education is fundamentally a state and local responsibility. With this in mind, the federal strategy is designed to build upon and support the important work that states throughout the region are doing to create exemplary environmental education policy.

Examples of state commitment to environmental education are as follows:

- In 2011, Maryland passed the nation's first environmental literacy graduation requirement mandating schools to implement a multidisciplinary environmental education program, with a specific focus on the state's natural resources. This solidified work began in 2009 by a gubernatorial Executive Order that established the Maryland Partnership for Children in Nature, which is cochaired by the Maryland State Department of Education and the Department of Natural Resources. That Executive Order also called for a comprehensive environmental literacy plan, which was completed in 2010.
- In 2010, the City Council of the District of Columbia signed into law the *Healthy Schools Act of 2010.* This act requires D.C. Public Schools to create an environmental literacy plan as part of a broad effort to "substantially improve the health, wellness, and nutrition of the public and charter school students in the District of Columbia."
- Delaware passed a resolution in 2011 supporting the Delaware No Child left Inside/Children in Nature Initiative. A taskforce with representatives from the Delaware Department of Natural Resources and Environmental Control, Department of Education, and other public and nongovernmental organizations formed "to develop a statewide plan to increase opportunities for children to engage in nature, both in school, at home, and on public lands."[1].
- Pennsylvania long has had rigorous, stand-alone environment and ecology standards, which include content about the Chesapeake, watersheds, and the environment.[2] This content is included in standardized tests in the state.

In addition to working closely with states to align the federal and state priorities, the federal effort has aligned with the North American Association for Environmental Education state affiliates[3]—autonomous state associations whose purpose is to promote and enhance environmental education through capacity building, networking, and sharing information related to the field. In the mid-Atlantic, these groups are the primary state organizations representing nonprofits and other environmental education practitioners. The affiliates have been actively engaged throughout the development of this strategy and are committed to advancing a shared vision.

[1] State of Delaware, *Children in Nature*, Accessed Nov 1, 2011. http://www.dnrec.delaware.gov/Pages/NoChildLeftInside.aspx
[2] State of Pennsylvania, *Environment and Ecology Education*, Accessed Nov 1, 2011. http://www.pa3e.ws
[3] Maryland Association for Environmental and Outdoor Education; Pennsylvania Association for Environmental Education; Virginia Resource Use Education Council; DC Environmental Education Consortium; Delaware Association for Environmental Education; and West Virginia Association for Environmental Education

The following four goals, and their associated outcomes and strategies, outline the interdependent actions that the mid-Atlantic education community will pursue to achieve the vision of developing environmental literacy in the region. Coordination for these actions will occur through the Mid-Atlantic Education Workgroup—an interjurisdictional group comprised of federal, state, academic, and nongovernmental partners convened under the Chesapeake Bay Program.

- Goal 1: Every student in the region graduates with the knowledge and skills to make informed environmental decisions
- Goal 2: All educators in the region responsible for instruction about or in the environment have access to sustained professional development opportunities, tools, and resources that support their efforts to provide students with high-quality environmental education
- Goal 3: Every school in the region maintains its buildings, grounds, and operations to support positive environmental and human health outcomes
- Goal 4: The education community in the region functions in a unified manner and coordinates with key national, regional, and state programs to represent the full suite of information and opportunities available for PK-12 audiences

GOAL 1: Every student in the region graduates with the knowledge and skills to make informed environmental decisions.

Creating high school graduates who understand complex environmental concepts and who can make environmentally responsible decisions will take the collective efforts of state and federal governments in partnership with a diverse community of nongovernmental organizations. As part of this effort, students must be taught environmental content and inquiry skills, participate in outdoor learning experiences, and have access to enrichment opportunities every year of their academic career. Environmental content should be cross-cutting and embedded in multiple disciplines, including the "STEM"—science, technology, engineering, and mathematics—subjects. Students, especially those from underserved populations, must have access to environmental enrichment opportunities that go beyond the classroom, such as after-school and green job training programs. Building environmental literacy takes time and ongoing commitment. It cannot be taught through a single experience; it should not be taught by the media (which surprisingly is where children get 83% of their environmental information); it must be reinforced throughout a child's experiences. The journey, however, is grounded and takes root in school.

The teaching of key environmental content and skill development is broadly recommended in national and regional policy. As the Interagency Ocean Policy Taskforce stated in its final recommendations for enhancing the country's ability to maintain healthy ocean and coastal resources, "United States policies, programs, and activities should enhance formal and informal education about the ocean, our coasts, and the Great Lakes and their uses to build a foundation for greater understanding and improved stewardship, and build capacity to produce future scientists, managers, and members of a dynamic and innovative workforce."[4] Chesapeake Bay education both in the classroom and outdoors has been a key strategy of the Chesapeake Bay Program since 1998.

Environmental education becomes critically important in an era that increasingly finds our youth in front of screens for both learning and recreation. The Henry J. Kaiser Family Foundation estimates that children aged 8 to 18 spend more than 53 hours a week online or in front of a television. That equals an astonishing seven-and-a-half hours a day. Further, Richard Louv argues in his 2005 book *Last Child in the Woods* that children are spending a decreasing amount of time outdoors, which is leading to "nature deficit disorder"—or a disconnect from nature. Budget cuts and testing mandates can result in schools perpetuating the disconnect from nature by limiting recess, scaling back off-site field experiences, and restricting the use of school grounds for teaching. Loss of contact with the outdoors may ultimately lead to a citizenry with no physical and emotional connection to the natural world and no desire to actively take part in protection and restoration efforts. Any strategy for environmental literacy should, therefore, continuously engage students in outdoor learning both on and off school grounds throughout their academic career.

[4] The White House Council on Environmental Quality, *Final Recommendations of the Interagency Ocean Policy Task Force*, 2010, pg 17. http://www.whitehouse.gov/files/documents/OPTF_FinalRecs.pdf

The federal government is taking action to reconnect children to the outdoors. President Obama launched America's Great Outdoors Initiative in 2010, charging federal agencies to develop a 21st-century conservation and recreation agenda that addresses Americans' disconnect from nature. The plan that followed includes several youth-focused goals, including "Engage young people in conservation and the Great Outdoors" and "Build upon a base of environmental and outdoor education, both formal and informal"[5].

To foster the scientific understanding that is foundational to building environmental literacy and to prepare students for 21st century jobs related to the environment, sustained outdoor learning for students must be combined with classroom instruction that includes the STEM fields. It is in these subjects that American students are falling behind many developed countries.

For example, the Programme for International Student Assessment (PISA) compares scores in math and science from 65 developed and non-developed countries and education systems. According to the 2009 assessment, American students are well below average in math learning, and just one point above average in science. Overall, 30 countries had higher scores in math, while 22 scored higher in science.[6] American students fall to the bottom half of the rankings in both subjects when compared to only G-8 countries.[7] To address STEM achievement, the White House launched an "Educate to Innovate" campaign to improve the participation and performance of America's students in STEM subjects. This campaign includes efforts from both private and public sector groups to work with young people across America to promote science and math.

