

MASSACHUSETTS ENVIRONMENTAL EDUCATION PLAN

Education to Protect, Restore and Preserve Our Commonwealth

A Project Supported by the Citizens of Massachusetts
and the
Massachusetts Environmental Education Society



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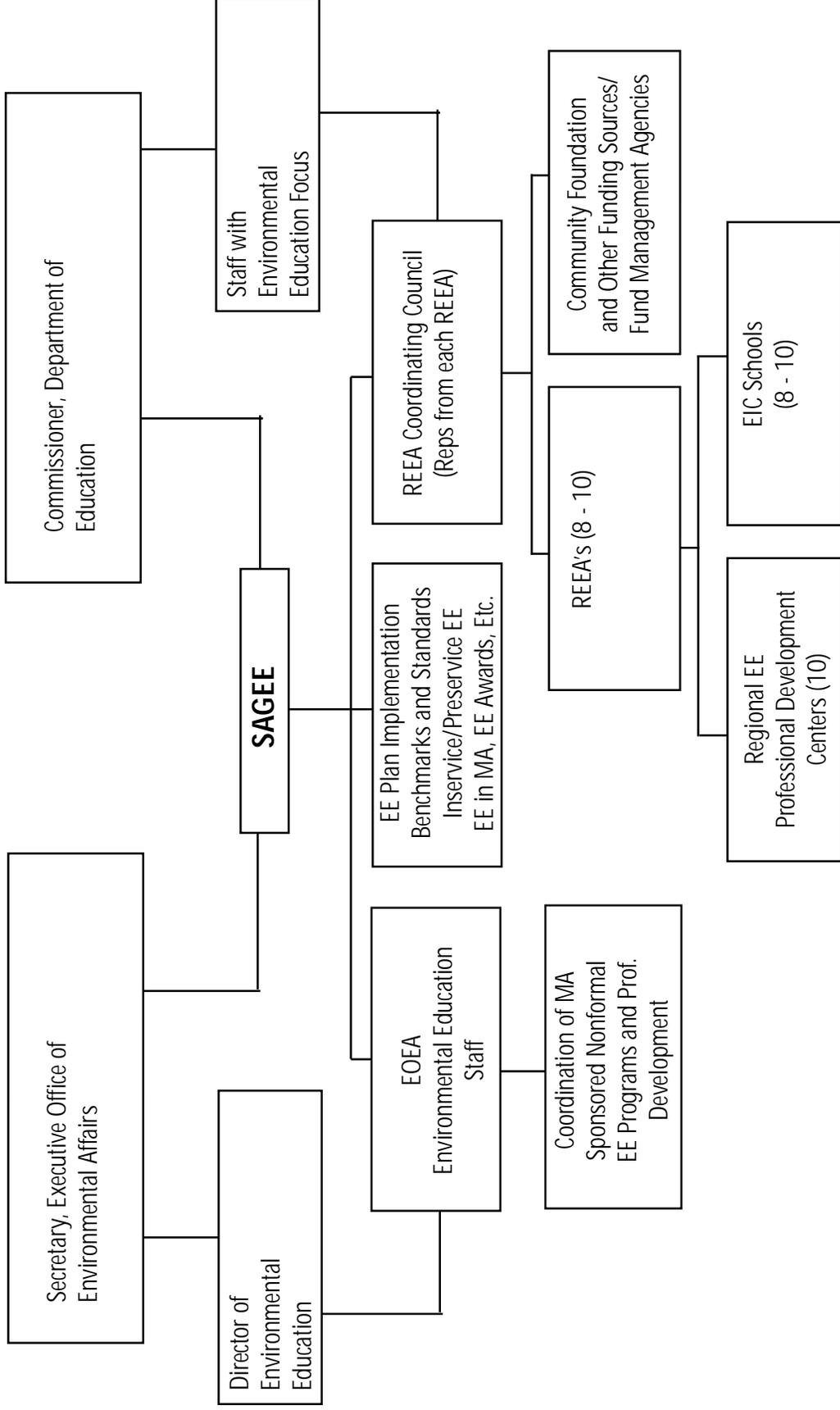
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Massachusetts Executive Office of Environmental Affairs
and Massachusetts Department of Education

Funded by the Massachusetts Environmental Trust

**MASSACHUSETTS ENVIRONMENTAL EDUCATION PLAN
PLAN IMPLEMENTATION ORGANIZATION**



REEA = Regional Environmental Education Alliances
EIC = Environment as Integrating Context for Learning Schools
SAGEE = Secretary's Advisory Group on Environmental Education

WHY A MASSACHUSETTS ENVIRONMENTAL EDUCATION PLAN?

