

Pennsylvania Environmental Literacy Update June, 2021

BACKGROUND DATA

ELIT Summary [[Full Report](#)]

Most Pennsylvania LEAs (54%) are somewhat prepared to implement high quality environmental education; another 10% are well prepared. Just over one-third are not prepared. MWEEs were most common at the high school level among responding Pennsylvania LEAs. More than one quarter reported a system-wide MWEE in high school, and over 40% reported MWEEs occurring in some high schools or classes. Over one-quarter of reporting Pennsylvania LEAs have incorporated sustainable school efforts into their curriculum. Just under a quarter have a staff member that is responsible for coordinating sustainable school efforts. Pennsylvania LEAs reported that their greatest need for improving EE was funding followed by teacher professional development. This report presents responses from 29% of districts in Pennsylvania representing 30% of students.

Standards of Learning

- Current Environment and Ecology and Science Standards in revision process, 3 sets of standards, primarily based on the Next Generation Science Standards (NGSS) are moving through the legislative approval process. [Pennsylvania Integrated Standards for Science, Environment, Ecology, Technology and Engineering \(Grades K-5\)](#) (PDF); [Pennsylvania Integrated Standards for Science, Environment and Ecology \(Grades 6-12\)](#) (PDF); and [Pennsylvania Technology and Engineering Standards \(Grades 6-12\)](#) (PDF).
- Climate change is not explicitly referenced in the existing standards. Within the proposed standard explicit Climate Change investigation is addressed to the extent represented by NGSS. Climate is referenced in 5 Performance Expectations across grade bands: k-5, definition of climate and physical processes related cycles, understanding climate thorough patterns and models, 9-12 explorations of geoscience data, modeling and forecasting, examination of how climate and natural resources have influenced human activity.
- DEP and DCNR have established educational programs and policies which address climate change. PDE E&E Content Advisor, the PA Advisory Council on EE (PA ACEE), and the PA Environmental Literacy Capacity Building Team (PA ELITE Team) work with DEP and DCNR to support their educational efforts.
- Measurement:
 - PDE, DEP and PA ACEE, PA ELITE Team, are working to revise the PA Pathways to Green School to help promote more schools promote environmental literacy and sustainability education.
 - Science is tested in the PSSA and Keystones. Themed questions with environmental context (e.g. BioChemistry) are incorporated in the assessments.

Teacher preparation

- PA ACEE AND THE PA ELIT team actively work to design inservice and preservice professional development for formal (k-12) and nonformal environmental, science, and civics educators, teacher educators from Higher Education Institutions, natural resource professionals, local, county, regional, and state government agencies, non governmental organizations. These groups are actively working to identify programmatic needs and service gaps. The team identified the need to develop environmental literacy awareness and Environmental Justice linked PD for educators AND administrators who work with Agricultural Education, Migrant and Refugee Education, After/Out of school programs. Participant involvement in these programs are voluntary.
- MWEE workshops/webinars/PD through the PA Environmental Literacy Task Force
- 10 workshops designed for pre-service educators have been completed since June 2019, sharing the world of MWEE with 308 pre-service educators.

RECENT ACCOMPLISHMENTS

- Building the NOAA B-Wet Grant Environmental Literacy Network and Leadership team
- Draft of the PA MWEE Facilitator Guide and piloting it during the first MWEE Facilitator training series, serving to bring Pennsylvania's 29 Intermediate Unit into the MWEE network.
- In the last 1 ½ years of our 2017-20 grant we finished strong with 2019-2020 completing 20 workshops and conference presentations reaching over 500 participants; 4 of the PD series/introductory sessions events covered by the first grant were conducted after the start of the COVID-19 pandemic. Within the scope of our second capacity building grant (2020-2022) we diversified the types and style of PD to include introductory, ambassador,

and advanced courses designed to speak to new audiences -- reaching 910 educators including formal and non formal educators, administrators, curriculum designers, librarians, and 21st Century Community learning Center coordinators over the course of presenting 24 introductory and professional development offerings.