The National Science Board of the National Science Foundation outlines the direct connection between STEM and environmental education in the report *Environmental Science and Engineering for the 21st Century*: "The twin goals of learning are to acquire knowledge and gain skills such as problem solving, consensus building, information management, communication, and critical and creative thinking. Environmental issues offer excellent vehicles for developing and exercising many of these skills using a systems approach." The report emphasizes that "changes should be made in the formal educational system to help all students, educators, and educational administrators learn about the environment, the economy, and social equity as they relate to all academic disciplines and their daily lives."[8]

In the face of a global economic downturn, a new economy is emerging that offers tremendous opportunities to create new jobs for the 21st century. Students must be inspired and have the requisite skills to succeed in this new economy, which increasingly will include green careers. Environmental education is well suited to assist in expanding the academic pipeline for STEM and prepare a workforce ready for the innovation and challenges of the 21st century. In his 2011 State of the Union message, President Barack Obama noted, "If we want to win the future–if we want innovation to produce jobs in America and not overseas–then we also have to win the race to educate our kids." Environmental literacy is an important part of winning that race.

[5] U.S. Department of the Interior, *America's Great Outdoors Report: A Promise to Future Generations*, 2011, pg 3. http://americasgreatoutdoors.gov/report/
[6] Programme for International Student Assessment (PISA), *2009 Technical Report*, 2010. http://www.oecd.org/document/19/0,3746,en_2649_35845621_48577747_1_1_1_1,00.html
[7] National Center for Education Statistics, *Comparative Indicators of Education in the United States and Other G-8 Countries*, 2011. http://nces.ed.gov/pubs2012/2012007.pdf
[8] The National Science Foundation, *Environmental Science and Engineering for the 21st Century*, 2000, pg 45. http://www.nsf.gov/pubs/2000/nsb0022/start.htm

Targeted outcomes and strategies support progress toward achieving goal 1:

Outcome 1.1: States engage students at every grade level in outdoor activities designed to increase environmental literacy

- Strategy 1: Increase awareness of and access to federal funding, staffing, and materials to support the development and implementation of model programs that support state environmental literacy priorities
- Strategy 2: Promote and maintain a strong network of formal and informal programs that fund or deliver outdoor environmental education to support broad implementation of high-quality programs
- Strategy 3: Leverage the federal investment in public lands and facilities by encouraging their use by schools and local education agencies to deliver offsite, outdoor education
- Strategy 4: Work with states and local education agencies to reduce barriers to outdoor educational programming for students

Outcome 1.2: Students participate in interdisciplinary learning about the key relationships between dynamic earth, energy, and human systems, including STEM content knowledge and thinking skills

- Strategy 1: Work with states and local education agencies to integrate content related to the environment and sustainability throughout the curriculum
- Strategy 2: Provide opportunities for students to participate in authentic scientific experiments at research institutions with emphasis on groups traditionally underrepresented in STEM careers, including women and girls
- Strategy 3: Support the development of civic engagement knowledge and skills, and students' application of them through service learning, to build connections with their community while addressing sustainability and environmental issues

Outcome 1.3: Students have information about career opportunities and requisite skills for environment-based jobs and the opportunity to participate in programs that prepare them for a future in these careers

- Strategy 1: Create and encourage school year and summer internships, service learning opportunities, and mentoring programs for students at federal agencies, research institutions, and partner sites, including youth conservation corps
- Strategy 2: Ensure that high school guidance counselors have the training, information, and materials needed to counsel students on entry-level and advanced environmental jobs and related college and vocational programs
- Strategy 3: Encourage federal offices to support staff involvement in mentoring, job fairs, career days, and job shadowing as part of their official duties to increase student awareness of job opportunities
- Strategy 4: Increase the diversity of students participating in career development programs by actively recruiting and mentoring underrepresented students, and reaching out to underserved schools

Outcome 1.4: Students have the opportunity to pursue enrichment programs and experiences that support in depth understanding of environmental issues and solutions

- Strategy 1: Encourage the development of and participation in after-school, weekend, and summer enrichment programs centered around science and the environment at or in partnership with schools, including participation in national competitions such as the National Ocean Science Bowl, underwater robotics, and science fairs
- Strategy 2: Support opportunities for student leadership related to environmental planning and implementation, including encouraging youth advisory groups, to increase confidence and sense of empowerment related to environmental issues
- Strategy 3: Provide opportunities to intentionally connect classroom learning with family recreation, youth groups, and other out-of-school opportunities for outdoor learning and exploration

GOAL 2: All educators in the region responsible for instruction about or in the environment are provided with sustained professional development, tools, and resources that support their role in providing students with high-quality environmental education

Environmentally literate educators are needed in order to produce environmentally literate students. High-quality formal and informal environmental educators can equip their students with an understanding of the essential principles of environmental literacy, the critical thinking skills needed to assess scientifically credible information related to the environment, the ability to communicate what they have learned in a meaningful way, and the ability to make informed and responsible decisions regarding the environment. Before educators can effectively pass these critical skills along to their students, they must acquire them themselves.

PK-12 classroom teachers are essential to ensuring the repeated exposure of students to environmental content and outdoor learning; these educators have the greatest opportunity to deliver content systemically throughout a child's education. However, they are not exclusive providers of environmental education. Individuals from a wide variety of occupations can lend their skills and enthusiasm to deliver programming for students or otherwise support student exposure to the environment and environment-based careers. Professional environmental educators, guidance counselors, facility and maintenance staff, and school administrators are all important to graduating environmentally literate students, but often they lack the content knowledge, funding, and resources to meet the full potential of these opportunities. Further, professional environmental educators are responsible for delivering a significant portion of environmental learning, but unlike teachers, they have no requirement for continuing education. Federal, state, and local natural resource personnel also can provide a critical link between those resources and the education communities, but frequently are not trained in educational pedagogy, grade-appropriate content matter, or administrative policies that would allow them to engage students in their work.

The importance of providing teachers with professional development on environmental topics is explicitly called for in virtually all comprehensive environmental education strategies, including America's Great Outdoors, the National Ocean Policy, and Green Ribbon Schools. This universal inclusion results from the recognition that good professional development is essential for student learning, keeps educators engaged and reinforces their value in the community, and serves a critical function of introducing new information as it becomes available through scientific research to the education community.

As environmental topics become increasingly relevant in the education community and policies are developed to ensure they are fully integrated and systemic throughout the curriculum, federal agencies and their partners can support formal and informal educators by providing high-quality professional development, relevant and up-to-date information on environmental topics, funding, and easily accessible teaching resources and tools that will help educators succeed in reconnecting children with nature. Sustained support for environmental educators is essential for facilitating the timely and accurate representation of environmental issues in schools and place-based educational settings.