Our growing society challenges conservation efforts and forces us to make choices. We face choices regarding community preservation, protecting open space and biodiversity, watershed management and protecting water quality, and other resource management issues. We also must choose the most effective means for educating our children about these issues and make these issues priorities in our environmental education programs. Study of the environment has been shown to be an effective tool for integrating public school subject areas; for reducing truancy; and for improving test scores across the disciplines (Lieberman and Hoody, 1998).

A carefully conceived Environmental Education Plan for the Commonwealth can serve to conserve our environment and improve overall education. Education reform in Massachusetts is just now beginning to embrace environmental concerns in the revisions of curriculum standards on which state education reform in school systems, schools, administrators, teachers and individual students will be evaluated. With our planet's well-being at stake, it is time we reconsider this situation.

What does it cost, in dollars and cents, to create a restored, better protected and preserved Massachusetts? What does it take not only to preserve and protect but also to improve the common wealth of our Commonwealth and to ensure human and ecosystem health? These questions must be posed today in Massachusetts, as a continually rising tide of population and resource use makes increasing demands on a finite resource base.

Bob Durand, Secretary of Environmental Affairs, has stated that on any given day an average of 44 acres are developed in the Commonwealth. The state has protected more than 100,000 acres over the last decade and Governor Cellucci has committed to saving an additional 200,000 acres by 2010. To accomplish this and many other worthwhile objectives for preserving and protecting our common wealth requires a citizenry that is informed, motivated and capable of taking effective action.

By definition, environmental education is designed to meet this goal. Knowing and caring for our shared environment is the key.

Environmental education has a long history in the Massachusetts. A State Plan for Environmental Education was drafted in 1972 with funds from the Federal Environmental Education Act. The plan initiated some voluntary environmental education efforts but was never provided funding and thus was spottily implemented. Among the more noteworthy accomplishments since 1972 have been:

- Establishment of the Massachusetts Environmental Education Society and the Secretary's Advisory Group on Environmental Education (SAGEE).
- Introduction and establishment of nationally respected and effective programs, such as Project Wet, Project WILD and Project Learning Tree, as part of the education landscape.
- Establishment of a variety of regionally or locally developed programs and projects that have taken hold and which are effecting the education process. Some of these projects originated as part of federal and state environmental protection efforts, such as the Watershed Education Program, through the Extension Service and which grew out of the EPA's National Estuary Program efforts, and one at Mass. Wildlife that grew out of the University of Michigan's Project GREEN.
- Development of environmental education efforts, such as the Benchmarks on the Way to Environmental Literacy (SAGEE, 1995) and, for example, by the Massachusetts Audubon Society's extensive wildlife sanctuary system, throughout the State Park system, and by a rich variety of private environmental education providers.
- Development of recognition of outstanding school-based environmental education projects through EOE's Environmental Education Awards program, which brings exemplary projects to public attention.

However, there have been frustrations connected with implementing and nurturing environmental education in the Commonwealth and developing a citizenry that is truly environmentally literate. These frustrations are:

- The isolated nature of each success, with limited coordination among various environmental education providers and the education community.
- Lack of incorporation of environmental literacy into most of these efforts and limited use of the Benchmarks or other documented sources for environmental literacy.
- Lack of incorporation of the goals of environmental education into education reform efforts (specifically the state's Curriculum Frameworks for Science and Technology/Engineering, History and Social Science, Mathematics, Language Arts and Health).
- Isolated regional efforts at promoting environmental education and a need for ongoing support for coordination.
- No requirement or recommendation that teachers be knowledgeable about environmental matters.
- No widely and well-utilized, valid and reliable tools have been developed and distributed to assess environmental literacy and, therefore, there is limited assessment of the outcomes and effectiveness of environmental education programs.
- No central plan of action to address each of these matters and the many others that are crucial to advancing environmental literacy in the Commonwealth.
- Inadequate funding and limited means for coordinating support of programs.