CURRENT ENVIRONMENT

Existing Environmental Education Efforts/Priorities

- [Environmental Education Act \(1993, revisions 2007, 2008\)](#)
- PA Advisory Council on Environmental Education
- PA Environmental Literacy Plan (2015), currently under revision.
- PA Pathways to green Schools (feeder to the U.S. Department of Education's Pathways to Green Schools) Sustainability and School Environmental Literacy LEA/ District Environmental Literacy and Sustainability Plan Template
- PA Environmental Literacy Taskforce
- [PA State Comprehensive Outdoor Recreation Plan](#)
- Commission on Agriculture Education excellence: [2020 Agriculture Education Report](#)
- [Green Ribbon Task Force Report](#) (DCNR Forestry)
- [PAsmart Grant Initiative](#) 2018 - 2023 and State Systems of Support 2020 - 2025
- *What are the priorities for the next 2 years?*
 - Opportunity for reestablishment of the [Chesapeake Bay Watershed Education Program Act](#) (2004), including reinstatement of funding for Watershed Education Programs
 - Implementation shift to new Academic Standards and development of Implementation and professional development plan that utilizes *Environment as an Integrative Concept* and the MWEE framework as a means to implement 3-D and 4-D learning methods.
 - Ensure each of the [29 Intermediate Units](#) and/or “collaborative partner” serving that IU region has at least 1 active MWEE Facilitator; each of whom has trainer has been charged with collaboratively integrating MWEE with the Intermediate Unit Inclusive Practices TaC
 - Establish local school partners in support of Meaningful Watershed Education Experiences (MWEE) implementation within each of the 29 Intermediate Unit service regions
 - Provide a MWEE \$20,000 Innovation Grant to each of the 29 Intermediate Units in collaboration with the local Lighthouse Sites to support implementation of the MWEE.
 - Increase and diversify the number of students K-12 engaging in computer science and STEM related courses by at least 10,000 learners each year through 2023.

Existing Climate Change Education Efforts/Priorities

- *Any major drivers for climate change education beyond standards?*
 - CBWA Environmental Literacy Goals, (Sustainable Schools)
 - See also Connections with Natural Resource agency section below
- *What are the priorities for the next 2 years?*
 - Connect environmental Justice (EJ), sustainability, and climate change as an integrative concept or entry point with interdisciplinary inquiry approaches; Reinforce the concept that address of climate change through the EJ Lens allow for schools in EJA’s and Title I Schools claim agency for change.
 - Identify areas within new standards once approved where we can develop inquiry lines to support EE, ELit, EJ based education.

Connections with Natural Resource agencies

- DEP Initiatives: EJ as it relates to Climate Change: Wolf Administration Announces Equity Principles to Guide Investments Through Regional Greenhouse Gas Initiative (RGGI)
- DEP Initiatives: Climate Change: Gov. Wolf Announces Largest Government Solar Energy Commitment in the U.S.
- DEP Initiatives: Climate Change: Gov. Wolf: DEP 2021 Climate Impacts Report Projects Pennsylvania Will Be 5.9° F Warmer by Midcentury, Targets Areas to Reduce Risk
- DEP Initiatives: Climate Change: DEP Awards More Than \$3.4 Million to Cleaner Fuel Transportation Projects Statewide to Improve Air Quality, Reduce Greenhouse Gas Emissions
- DEP Initiatives: Future Workforce: DEP Report Finds Clean Energy Workforce Development Will Boost Job Creation, Economy

- *What are the priorities for the next 2 years?*
 - Build out local support networks, connecting schools to NR Agencies and professionals. This helps with onsite management, careers development, and application of real world practice and address of environmental and EJ issues.
 - Establish a network/community of practice between 29 Intermediate Units, local education agencies, and Department of Conservation and Natural Resources, Department of Environmental Protection, and Department of Agriculture
 - Use NR agencies to help support inquiry learning focused on Food-Energy-Water nexus phenomena with a local focus on accessibility and conservation practice.
 - Collaborate with the Department of Agriculture and the Department of Conservation and Natural Resources through the Pennsylvania Hardwoods Council on Project Learning Tree expansion, and elevation of natural resource careers through the STEM and Career Ready Coalitions