The following outcomes and strategies will help educators achieve goal 2:

Outcome 2.1: Educators have access to high-quality, curriculum-based lesson plans, resources, and information on training opportunities that focus on environmental issues for all grade levels and subjects

- Strategy 1: Develop and refine classroom resources that use the local environment to teach broader national and global concepts and align with Administrative priorities
- Strategy 2: Make scientific data sets publicly available in an easy-to-use format to support their use in inquiry-based learning
- Strategy 3: Maintain the Bay Backpack website as an online resource to advance environmental education in the mid-Atlantic region, including curricular resources, outdoor education and teacher professional development providers, and best practices documents
- Strategy 4: Ensure that content, resources, and research from universities and other federally funded programs, including Land Grant and Sea Grant institutions, are easily available to and used by partners

Outcome 2.2: Teachers have sustained professional development related to environmental education content, outdoor learning strategies, and pedagogy to promote environmental literacy in their students

- Strategy 1: Adopt a definition of "high-quality educator professional development specific to environmental education"
- Strategy 2: Encourage states to include professional development in environmental education for teacher recertification in science and other appropriate fields
- Strategy 3: Provide incentives for teachers to participate in professional development and incorporate learning objectives into their classroom focused on federal and state environmental literacy priorities, including teacher fellowship programs
- Strategy 4: Support programs designed to increase appreciation of the importance and value of environmental education by principals and local education agency administrators
- Strategy 5: Connect teachers with STEM professionals to facilitate teacher participation in authentic research experiences

Outcome 2.3: Pre-service teachers enter the workforce with knowledge and experience in interdisciplinary environmental education content, outdoor learning strategies, and pedagogy

- Strategy 1: Work with colleges and universities to provide pre-service elementary, science, and other appropriate teachers with training in content, outdoor learning strategies, and pedagogy related to the environment
- Strategy 2: Work with colleges and universities to develop coursework for pre-service teachers related to integrating the environment into nonscience classes, including civics, history, and art
- Strategy 3: Encourage states to include professional development in the area of environmental education as a requirement to receive teacher licensure and/or certification in elementary education, science, and other appropriate fields

Outcome 2.4: Informal environmental educators in the region understand and can communicate current scientific findings and have knowledge of research-based environmental education best practices

- Strategy 1: Provide targeted professional development opportunities for informal environmental educators, including staff from museums, aquaria, and outdoor schools
- Strategy 2: Increase collaboration and communication between formal and informal environmental educators to support classroom learning related to the environment
- Strategy 3: Encourage the development or adoption of state-level environmental education certification for informal educators aligned with the criteria defined by the North American Association for Environmental Education
- Strategy 4: Ensure the availability of opportunities for environmental educators to work with natural resource personnel on authentic research experiences

Outcome 2.5: Federal, state, and local natural resource personnel are actively engaged in environmental education and outreach and have adequate training in instructional techniques and the needs of educational audiences

- Strategy 1: Increase the number of scientists and other government personnel engaged in environmental education, including the development of a strong network of subject matter experts available to answer resource questions
- Strategy 2: Provide government employees who design school programs with adequate training about standards of learning, environmental literacy priorities, and other relevant information to ensure proper alignment with state learning objectives and Administrative priorities
- Strategy 3: Ensure the availability of information and training about effective outreach techniques to educational audiences for all government employees who participate in environmental outreach

GOAL 3: Every school in the region maintains its buildings, grounds, and operations to support positive environmental and human health outcomes

Schools provide an ideal setting for authentic, place-based education that embraces a student's local community as a primary resource for learning. Exploring their world rooted in what is local—the unique history, environment, culture, economy, literature, and art of their community—students can achieve environmental literacy grounded by their understanding of their immediate environment. While inspiration may be more evident during a field experience to an awe-inspiring natural resource, schools are important community centers offering opportunities to educate not only students but also parents and the broader community about the benefits and cost savings associated with green building, maintaining native habitat, and more sustainable operations. Showcasing, for instance, that green schools use 33 percent less energy and 32 percent less water than conventionally constructed schools, significantly reducing utility costs.[9]

Greener schools are healthier schools, by reducing exposure to toxins, mold, and other irritants that adversely affect health and by increasing exposure to healthy foods and opportunities for exercise. An independent nationwide survey released in 2011 by United Technologies Corp. and the U.S. Green Building Council's Center for Green Schools found that despite pressing budget concerns, nearly three out of four Americans support federal investment in building improvements for schools focused on creating learning environments that are healthier for students and staff, saving tax dollars, or lowering carbon emissions.

To sustainably operate and maintain schools, administrators must continually assess, improve, and monitor each school's effects on health and the environment. From the sourcing of cafeteria food to lighting and heating choices; from the wildlife supported on the school grounds to the materials used for renovations, all environmental indicators can be examined. Every school in the region—no matter what its current infrastructure—can assess its impacts and move forward. This cycle of assessment and improvement provides ongoing, hands-on teaching tools and a sense of empowerment for students.

Bringing renewed attention to this model, the U.S. Department of Education Green Ribbon Schools national recognition program is being piloted in the 2011-2012 school year to encourage "our nation's schools and communities to promote healthy and sustainable environments and educate students to become environmentally literate citizens." An exciting component of the framework is the recommendation that the state departments of education use existing recognition programs to identify exemplary schools to be nominated for national Green Ribbon School recognition. This approach should buoy existing state green schools programs by bringing increased focus and energy to their efforts.

Each mid-Atlantic state is currently operating or developing a program focused on improving the environmental outcomes of their schools. The management of these programs varies by state—some are directly managed by the state government; others are run by a nongovernmental partner. The state of Maryland has a goal of every school achieving Maryland Green School status as part of their state environmental literacy plan; the NAAEE affiliate for the state of Maryland manages this program.

The following outcomes and strategies bring together the important criteria outlined in the Green Ribbon Schools framework along with important regional environmental outcomes and programs to create a singular set of federal priorities for greening the schools of the mid-Atlantic region.

[9] Kats, Gregory, et al, *Greening America's Schools: Costs and Benefits* (Capital E: 2006). http://www.healthyschools.org/documents/greening_schools.pdf

Outcome 3.1: School buildings, grounds, and operations are models of sustainability for the community, making continual progress towards net-zero environmental impacts, including carbon, solid waste, wildlife habitat, and hazardous waste

- Strategy 1: Actively promote the development and implementation of facility management plans for schools and local education agencies that include short- and long-term environmental metrics that inform decision making
- Strategy 2: Reduce or eliminate greenhouse gas emissions through training and support for energy audits or emissions inventories and associated reduction plans, cost-effective energy efficiency improvements, conservation measures, and/or renewable energy
- Strategy 3: Improve water quality, efficiency, and conservation, including encouraging the use of school grounds to meet total maximum daily load and other water pollution prevention strategies
- Strategy 4: Reduce solid and hazardous waste production through increased recycling, reduced consumption, and improved management, reduction, or elimination of hazardous waste streams
- Strategy 5: Actively promote the use of alternative transportation, including safe routes for walking or biking, and support policies and projects that reduce the impacts of traditional modes of transportation, including no-idling zones and incentives for carpooling
- Strategy 6: Encourage and support the development of phased plans and installation of wetlands, forests, gardens, and other habitat on school grounds that promote teaching and learning about the environment