Around the nation, nearly one half of the states have, or will soon have, strategic plans for environmental education. The purpose of the Massachusetts Environmental Education Plan is to chart a course for improving the efficiency and effectiveness of environmental education in the Commonwealth. This document is a work-in-progress. The Plan supports:

- Inservice and preservice training for teachers through regional action plans.
- Regional implementation and coordination of environmental education programs.
- A state-wide structure for promoting, developing and assessing environmental education activities.
- Establishing Regional Environmental Education Alliances (REEAs) in each region that focus on environmental education in conjunction with public and independent schools.
- Establishing Environmental Education Professional Development Centers with environmental education providers presenting environmental education as a means for supporting standards-based learning.

Overall coordination of environmental education will be vested in a statewide environmental education council with representation from professional education associations and societies, state and regional governmental agencies, non-government agencies, teachers, administrators and others concerned about environmental education. SAGEE (the Secretary's Advisory Group on Environmental Education) will serve as this state-wide environmental education planning and coordinating body.

This proposal has a cost: in dollars, in time, and in effort. A financing plan and a timeline for the first five years of this work are under development.

For the educator, parent and student: The Massachusetts Environmental Education Plan and its supporting documents are designed with you in mind. The process by which this plan was developed, focused on meeting present and future needs for improving student learning, motivation, and environmental literacy. Education reform in 2000 is founded on standards-based learning. Recognizing this, the Massachusetts Environmental Education Plan will generate a document which will demonstrate use of the environment as an integrating context (EIC) to meet state goals, improve assessment scores and improve environmental literacy. Evidence from other states and from research (Lieberman and Hoody, 1998) indicates that use of the environment as an integrating context (EIC) for learning improves: student engagement and enthusiasm (98% of teachers reporting), behavior (70% of teachers reporting), grade point averages (73% of teachers reporting), and standardized test scores (77% of teachers reporting).

We have no reason to expect that the results will be any different in Massachusetts. It is with this concept in mind that we present this plan to you.

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INTRODUCTION

The Belgrade Charter of 1976 defined the goal of environmental education:

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

The Benchmarks on the Way to Environmental Literacy (SAGEE, 1995) define an environmentally literate person as one who knows and understands:

- the physical processes that shape the patterns of the Earth's surface;
- the characteristics and spatial distribution of ecosystems on the Earth's surface;
- the characteristics, distribution and migration of human populations on the Earth's surface;
- the patterns and networks of economic interdependence on the Earth's surface;
- the processes, patterns and functions of human settlement;
- how human actions modify the physical and biological environment;
- how physical and biological systems affect human systems;
- the changes that occur in the perception, use, distribution and importance of resources.

The environmentally literate person can apply critical thinking skills, problem solving strategies and questioning processes while learning about the environment. To be environmentally literate, therefore, implies both a knowledge of facts and concepts and a level of comfort with the skills through which we learn, construct, analyze, value and apply those facts and concepts.

Environmental education is the process by which we develop environmentally literate citizens: people who are capable of making the difficult choices related to pollution, habitat protection and other natural and resource management issues.

Environmental literacy and education must not be confused with environmental advocacy or "environmentalism." Environmental advocacy and environmentalism are closer to belief systems, working for or promoting the natural environment as a cause. In the best of situations, environmental advocates and environmentalists are well informed and environmentally literate. At worst, they do not base their actions on the best available knowledge and support ill-advised positions that, although taken in good faith, are not based on sound scientific evidence.

In 1999, a series of workshops was held around the Commonwealth to gather information for drafting this strategic plan. Understanding what the participants perceived as environmental education was the first task of those workshops. The results of this effort indicate that, for many Massachusetts educators, environmental education is:

- teaching children a greater awareness of the natural world by developing a lifelong appreciation that is rooted in basic science
- an interpretation of interrelationships within environments on a global, interdisciplinary level.
- a tool to promote understanding of the natural world, including human influences
- promoting understanding and stewardship of basic natural systems (communities, ecosystems and ecosystem processes) and natural or man-made impacts on those systems

These results support a set of concepts commonly found in environmental education programs: they include an understanding and awareness of interrelationships; a study of global/world systems, ecosystems and human influences; and stewardship and lifelong appreciation of the natural world based on accepted scientific knowledge.