Existing Educational Equity Efforts/Priorities

- DEP Environmental Education Grant Program: For 2022, 89% of grants are targeted to EJ Areas. Other priorities include Climate Change and Water
- PA Pathways To Green Schools (small awards for successful completion of each the GRS Pillars)
- In 2020 PDE launched the [Equitable Practices Hub](#), which is a dynamic resource for providing LEAs and communities tools to foster equity in education.
- PA Smart (STEM) funding all current grantees (459) and future grantees through 2023 will be provided an opportunity to or required to engage in a [STEM Equity Audit](#), building a comprehensive strategy for STEM Equity.
- STEM Points of Contact at each of the 29 Intermediate Units have formed a STEM Equity Community of Practice with a Innovation Mini-Grant program focused on STEM Equity. Award of Intermediate units grants are anticipated 2021 (3) and again in 2022 (3).
- *What are the priorities for the next 2 years?*
 - Establish reliable and strong community networks in identified EJA and Migrant Education Communities communities
 - Redesign and expand PA Pathways to Green Schools program to reach and support Title 1 and ESSA Tier Schools found within DEP Designated EJ Area through a tiered mentorship program that helps teachers, administrators and facilities managers understand and implement environmentally friendly best management practices.
 - Increase and diversify the number of students K-12 engaging in computer science and STEM related inquiry with environmental literacy focus by 2023.
 - Increase and diversify the number of educators receiving professional development in computer science and STEM related inquiry with environmental literacy focus through 2023.
 - Establish **29** MWEE inspired, 3 – Dimensional Teaching and Learning Leadership Hubs by 2023 uniting efforts of PDE, Intermediate units and pilot local education agency sites.
 - Engage each of the PAsmart Targeted Grantees (403) in a [STEM Equity Audit](#) by 2023

Opportunities

- Greater acceptance of online instruction with a local twist provides students and teachers all across PA to learn about their ecological, civic, and social connections to their community and watershed. This helps the ELIT community overcome economic and geographic limitations when trying to reach new audiences and support existing programs.
- Professional Development reach has dramatically expanded thanks to the virtual platforms.. Though local field work experience is still ideal, use of virtual platforms has assisted in increasing our capacity to provide introduction to greater numbers of educators and administrators.
- [American Rescue Plan](#) and [ESSER funding](#) may be used to support Environmental Literacy at both the state and local levels. At the state level, 5% must be directed towards activities that accelerate learning and 1% must be directed towards activities in the out-of-school time space. At the local education agency level, [20%](#) must be directed towards accelerated learning. Acceptable uses include [summertime learning](#), out-of-school time, and after school programs.

- Develop a comprehensive plan for STEM Education in Pennsylvania, ensuring Environmental Literacy is an integral component of the final structure.

Challenges

- Systemic understanding that Environmental Literacy is not just a goal connected to science education, it should be an aspiration for all disciplines, for all are needed to develop full understanding of our absolute dependence on the natural environment and how our choices sustain that relationship or put it at risk.
- Consistent state generated funds, not grant based, to support modernization and expanded capacity of existing Environmental Literacy and watershed education across agencies.

ENVIRONMENTAL LITERACY NETWORK

State Working Groups:

- PA Advisory Council on Environmental Education
- PA Environmental Literacy Task Force

NAAEE Affiliate: Pennsylvania Association of Environmental Educators

Other Major State Environmental Literacy Partners

- MWEE STEM PoC Community of Practice
- Stroud Water Research Center
- Millersville University
- PA Sea Grant
- Cheyney University
- Delaware Riverkeeper network

FUNDING

Major State Funding Programs Supporting MWEE (This should list existing programs that are providing funding to support youth programs and/or systemic environmental literacy efforts)

- PA DEP Environmental Education Grant Program

Active NOAA B-WET Grants

- Stroud Water Research Center (NA20NMF4570238) - State Environmental Literacy Capacity Building
- Penn State University (NA19NMF4570073) - Systemic MWEE Implementation in Bald Eagle Area School District
- Saint Francis University (NA18NMF4570317) - Systemic MWEE Implementation in Bedford Area School District, Chestnut Ridge School District, Harmony Area School District, and Hollidaysburg Area School District
- NorthBay (NA18NMF4570318) - Systemic MWEE Implementation in School District of Lancaster
- Gettysburg College (NA18NMF4570320) - Systemic MWEE Implementation in Camp Hill School District, Shippensburg School District, Conewago School District, and Littlestown School District
- Chesapeake Bay Foundation (NA18NMF4570319) - Systemic MWEE Implementation in IU15 and partially systemic in IU12.

Other Major Funding (federal, private, etc.)

- EPA Environmental Education Grant:
 - 2020: Heritage Conservancy (\$100,000) - "Educating the Next Generation of Environmental Stewards on Watershed Protection in Bucks County, Pennsylvania through Hands-on Environmental Education, Exploration and Actions"

For questions, please contact Tamara Peffer, Pennsylvania Department of Education at TPEFFER@pa.gov.