Outcome 3.2: The school environment has a positive effect on the health of students, staff, and the surrounding community

- Strategy 1: Support the development of integrated school environmental health plans and programs that consider student, visitor, and staff health and safety in all practices related to design, construction, renovation, operations, and maintenance of schools and grounds
- Strategy 2: Promote resources to assess and manage indoor air quality, moisture and mold, contaminants, chemicals, pest management, and other issues that might adversely affect human health at schools
- Strategy 3: Encourage states, local education agencies, and schools to establish high standards and multi-use outdoor areas to support nutrition, fitness, and outdoor time that promotes discovery and play for both students and staff
- Strategy 4: Support the availability of healthy food options through the promotion of local farm-to-school initiatives, environmentally preferable foods (organic, fair trade, food alliance, rainforest alliance), and other healthier food programs

GOAL 4: The education community in the region functions in a unified manner and coordinates with key national, regional, and state programs to represent the full suite of information and opportunities available for PK-12 audiences

Federal agencies must work together with states and nongovernmental organizations to ensure that a common vision is achieved for environmental education in the mid-Atlantic region. Given the diversity of Obama Administration priorities related to environmental literacy (Green Ribbon Schools[10], Educate to Innovate[11], America's Great Outdoors[12], and the National Ocean Policy[13]), if federal entities work independently instead of collaboratively, they will likely send confusing messages to those working to develop policy and implement programs at the state level. To the extent possible, the federal government should support state-level efforts to develop environmental literacy plans, provide information to increase support of environmental education as an effective way to meet educational priorities, support implementation of the environmental literacy objectives of the Next Generation Science Education Standards, and increase the understanding and use of Environmental Literacy Principles (Ocean[14], Climate[15], Earth Science[16], Atmospheric Science[17],

[10] U.S. Department of Education, *Green Ribbon Schools*, Accessed Oct 5, 2011. http://www2.ed.gov/programs/green-ribbon-schools/index.html
[11] The White House, *Educate to Innovate,* Accessed Oct 5, 2011. http://www.whitehouse.gov/issues/education/educate-innovate
[12] America's Great Outdoors (AGO) Initiative, *America's Great Outdoors: A Promise to Future Americans*, Accessed Oct 5, 2011. http://americasgreatoutdoors.gov
[13] The White House, *Educate to Innovate,* Accessed Oct 5, 2011. http://www.whitehouse.gov/administration/eop/oceans/policy
[14] College of Exploration, *Ocean Literacy Framework,* Accessed Oct 5, 2011. http://oceanliteracy.wp2.coexploration.org
[15] U.S. Climate Change Science Program, *The Essential Principles of Climate Sciences,* Accessed Oct 5, 2011.

Energy[18], and others as they are developed). Federal funding should be coordinated and, where appropriate, used to fund and participate in research that advances the understanding of environmental literacy. Maintenance of a Mid-Atlantic Education Workgroup that includes representation from federal, state, and nongovernmental organizations and promotes federal-nonfederal partnerships is essential to the implementation of this strategy.

States need to clearly understand federal priorities to be able to capitalize on and leverage the federal investment in the region. Since most of the action to implement environmental education content and practices takes place at the state level, federal entities must work together with state departments of education to ensure that states are aware of and able to access relevant federal resources. Furthermore, the federal government can support the use of research-based best practices in environmental education programs by maintaining an up-to-date suite of best practices documents on key areas of environmental education for practitioners, funders, and other administrators, and ensuring that they are used when developing, implementing, and evaluating education programs and products. Resources can be further leveraged by creating connections between PK-12 environmental literacy efforts and other citizen stewardship and service learning youth programs, and exploring opportunities for collaboration with partners whose programs are complementary to environmental education, such as physical education.

In today's challenging economic times it is more important than ever that the government work with state and nongovernmental partners to avoid duplication of efforts and maximize the efficient use of available resources. States in the Chesapeake region currently track numbers of students receiving MWEEs as a requirement of the Chesapeake 2000 Agreement. Increased effort to work with states to develop other common metrics to assess progress toward student environmental literacy, as well as implementing consistent data collection and reporting methods, will help demonstrate the results of the federal investment and support the many initiatives related to environmental literacy.

The coordinated use of federal, state, and nongovernmental resources is critical to the success of this Strategy and is essential to engage a broader community of partners in creating an environmentally literate society and fostering a stewardship ethic in the mid-Atlantic region in support of a sustainable future.

Outcomes and strategies will foster collaboration among federal, state, and local governments as well as other organizations:

Outcome 4.1: States in the mid-Atlantic establish and implement a robust plan for ensuring that all students graduate environmentally literate

- Strategy 1: Encourage and support the development of state environmental literacy plans that include state departments of education, natural resource agencies, and nongovernmental organizations
- Strategy 2: Provide information and experiences to state education officials to increase support of outdoor, inquiry-based learning, and service learning as effective ways to meet educational priorities
- Strategy 3: Increase the understanding and utilization of Administrative priorities related to environmental literacy and Environmental Literacy Principles by state departments of education, natural resource agencies, local education agencies, and NAAEE affiliates
- Strategy 4: Support state implementation of the environmental literacy objectives of the Next Generation Science Education Standards
- Strategy 5: Work with states to develop metrics to assess progress toward student environmental literacy

http://www.climatescience.gov/Library/Literacy

[16] Earth Science Literacy Initiative, *Earth Science Literacy Principles Guide,* Accessed Oct 5, 2011. http://www.earthscienceliteracy.org/index.html

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Outcome 4.2: Education programs are developed and refined using the best available research on the effectiveness of environmental education, and support continued research in this field

- Strategy 1: Maintain an up-to-date suite of best practices documents on key areas of environmental education for practitioners, funders, and other administrators to inform program development and federal funding
- Strategy 2: Support and use research-based best practices when developing, implementing, and evaluating education programs and products, including increasing the use of best practices by recipients
- Strategy 3: Fund and participate in research that advances the understanding of environmental literacy

Outcome 4.3: Federal, state, and nongovernmental organizations with PK-12 programs actively communicate to increase collaboration related to environmental literacy planning and implementation

- Strategy 1: Maintain an Education Workgroup to implement the Mid-Atlantic Elementary and Secondary Environmental Literacy Strategy that includes representation from federal, state, and nongovernmental organizations and promotes federal-nonfederal partnerships
- Strategy 2: Better coordinate funding programs during both planning of priorities and implementation of awards
- Strategy 3: Create an intentional connection between PK-12 environmental literacy efforts and other citizen stewardship and service-learning youth programs
- Strategy 4: Seek opportunities for collaboration with partners whose programs are complementary to but not focused on environmental education, including physical education programs