Environmental education:

- emphasizes problem-solving and critical thinking skills related to complex problems and issues
- requires interdisciplinary or transdisciplinary thinking incorporating both physical and social sciences with language, mathematics, arts and humanities
- occurs in many settings: in the classroom, in the home, through the media and through recreational experiences. It should include direct experience with the environment through outdoor education opportunities, both in the built and social environment; and it should include consideration of the human and social environment.

For Massachusetts, a consensus definition would be:

Environmental education is that process of learning whose goal is to develop knowledge and understanding of global systems, ecosystems, interrelationships and human influences, based on accepted scientific knowledge. Its goal is to develop a lifelong appreciation of the world in which we live and a sense of stewardship for that world. Environmental education uses the natural and built worlds as instructional settings and incorporates problem solving and critical thinking skills to address issues of human and natural world interaction.

The Massachusetts Environmental Education Plan identifies ways in which environmental education can be efficiently and effectively incorporated into all aspects of learning. Participants in this effort are educators, learners and other stakeholders. The educators and learners include preK - 12 and college and university students, their teachers and administrators, families and adult learners, local and regional resource managers (both professional and volunteer), non-formal environmental education providers (including zoos and museums, EE consultants, agencies of the Commonwealth and Federal programs offered in Massachusetts), business and industry groups, and community-based organizations (CBO's). Evaluation of measurable results of this process is critical to the success of this effort.

The stakeholders who will benefit from this effort are, first and foremost, all the people of the Commonwealth who will enjoy a cleaner, healthier, better preserved and protected environment. The education community is another major stakeholder. Others include business and industry, environmental organizations, the agricultural community and those people working for community and biodiversity preservation.

Massachusetts is the third most densely populated state in the country and the fifth smallest state in the nation. Despite its small size, the Commonwealth is a regionalized state. This fact has clear implications for plan management and implementation. Two prominent environmental resource management programs that address this regional reality are the Watershed and the Biodiversity Initiatives. Each of these initiatives has an educational and outreach component, addressing the regional nature of resource management and addressing education program delivery, especially by the non-formal and in-service professional development sectors.

The lack of regional coordination and delivery needs to be addressed for all statewide environmental educational programs. Throughout this plan the term "regions" is used. There is no one accepted definition of even geographic "regions." Some may be roughly based on the apparent socio-geographic regions informally recognized by citizens. People in the various geographic regions report that they work with organizations and agencies within their region, rarely participate in programs outside of their region and want to improve communication within their own area. Improved coordination within these regions is recommended.

There is more than one model for creating these “regions”. They can be built around watersheds or “eco-regions,” as are the Watershed and Biodiversity Initiatives. They could be built around themes, such as urban environmental education. A “metropolitan” region, bringing together all the major cities around common issues and opportunities, should be explored. Alternatively the regions can be built around geographic proximity such as the following: Western (Berkshires), Central Valley (Amherst Region and Connecticut Valley) , Worcester Region (Central Massachusetts), Greater Boston (within Route 128), North Shore, South Shore (Plymouth to Quincy and contiguous inland towns), Cape Cod, Nantucket and Martha’s Vineyard, North Central, and Southeastern Massachusetts (Wareham to Sekonk and contiguous inland towns).



GOALS FOR ENVIRONMENTAL EDUCATION IN MASSACHUSETTS

- 1.0 Develop a statewide environmental literacy program that includes both formal and non-formal educational settings, and which supports education reform efforts.
- 2.0 Include environmental education in preK - 12 Education Reform in the Commonwealth with emphasis on incorporating environmental education into the Science and Technology/Engineering, History and Social Science and all other Curriculum Standards and related assessments.
- 3.0 Encourage basic environmental literacy for students entering into the teaching profession and encourage all preservice teachers to participate in environmental programs and courses that will develop their skill to instill environmental literacy in others.
- 4.0 Improve state-wide support and communication systems for environmental education, including both improvements to the infrastructure and funding for environmental education programs. Empower a state-wide coordinating group (SAGEE). Foster Regional Environmental Education Alliances where such alliances do not presently exist. Build and maintain financial support for these efforts through community foundations, regional financial cooperation and other funding vehicles.