Acknowledgements: *The Mid-Atlantic Education Workgroup extends a sincere thank you and its appreciation to the dedicated professionals who contributed to the vision behind the effort to fully align the varied federal, state, and nongovernmental environmental education efforts. Special thanks are extended to the following individuals without whom this document and new era of partnerships would not exist: Shannon Sprague, Bronwen Rice, Marlene Kaplan, Kevin Schabow, and Bart Merrick from NOAA; Karen Kelly Mullin from the Willow Oak Group representing the U.S. Fish and Wildlife Service; Abbi Wicklein-Bayne from the National Park Service; Sarah Brzezinski from the Chesapeake Research Consortium; Ann Regn, Ruth Roperti, Rebecca Davis, Frank Rogers, Ashley Peebles, and Laura Collard from the state affiliates of the North American Association for Environmental Education; Jamie Baxter from the Chesapeake Bay Trust; Gary Hedges and Britt Slattery from the state of Maryland; Barbara Young and Eric Rhoades from the state of Virginia; and Patti Vathis from the state of Pennsylvania.*

Appendix A:
Definitions

Environmental education: The interdisciplinary study of the relationships and interactions between dynamic natural and human systems that couples inquiry-driven, place-based learning in the outdoors with classroom content to build the information and skills necessary for students to make informed environmental decisions.

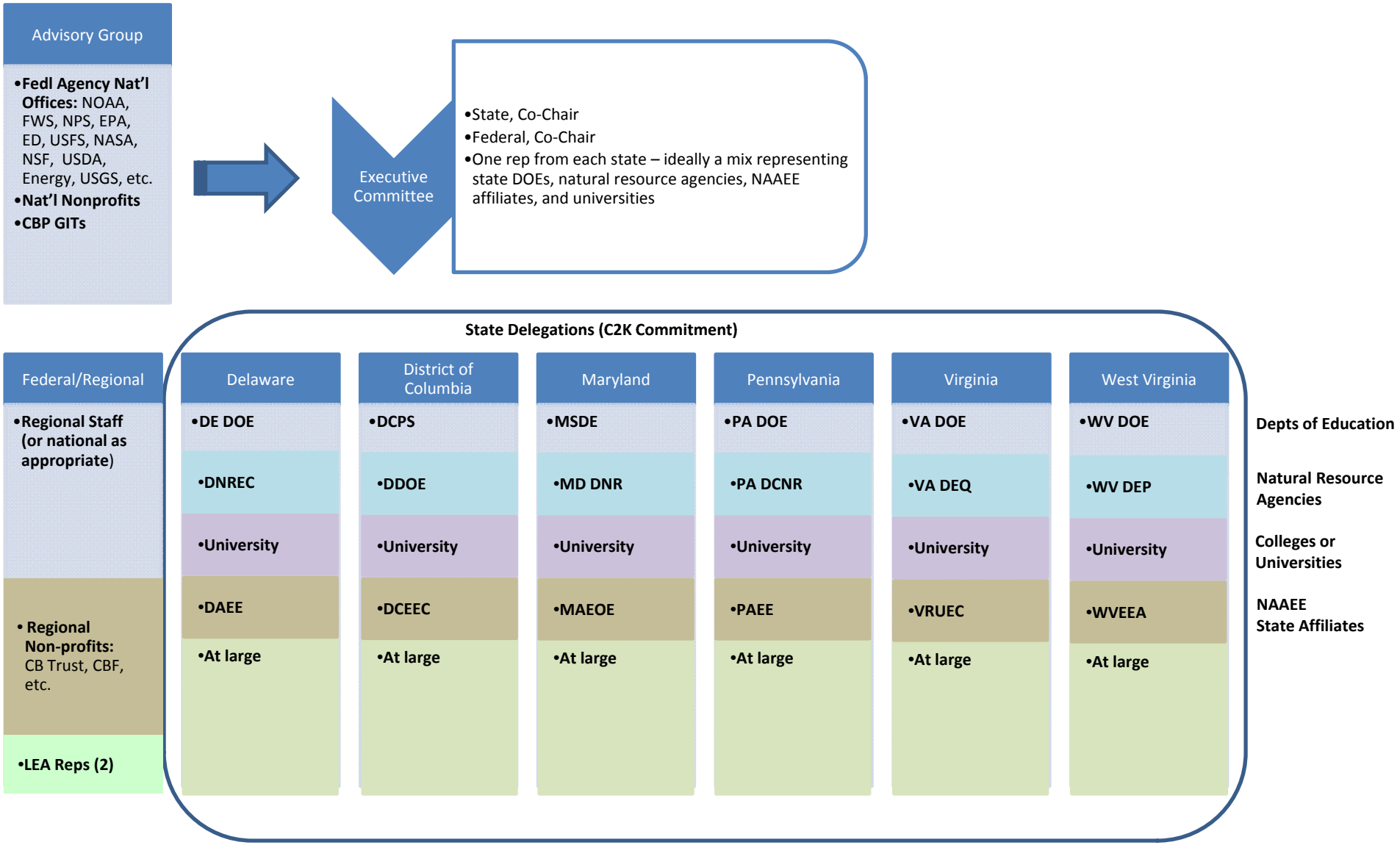
Environmental educators: All instructors responsible for instruction about or in the environment, including formal PK-12 in-service or pre-service teachers, curriculum writers, administrators, and support staff; informal educators, including staff and counselors from outdoor education centers, parks and gardens, museums, zoos, and aquariums; and federal, state, and local natural resource personnel who conduct environmental outreach or participate in environmental education programming.

Environmental literacy: A fundamental understanding of the systems of the natural world, the relationships and interactions between the living and non-living environment, and the ability to understand and utilize scientific evidence to make informed decisions regarding environmental issues. These issues involve uncertainty and require economic, aesthetic, cultural, and ethical considerations.

Mid-Atlantic region: All jurisdictions with any portion of their land falling within the boundaries of the Chesapeake Bay watershed, specifically the states of Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia as well as the District of Columbia. *Note: The geographic area was chosen because of this strategy's support of the Chesapeake Bay Executive Order along with a recognition of the fact that environmental literacy planning and implementation occurs at the state level for all students enrolled in schools within that state, and therefore, watershed boundaries are less important than jurisdictional boundaries in this policy discussion.*

Service Learning: A teaching and learning strategy that integrates meaningful community service with instruction and reflection to enrich the learning experience, teach civic responsibility, and strengthen communities. Through service-learning, young people—from kindergarteners to college students—use what they learn in the classroom to solve real-life problems. They not only learn the practical applications of their studies, they become actively contributing citizens and community members through the service they perform.