Each of these goals is detailed below with an action plan for implementation.

Goal 1.0 Develop a statewide environmental literacy program that includes both formal and non-formal educational settings, and which supports education reform efforts.

Action Item 1.1 Improve and coordinate the training for and implementation of environmental literacy programs outside of preK - 12 and higher education school settings.

BACKGROUND AND STATUS:

The Commonwealth of Massachusetts, in particular EOEA and local government agencies, and the hundreds of not-for-profit and community based organizations, provide environmental programs for children, families and adults. These take place at state and municipal parks and recreation areas, at reservoirs, and at environmental and nature centers as well as many other non-formal education facilities and institutions. At present there is little consistency as to what is taught and how it is taught from place to place, program to program. Although programs should have their own nature, a state-wide goal for environmental literacy can be partially met through use of the Benchmarks and the various NAAEE Guidelines as a foundation for program development and assessment.

ACTION RECOMMENDATIONS:

1.1.1 Provide inservice training for classroom teachers, EOEA staff and other EE providers in use of Benchmarks and NAAEE Guidelines in preparation and evaluation of EE programs in parks and similar venues.

1.1.2 Coordinate these efforts through the Director of Environmental Education (EOEA) and SAGEE (see below section 4.4).

Goal 2.0 Include environmental education in preK - 12 Education Reform in the Commonwealth with emphasis on incorporating environmental education into the Science and Technology/ Engineering, History and Social Science Curriculum Standards and related assessments.

ACTION ITEMS:

Action Item 2.1 Incorporate environmental education into the Science and Technology/ Engineering and History and Social Science Curriculum Frameworks and other Frameworks, as revised, and participate in the evaluation of this effort.

BACKGROUND AND STATUS:

Massachusetts is in the middle of an effort to improve the quality of public preK - 12 education through education reform. Consistent with other such efforts across the United States, the Massachusetts Education Reform Act of 1993 mandated the creation of Curriculum Frameworks and Standards against which students will be assessed. For environmental literacy to be included as a goal of preK - 12 education, it should be incorporated into the standards upon which teachers will base and select curricula. To date, the Frameworks include a few standards that are directly related to environmental literacy. The Benchmarks and the NAAEE Excellence in EE - Guidelines for Learning K - 12 (NAAEE, 1999) can serve as foundations for this effort.

ACTION RECOMMENDATIONS:

2.1.1 Work for inclusion of EE in the Science and Technology/Engineering standards and monitor inclusion process; assist in question preparation for the MCAS exams.

2.1.2 Participate in review of History and Social Science Curriculum Frameworks and Standards and other Curriculum Frameworks (Mathematics, Language Arts, Arts); incorporate environmental education as an integrating context; and monitor DOE implementation.

2.1.3 Prepare and support implementation of a companion document to the Science and Technology/Engineering Frameworks that identifies, standard by standard, means by which environmental education can be utilized to meet the specific standard and prepare students for state-wide assessment. This document should be in the same format as the DOE issued documents, should be reviewed by DOE and by the Board of Education and disseminated to teachers and administrators as a joint effort of EOEA and DOE. A team of environmental educators, teachers and administrators, with representation from DOE, should be formed to take on this task built on alignment efforts of individual programs around the Commonwealth.

2.1.4 DOE and EOEA should provide support (including in-kind services) for workshops in the regions of the Commonwealth to provide professional development for teachers in using environmental education to meet education reform goals.

Action Item 2.2 Acquire participation from the Department of Education and local schools for using Environment as Integrating Context (EIC) for meeting state learning standards.

BACKGROUND AND STATUS:

Individual schools in Massachusetts have adapted the Benchmarks to meet local goals and state standards and modified their curricula accordingly. This process is called alignment. Three cases are on record in the state of schools that have incorporated the environment as integrating context format. EIC has been demonstrated (Closing the Achievement Gap: Using the Environment as an Integrating Context for Learning, Lieberman and Hoody, 1998) to be an effective means of meeting several educational goals simultaneously. More examples of such programs need to be developed state-wide.