Appendix B:
Proposed Structure of Mid-Atlantic Education Workgroup



Appendix C: Federal Government Programs Supporting this Strategy

Goal	Outcome	Strategy	Metrics	Programs	
				Program Name	Agency
GOAL 1: Every student in the region graduates with the knowledge and skills to make informed environmental decisions	Outcome 1.1: States engage students at every grade level in outdoor activities designed to increase environmental literacy	Strategy 1: Increase awareness of and access to federal funding, staffing, and materials to support the development and implementation of model programs that support state environmental literacy priorities		Bay Watershed Education & Training Program	DOC/NOAA
				Environmental Education Resource Centers	EPA, NOAA
				NASA Office of Education Competitive Grants	NASA
				EPA Environmental Education Website	EPA
				NOAA @ Nauticus	NOAA
				Environmental Education Grants	EPA
				Climate Change Education Partnership Program	NSF/Geosciences
				Environmental Literacy Grants	NOAA Office of Education
		Strategy 2: Promote and maintain a strong network of formal and informal programs that fund or deliver outdoor environmental education to support broad implementation of high-quality programs		GLOBE	NASA/NOAA
				Youth and the Great Outdoors	DOI
				Bay Watershed Education & Training Program	DOC/NOAA
				Climate Change Education Partnership Program	NSF/Geosciences
				More Kids in the Woods & Children's Forests	USDA/Forest Service
		Strategy 3: Leverage the federal investment in public lands and facilities by encouraging their use by schools and local education agencies to deliver offsite, outdoor education		Refuges	DOI/FWS
				National Estuarine Research Reserves	NOAA
				Parks/Trails	DOI/NPS
				Bridging the Watershed	DOI/NPS
				Youth Conservation Corps: Public Land Corps	DOI/NPS
				Public Lands Stewardship	Corporation for National and Community Service
				More Kids in the Woods & Children's Forests	USDA/Forest Service
				Gateways	DOI/NPS
		Strategy 4: Work with states and LEAs to reduce barriers to outdoor educational programming for students			
	Outcome 1.2: Students participate in interdisciplinary learning about the key relationships between dynamic earth, energy, and human systems, including STEM content knowledge and thinking skills	Strategy 1: Work with states and local education agencies to integrate content related to the environment and sustainability throughout the curriculum		Bay Watershed Education & Training Program	DOC/NOAA
				Mid-Atlantic Education Workgroup	Chesapeake Bay Program
		Strategy 2: Provide opportunities for students to participate in authentic scientific experiments at research institutions with emphasis on groups traditionally underrepresented in STEM careers, including women and girls		Environmental STEM Education Consortium	NOAA
				Community Partnerships - student research internships	DOE
				Black/Asian/Hispanic/Pacific Islander Employment High School Internship Program	EPA
				REU Site: Research Experiences for Undergraduates at the Smithsonian	NSF
				GLOBE	NASA/NOAA
				Earth System Science Research (School district/Goddard)	NASA/Goddard
		Strategy 3: Support the development of civic engagement knowledge and skills, and students' application of them through service learning to build connections with their community while addressing sustainability and environmental issues		Bay Watershed Education & Training Program	DOC/NOAA
				FieldScope	National Geographic
				GLOBE	NASA/NOAA
				Junior Duck Stamp	DOI/FWS
				President's Environmental Youth Award	EPA
				Sister Shorebirds	FWS/NCTC
				State Energy Program	DOE
				Youth and the Great Outdoors	DOI
				Youth Conservation Corps: Public Land Corps	NPS/CBPO
				Urban Tree House	USDA/Forest Service
				Project B.L.U.E. (Baltimore Lessons in Urban Ecosystems)	USDA/Forest Service
				Building Resources And Nurturing Community Health and Environmental Stewardship Program (BRANCHES)	USDA/Forest Service
				Let's Glean	USDA
	Outcome 1.3: Students have information about career opportunities and requisite skills for environment-based jobs and the opportunity to participate in programs that prepare them for a future in these careers	Strategy 1: Create and encourage school year and summer internships, service learning opportunities, and mentoring programs for students at federal agencies, research institutions, and partner sites, including youth conservation corps		Community Partnerships - student research internships	DOE
				Youth and the Great Outdoors	DOI
				Black/Asian/Hispanic/Pacific Islander Employment High School Internship Program	EPA
				Student Environmental Development Program	EPA
				YouthBuild (YB) - Southern Appalachian Labor School	Labor
				Youth Conservation Corps: Public Land Corps	NPS/Public Land Corps Non-Profit Organizations
				REU Site: Research Experiences for Undergraduates at the Smithsonian	NSF
				Green Streets-Green Jobs	EPA

		Strategy 2: Ensure that high school guidance counselors have the training, information, and materials needed to counsel students on entry-level and advanced environmental jobs and related college and vocational programs			
		Strategy 3: Encourage federal offices to support staff involvement in mentoring, job fairs, career days, and job shadowing as part of their official duties to increase student awareness of job opportunities			
		Strategy 4: Increase the diversity of students participating in career development programs by actively recruiting and mentoring underrepresented students, and reaching out to underserved schools		Black/Asian/Hispanic/Pacific Islander Employment High School Internship Program	EPA
				YouthBuild (YB) - Southern Appalachian Labor School	Labor
	Outcome 1.4: Students have the opportunity to pursue enrichment programs and experiences that support in depth understanding of environmental issues and solutions	Strategy 1: Encourage the development of and participation in afterschool, weekend, and summer enrichment programs centered around science and the environment at or in partnership with schools, including participation in national competitions such as the National Ocean Science Bowl, underwater robotics, and science fairs		Coastal America Student Summit and Conference	Coastal America
				Coastal America Ocean Art Contest	Coastal America
				National Ocean Sciences Bowl (NOSB)	Consortium for Ocean Leadership
				National Science Bowl	DOE
				President's Environmental Youth Award	EPA
				SeaPerch ROV Program	Navy
				NEMO	NOAA/NMFS Office of Science and Technology
				Junior Duck Stamp	FWS
		Strategy 2: Support opportunities for student leadership related to environmental planning and implementation, including encouraging youth advisory groups, to increase confidence and sense of empowerment related to environmental issues		Student Environmental Development Program	EPA
				Youth and the Great Outdoors	DOI
		Strategy 3: Provide opportunities to intentionally connect classroom learning with family recreation, youth groups, and other out-of-school opportunities for outdoor learning and exploration		Youth and the Great Outdoors	DOI
				YouthBuild (YB) - Southern Appalachian Labor School	Labor
				Project B.L.U.E. (Baltimore Lessons in Urban Ecosystems)	USDA/Forest Service
				Family Nature Clubs	FWS
GOAL 2: All educators in the region responsible for instruction about or in the environment are provided with sustained professional development, tools, and resources that support their role in providing students with high-quality environmental education	Outcome 2.1: Educators have access to high-quality, curriculum-based lesson plans, resources, and information on training opportunities that focus on environmental issues for all grade levels and subjects	Strategy 1: Develop and refine classroom resources that use the local environment to teach broader national and global concepts and align with Administrative priorities		Refuge Based Teacher Training	FWS
				Environmental Science Training Center	DOC/NOAA
				Teacher on the Estuary	NOAA
				GLOBE	NASA/NOAA
				Park/Trail Based Field trips and programming	NPS
				Bridging the Watershed	NPS/Alice Ferguson Foundation
				Virginia Commonwealth University LSA Program	Learn and Serve America
				Gateways	NPS
				Project Maury	American Meterological Society (nonfederal)
		Strategy 2: Make scientific data sets publicly available in an easy-to-use format to support their use in inquiry-based learning		My NASA Data (includes curriculum and support materials)	NASA
				GLOBE	NASA/NOAA
				NASA Earth Obs. (NEO)	NASA/Goddard
				Coastal Observations Program (Goddard IRAD) (Workshops)	NASA/Goddard
				Wallops Ed. Programs and other dynamic missions (aircraft Based)	NASA
				NASA IVV –In the Watershed	NASA/Goddard
				Earth to Sky - train the trainer program	NASA/NPS/USFWS
				iGETT and iGETT II teaching GIS and remote sensing to community college educators	NASA/Goddard
				FieldScope	National Geographic
				Science on a Sphere	NOAA
				NODE (Data in the Classroom)	NOAA
				NETL STEM Teacher Development	DOE/FE (NETL)
				Chesapeake Bay Interpretive Buoy System	NOAA