ACTION RECOMMENDATIONS:

2.2.1 A school or school system (including a charter school or Horace Mann Charter School) should be identified or developed in each region of the Commonwealth that adopts the (EIC) as a means to meet state standards. A pool of funding should be provided from private foundations and through other sources that supports a five year test period for such program implementation. Any less than five years will be an inadequate time frame for evaluation of results.

2.2.2 Regional environmental education alliances (REEAs) and community/regional funding collaborations will work to identify and support these model efforts. Each EIC model school or system should provide workshops for teachers within the region on the effectiveness of the program in meeting state goals. These workshops should be coordinated with the local REEA, EOEA and DOE. College and university faculty will be recruited to assist with program implementation and evaluation through direct consulting support and through graduate student evaluation projects.

Action Item 2.3 Promote use of standards-based environmental education curricula that meet North American Association for Environmental Education (NAAEE) Guidelines for Excellence.

BACKGROUND AND STATUS:

Standards in the Massachusetts Curriculum Frameworks are the detail level at which teachers are basing curriculum choices and revisions. Choosing curricula that have already been evaluated and rated is one means for bringing together local and state goals with available resources, rather than reinventing or writing new curricula. Such materials reviews have been the goal of the Guidelines for Excellence program of NAAEE. More than 180 curricula have been reviewed through this process (The Environmental Education Collection: A Review of Resources for Educators Volumes 1 - 3, NAAEE, 1997, 1998). A second means of curriculum review is to utilize the Environmental Education Materials - Guidelines for Excellence (NAAEE, 1999) and assessment tools available for preparing and evaluating new curricula.

ACTION RECOMMENDATIONS:

2.3.1 Offer professional development workshops in each region demonstrating the use of the Guidelines and presenting existing curricula. These workshops should be aimed at curriculum coordinators and other administrators charged with improving assessment scores, and at individual change agent teachers within school systems.

2.3.2 EOEa and, possibly, DOE staff will attend training sessions offered by NAAEE on curriculum development and evaluation. Ultimately, each region, should have mentors for the region for curriculum improvement through environmental education. EOEa staff and DOE service providers who could fill this role after further training are available throughout the state.

Action Item 2.4 Identify and disseminate information on schools with model EE programs.

BACKGROUND AND STATUS:

As in 2.2 above, model schools utilizing the EIC approach or schools that use environmental education as a means of addressing the curriculum standards need to be identified and this information disseminated to other school administrators and teachers, college and university faculty and non-formal environmental educators. At present, schools that are working effectively to employ the environment to meet state standards are bright lights under bushel baskets and are not well known. Information about these programs should be made available to educators and to education stakeholders.

2.4.1 Create a database of schools and teachers successfully using EIC or environmental education programs to meet state standards. This database can be drawn from several sources, including those schools that have received the Secretary's Award for Excellence in Environmental Education; a survey of school systems to identify, via the administration, those schools that have taken one of these approaches; and a survey of teachers who participate in state-wide conferences such as those offered by MEES (Massachusetts Environmental Education Society), MAST (Massachusetts Association of Science Teachers), MASS (Massachusetts Association of Science Supervisors), MME (Massachusetts Marine Educators) and NEEEA (New England Environmental Education Alliance).

2.4.2 Create a state-wide e-mail distribution list of teachers and a web page for dissemination of an electronic newsletter on schools and teachers who have demonstrated success in the use of EIC or environmental education to meet state standards. This process should be coordinated with the MTA (Massachusetts Teachers Association) and the above-listed professional organizations as it will serve multiple needs for information dissemination. E-mail is the obvious and environmentally sound vehicle for this process.

2.4.3 Encourage teachers from the successful programs to offer workshops and provide mentoring for teachers and administrators attempting to implement EIC or other environmental education models in their schools.

Goal 3.0 Encourage the entry of students with environmental background into the teaching profession and encourage all pre-service teachers to participate in environmental programs and courses.

ACTION ITEMS:

Action Item 3.1 Support environmental literacy as a part of teacher certification and preservice education.

BACKGROUND AND STATUS:

For instruction in environmental education to be effective and to reach a state-wide goal of environmental literacy, we must improve the environmental literacy of the teachers presently in our classrooms as well as those entering

classrooms in the future. At present, there is no evidence that attention is being given to teacher environmental literacy either prior to or during service. In other states teachers are required to have taken at least one environmental course and/or to have acquired environmental literacy, including passing an exam demonstrating this literacy.