	Strategy 3: Maintain the Bay Backpack website as an online resource to advance environmental education in the mid-Atlantic region, including curricular resources, outdoor education and teacher professional development providers, and best practices documents		Mid-Atlantic Education Workgroup	Chesapeake Bay Program
	Strategy 4: Ensure that content, resources, and research from universities and other federally funded programs, including Land Grant and Sea Grant institutions, are easily available to and used by partners			
Outcome 2.2: Teachers have sustained professional development related to environmental education content, outdoor learning strategies, and pedagogy to promote environmental literacy in their students	Strategy 1: Adopt a definition of "high-quality educator professional development specific to environmental education"		Mid-Atlantic Education Workgroup	Chesapeake Bay Program
	Strategy 2: Encourage states to include professional development in environmental education for teacher recertification in science and other appropriate fields		Mid-Atlantic Education Workgroup	Chesapeake Bay Program
	Strategy 3: Provide incentives for teachers to participate in professional development and incorporate learning objectives into their classroom focused on federal and state environmental literacy priorities, including teacher fellowship programs		Robert Noyce Teacher Scholarship Program	NSF
			Bay Watershed Education & Training Program	DOC/NOAA
	Strategy 4: Support programs designed to increase appreciation of the importance and value of environmental education by principals and local education agency administrators		Bay Watershed Education & Training Program	DOC/NOAA
	Strategy 5: Connect teachers with STEM professionals to facilitate teacher participation in authentic research experiences		Environmental Science Training Center	NOAA Chesapeake Bay Office
			New GK-12: Partnership between Educators and Researchers for Enhancing	NSF/VIMS
			GK-12 Fellows: Linking Urban Water Quality with Science Education in the	NSF/Christopher Newport University
			Towson University Teacher in Residence Program 2011-2012	USDA/Forest Service
			Teacher on the Estuary	NOAA
			GLOBE	NASA/NOAA
			Academies Creating Teacher Scientists (DOE Acts)	DOE
			Community Partnerships	DOE
Outcome 2.3: Pre-service teachers enter the workforce with knowledge and experience in interdisciplinary environmental education content, outdoor learning strategies, and pedagogy	Strategy 1: Work with colleges and universities to provide pre-service elementary, science, and other appropriate teachers with training in content, outdoor learning strategies, and pedagogy related to the environment		Geosciences Teacher Training	NSF/Geosciences
			Robert Noyce Teacher Scholarship Program	NSF
			Bay Watershed Education & Training Program	DOC/NOAA
	Strategy 2: Work with colleges and universities to develop coursework for pre-service teachers related to integrating the environment into nonscience classes, including civics, history, and art			
	Strategy 3: Encourage states to include professional development in the area of environmental education as a requirement to receive teacher licensure and/or certification in elementary education, science, and other appropriate fields		Mid-Atlantic Education Workgroup	Chesapeake Bay Program

	Outcome 2.4: Informal environmental educators in the region understand and can communicate current scientific findings and have knowledge of research-based environmental education best practices	Strategy 1: Provide targeted professional development opportunities for informal environmental educators, including staff from museums, aquaria, and outdoor schools		Environmental Science Training Center	NOAA
				Environmental Literacy Grants	NOAA
				GK-12 Program	NSF
				Earth to Sky - train the trainer program	NASA/NPS/USFWS
		Strategy 2: Increase collaboration and communication between formal and informal environmental educators to support classroom learning related to the environment		Bay Watershed Education & Training Program	NOAA
				More Kids in the Woods & Children's Forests	USDA/Forest Service
				Environmental Education Grants	EPA
				Climate Change Education Partnership Program	NSF/Geosciences
				Centers for Ocean Sciences Education Excellence	NSF
		Strategy 3: Encourage the development or adoption of state-level environmental education certification for informal educators aligned with the criteria defined by the North American Association for Environmental Education		Mid-Atlantic Education Workgroup	Chesapeake Bay Program
				Environmental Science Training Center	NOAA
		Strategy 4: Ensure the availability of opportunities for environmental educators to work with natural resource personnel on authentic research experiences			
	Outcome 2.5: Federal, state, and local natural resource personnel are actively engaged in environmental education and outreach and have adequate training in instructional techniques and the needs of educational audiences	Strategy 1: Increase the number of scientists and other government personnel engaged in environmental education, including the development of a strong network of subject matter experts available to answer resource questions		Environmental Science Training Center	NOAA
				Earth System Science Research (School district/Goddard)	NASA/Goddard
				Earth to Sky - train the trainer program	NASA/NPS/USFWS
		Strategy 2: Provide government employees who design school programs with adequate training about standards of learning, environmental literacy priorities, and other relevant information to ensure proper alignment with state learning objectives and Administrative priorities		Environmental Science Training Center	NOAA
				Bay Backpack	Chesapeake Bay Program
		Strategy 3: Ensure the availability of information and training about effective outreach techniques to educational audiences for all government employees who participate in environmental outreach		Bay Backpack	Chesapeake Bay Program
				Mid-Atlantic Education Workgroup	Chesapeake Bay Program
				Environmental Science Training Center	NOAA
GOAL 3: Every school in the region maintains its buildings, grounds, and operations to support positive environmental and human health outcomes	Outcome 3.1: School buildings, grounds, and operations are models of sustainability for the community, making continual progress towards net zero environmental impacts, including carbon, solid waste, wildlife habitat, and hazardous waste	Strategy 1: Actively promote the development and implementation of facility management plans for schools and local education agencies that include short- and long-term environmental metrics that inform decision making		Green Ribbon Schools Program	Department of Education
				Green Streets-Green Jobs	EPA
				More Kids in the Woods	USDA/Forest Service
				PLT Green Schools	nonfederal (Project Learning Tree)
				Urban and Community Forestry	USDA/Forest Service
				EcoSchools	nonfederal (National Wildlife Federation)
				Collaborative for High Performance Schools	nonfederal (Collaborative for High Performance Schools)
				Center for Green Schools	nonfederal (US Green Building Council)
		Strategy 2: Reduce or eliminate greenhouse gas emissions through training and support for energy audits or emissions inventories and associated reduction plans, cost-effective energy efficiency improvements, conservation measures, and/or renewable		Energy Star for K-12 School Districts	EPA
				Energy Smart Schools	Department of Energy
				Portfolio Manager	EPA
				Guidelines for Energy Management	EPA
				Purchasing Specifications for Energy Efficient Products	
		Strategy 3: Improve water quality, efficiency, and conservation, including encouraging the use of school grounds to meet total maximum daily load and other water pollution prevention strategies		Drinking Water in Schools & Childcare Facilities	EPA
				WaterSense	EPA
				Reducing Risk From Hazardous Waste	