ACTION RECOMMENDATIONS:

3.1.1 Coordinate preservice environmental education training with State teacher colleges and other institutions offering teacher certification.

3.1.2 Offer professional development institutes for college faculty on including environmental education in college science, social science and interdisciplinary curricula modeled after such curricula at colleges and universities.

3.1.3 Provide workshops for inservice teachers and administrators on revised curriculum standards, Benchmarks, Guidelines for Excellence and EIC working with DOE regional providers and non-formal education providers.

3.1.4 Review and report on curricula and materials in Massachusetts that meet the Guidelines for Excellence for environmental education materials and disseminate that information as above.

3.1.5 Develop Environmental Education Professional Development Centers (EEPDC) in each of the regions by creating or fostering local collaboratives of environmental education providers, DOE regional providers, local schools and EOE offices and by building on existing natural resource management initiatives. The Centers would be supported through funding from private foundations and other sources to provide professional development opportunities for teachers and for representatives of not-for-profit and other groups in the region. Each REEA would work closely with the Center to coordinate regional program delivery and assessment. The Centers should be built around existing and effective institutions which serve this role presently.

3.1.6 Support research on teaching and learning in environmental education.

Goal 4.0

A) Improve state-wide support and communication systems for environmental education including both improvements to the infrastructure and funding for environmental education programs.

B) Establish a state-wide coordinating group for environmental education.

C) Foster Regional Environmental Education Alliances where such alliances do not presently exist.

D) Build and maintain financial support for plan implementation through community foundations or other fiscal agents and through regional financial cooperation.

ACTION ITEMS:

Action Item 4.1 Form and maintain a statewide coordinating group.

BACKGROUND AND STATUS:

Of the several state-wide organizations that presently promote environmental education, each plays a specific role. The Massachusetts Environmental Education Society (MEES) provides excellent services to environmental educators and sponsors the Commonwealth's major environmental education conference. The Secretary of Environmental Affairs has an Advisory Group (SAGEE) that advises the Secretary and his or her staff on issues related to environmental education. Other groups have a role in environmental education around the state, including the various nationally distributed programs Projects Wet, WILD and Learning Tree, among others.

ACTION RECOMMENDATIONS:

4.1.1 SAGEE should become the statewide environmental education coordinating group. SAGEE should coordinate with both the Executive Office of Environmental Affairs and the Department of Education.

4.1.2 Extend membership invitations in SAGEE to MEES, the Massachusetts Association of Science Teachers (MAST), Massachusetts Association of History and Social Studies Teachers, Massachusetts Marine Educators (MME), Massachusetts Association of Science Supervisors (MASS), Massachusetts Audubon Society (MAS), the Environmental Business Council (EBC), Environmental Diversity Forum (EDF), and other non-governmental organizations. Include more teachers (elementary, middle and secondary) than presently participate.

4.1.3 SAGEE will meet regularly to identify specific areas for state-wide coordination, will assist with the formation of a Regional Environmental Education Alliance (REEA) where none is already in place, and will prepare guidelines for coordination and communication among SAGEE members and with the broader environmental education community. SAGEE will have representation from the REEA's through the formation of a REEA Council made up of representatives from each REEA.

4.1.4 SAGEE will work to implement other aspects of the Massachusetts Environmental Education Plan as identified and will consider the role of state legislation and other actions to promote environmental education in Massachusetts. REEAs will each have representation on the REEA Council and therefore representation on SAGEE after each REEA has formulated its own goals and objectives (see Plan Organizational Chart).

Action Item 4.2 Strengthen existing alliances and identify areas where other alliances are needed.

BACKGROUND AND STATUS:

Massachusetts is a state of regions and of regional thinking and action. For environmental management purposes this perspective also makes sense as most environmental problems cross political boundaries and are regional, e.g., watershed, in scope. In some areas of the Commonwealth, such as southeastern Massachusetts (the South Coastal, Taunton, Buzzards Bay, Narragansett and Ten Mile River Watersheds), regional associations of environmental education providers exist. Their roles, and those of smaller groups focusing on narrow geographic ranges and programs, are to coordinate some environmental education offerings, acquire and distribute funding for those efforts, share resources and ideas, and minimize duplication of effort. To best facilitate such collaboration and eliminate unnecessary duplication in other areas of the Commonwealth, REEAs should be formed and supported, where such collaborations do not already exist.

ACTION RECOMMENDATIONS:

4.2.1 Create a REEA in each region where no such organization exists or where one or more organizations play a leadership role in environmental education without coordinating their planning, program implementation, and funding efforts. REEA's serve as coordinating bodies for the regions.

4.2.2 Mandate REEA's to work with member organizations, regional DOE providers and others to support the formation, maintenance and assessment of Environmental Education Professional Development Centers (EEPDC's)

4.2.3 Each region, through its REEA, will identify one or more organizations or institutions to serve as the EEPDC for that region. Each EEPDC will have a library of EE curriculum and other materials, will coordinate and offer pre- and inservice programs (in coordination with other REEA members), and will work to disseminate information on the NAAEE Guidelines, EIC schools and other aspects of this plan. While the REEA is a new coordinating group, the EEPDC's are in most cases existing organizations or institutions who will increase their role in EE through collaboration with the REEA. The University of Massachusetts system and the many non-governmental organizations already providing teacher professional development are examples of potential EEPDC sites.

4.2.4 SAGEE will work with the REEA's to create the REEA Council, to enhance coordination between the various REEA's as needed and to select representation from the REEA's on SAGEE. DOE staff, for whom environmental education is part of their responsibilities, will work directly with the REEA Council in the same manner that the Director of Environmental Education (EOEA) works with the state agency Education Coordinators. Representatives from the REEA Council will serve on SAGEE.

Action Item 4.3 Development of regional community foundations or similar regional funding relationships to acquire and administer funding for EE programs.

BACKGROUND AND STATUS:

At present, many environmental education providers, school systems and others compete for funding for the same or similar programs. Increasingly these same groups are being encouraged to collaborate under guidelines prepared by those funders. Multiple programs in the same region apply for funding from the limited sources available and, at times, the total amount available for environmental education is lessened by lack of a coordinated approach to program development, implementation and assessment. Small organizations, which may provide excellent programs with limited resources, are at a disadvantage vis-à-vis larger groups that can allocate greater resources to acquiring grants, contracts and donations. While the REEAs provide a vehicle for coordination of programs, regional community foundations can provide coordination of funding for programs to be offered in the region.

ACTION RECOMMENDATION:

4.3.1 Community foundations or other fund management relationships should be established in each of the regions where such an agency or system does not exist. Any 501(c) 3 organization can serve the role of the community foundation where a foundation does not exist and is not likely to be established. Seed funding can be requested from private foundations and from local, state and federal agencies. The community foundation or other fund management organization would be responsible for processing grants, contracts and donations that will be implemented through the REEA. Although each REEA member will still seek out and acquire individual funding, the proposed model provides a fiscal agent for cooperative programs.-

Action Item 4.4 Enhance the collaborative relationship between EOEA and DOE, overseen by SAGEE in cooperation with both EOEA's Director of Environmental Education and with DOE staff for whom environmental education is a responsibility.

BACKGROUND AND STATUS:

Increasingly, Massachusetts EOEA and DOE are cooperating on incorporating environmental education into the various formal education settings (schools and classrooms). This process has been accomplished through the efforts of individuals dedicated to the task, some of whose position descriptions may not include a significant environmental education responsibility. At the same time EOEA's Director of Environmental Education serves as the point person for many of the statewide education activities of the Secretary and for some EOEA programs in environmental education. As these agencies come to work more closely together, the role of coordination will become increasingly important.

ACTION RECOMMENDATIONS:

4.4.1 SAGEE will organize a committee to review an Office of Environmental Education and oversee its function including coordination of state-supported programs, funding opportunities and information available from the Commonwealth in support of environmental education programs.

4.4.2 Identify and support a staff member of DOE for whom environmental education is a responsibility. Among the responsibilities will be working to incorporate environmental education in the state's Curriculum Frameworks and standards-based education curriculum development and to assist teachers and school administrators seeking to utilize environmental education as an integrating concept.

MASSACHUSETTS ENVIRONMENTAL EDUCATION PLAN
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