		Strategy 4: Reduce solid and hazardous waste production through increased recycling, reduced consumption, and improved management, reduction, or elimination of hazardous waste streams		Toole to Reduce Waste in Schools	
				WasteWise	
				BIFMA Standards (industrial furniture certification)	
				CDC Hazardous Waste Self-Management Checklist	
		Strategy 5: Actively promote the use of alternative transportation, including safe routes for walking or biking, and support policies and projects that reduce the impacts of traditional modes of transportation, including no-idling zones and incentives for carpooling		Federal Highway Administration Pedestrian and Bicycle Safety	DOT/Federal Highway Administration
				Federal Highway Administration Safe Routes to Schools	DOT/Federal Highway Administration
				Clean School Bus USA	EPA
		Strategy 6: Encourage and support the development of phased plans and installation of wetlands, forests, gardens, and other habitat on school grounds that promote teaching and learning about the environment		Schoolyard Habitat	DOI/Fish and Wildlife Service
				Community Gardens	Corporation for National and Community Service
				Edible Schoolyard	nonfederal (Edible Schoolyard)
	Outcome 3.2: The school environment has a positive effect on the health of students, staff, and the surrounding community	Strategy 1: Support the development of integrated school environmental health plans and programs that considers student, visitor and staff health and safety in all practices related to design, construction, renovation, operations, and maintenance of schools and grounds		Children's Health	Corporation for National and Community Service
		Strategy 2: Promote resources to assess and manage indoor air quality, moisture and mold, contaminants, chemicals, pest management, and other issues that might adversely affect human health at schools		Schools Chemical Cleanout Campaign	EPA
				Integrated Pest Management	EPA
				Design for the Environment (environmentally friendly products)	EPA
				Buy Clean Program (indoor air quality)	EPA
		Strategy 3: Encourage states, local education agencies, and schools to establish high standards and multi-use outdoor areas to support nutrition, fitness, and outdoor time that promotes discovery and play for both students and staff		Let's Move	White House
		Strategy 4: Support the availability of healthy food options through the promotion of local farm-to-school initiatives, environmentally preferable foods (organic, fair trade, food alliance, rainforest alliance), and other healthier food programs		Farm to School	USDA
				School Breakfast Program	USDA
GOAL 4: The education community in the region functions in a unified manner and coordinates with key national, regional, and state programs to represent the full suite of information and opportunities available for PK-12 audiences	Outcome 4.1: States in the mid-Atlantic establish and implement a robust plan for ensuring that all students graduate environmentally literate	Strategy 1: Encourage and support the development of state environmental literacy plans that include state departments of education, natural resource agencies, and nongovernmental organizations		Chesapeake Bay Environmental Literacy Program	NOAA
				College Board AP Environmental Science Revisions	USGS
				Bay Watershed Education & Training Program	DOC/NOAA
				Mid-Atlantic Education Workgroup	Chesapeake Bay Program
		Strategy 2: Provide information and experiences to state education officials to increase support of outdoor, inquiry based learning, and service learning as effective ways to meet educational priorities			
		Strategy 3: Increase the understanding and utilization of Administrative priorities related to environmental literacy (Green Ribbon Schools, Educate to Innovate,		Green Ribbon Schools Program	Department of Education
				Educate to Innovate	White House
				America's Great Outdoors	DOI

		America's Great Outdoors, and the National Ocean Policy) and Environmental Literacy Principles (ocean, climate, Earth science, atmospheric science, and energy) by state departments of education, natural resource agencies, local education agencies, and NAAEE affiliates		National Ocean Policy	Interagency Working Group on Ocean Education
		Strategy 4: Support state implementation of the environmental literacy objectives of the Next Generation Science Education Standards			
		Strategy 5: Work with states to develop metrics to assess progress toward student environmental literacy		Framework for Assessing Environmental Literacy	NSF
				Mid-Atlantic Education Workgroup	Chesapeake Bay Program
	Outcome 4.2: Education programs are developed and refined using the best available research on the effectiveness of environmental education, and support continued research in this field	Strategy 1: Maintain an up-to-date suite of best practices documents on key areas of environmental education for practitioners, funders, and other administrators to inform program development and federal funding		Bay Backpack	Chesapeake Bay Program
		Strategy 2: Support and use research-based best practices when developing, implementing, and evaluating education programs and products, including increasing the use of best practices by recipients		Bay Watershed Education & Training Program	DOC/NOAA
				Framework for Assessing Environmental Literacy	NSF
		Strategy 3: Fund and participate in research that advances the understanding of environmental literacy		Framework for Assessing Environmental Literacy	NSF
				National Environmental Literacy Assessment	NOAA/EPA
				Bay Watershed Education & Training Program	DOC/NOAA
	Outcome 4.3: Federal, state, and nongovernmental organizations with PK-12 programs actively communicate to increase collaboration related to environmental literacy planning and implementation	Strategy 1: Maintain an Education Workgroup to implement the Mid-Atlantic Elementary and Secondary Environmental Literacy Strategy that includes representation from federal, state, and nongovernmental organizations and promotes federal-nonfederal partnerships		Mid-Atlantic Education Workgroup	Chesapeake Bay Program
		Strategy 2: Better coordinate funding programs during both planning of priorities and implementation of awards		Bay Watershed Education & Training Program	DOC/NOAA
				Environmental Literacy Grants	DOC/NOAA
				Environmental Education Grants	EPA
				NASA Office of Education Competitive Grants	NASA
				Climate Change Education Partnership Program	NSF/Geosciences
				Centers for Ocean Sciences Education Excellence	NSF
				Chesapeake Bay Small Watershed Grants	EPA
				Chesapeake Bay Gateways Network	DOI/NPS
				More Kids in the Woods & Children's Forests	USDA/Forest Service
		Strategy 3: Create an intentional connection between PK-12 environmental literacy efforts and other citizen stewardship and service-learning youth programs		Citizen Stewardship Goal Implementation Team	DOI/NPS
				Chesapeake Conservation Corps	DOI/NPS
				Public Access	DOI/NPS
				Master Watershed Stewards	DOI/NPS
		Strategy 4: Seek opportunities for collaboration with partners whose programs are complementary to but not focused on environmental education, including physical education programs		Community-based minority partnerships	EPA
				Urban Waters Initiative	NOAA/EPA
				Let's Move	White House