

# Biennial Strategy Review System: Logic Table and Work Plan

## Environmental Literacy - Students Logic Table and Work Plan

**Long-term Target:** Continually increase the number of schools in the region that reduce the impact of their buildings and grounds on their local watershed, environment and human health through best practices, including student-led protection and restoration projects

**Two-year Target:** Not established

**KEY: Use the following colors to indicate whether a Metric and Expected Response have been identified.**

<b>Metric</b>	Percent (and number) of public and charter schools in the Chesapeake Bay watershed certified sustainable
<b>Expected Response</b>	No timeline for progress for this action has been specified

Factor	Current Efforts	Gap	Actions (critical in bold)	Metrics
<i>What is impacting our ability to achieve our outcome?</i>	<i>What current efforts are addressing this factor?</i>	<i>What further efforts or information are needed to fully address this factor?</i>	<i>What actions are essential to achieve our outcome?</i>	<i>Optional: Do we have a measure of progress? How do we know if we have achieved the intended result?</i>
State Education Agency Leadership for Environmental Literacy	2.2 3.3	High level engagement from state DOEs	<b>Implement new Education Directive;</b> Better engage leaders at state DOEs to raise awareness of how MWEE can be used to meet education goals	No.
Local Education Agency Implementation of MWEEs (with partners)	2.1 6.1 6.2 6.3 6.4	Urgency at the school district level to conduct MWEEs	Create State level Policy drivers; Use ELIT to track MWEEs and needs	Yes. ELIT survey collects data.
Education Reform/Curriculum Alignment	5.1 5.2 5.3 5.4 5.5 5.6 7.1	Understanding that MWEEs are not add-ons	Work with states and school districts to integrate MWEEs into curriculum to reduce perceived burden	Yes. ELIT tracks districts that have integrated curriculum
Funding/Staffing	3.2	Adequate funding for teacher training, transportation, and action projects	Pursue private and innovative funding	No.

Culture Disconnected from Nature	None.			No.
School community (teachers, principals, staff) awareness and readiness (NEW)	1.1 1.2 1.3 3.1 3.2	<i>Principals (administrators) need to encourage MWEEs and line up the staff to support them. Teachers need to be trained to deliver them.</i>	<i>Train “Ambassadors” using the new MWEE Guide to support the development of more and better MWEEs; Create online training and maintain resources on Bay Backpack</i>	No.
State agency and partner coordination (NEW)	2.3 4.1 4.2 4.3		<b><i>Implement new Education Directive; Ensure that there are staff to drive MWEE development and implementation</i></b>	No.

WORK PLAN ACTIONS							
<p>Green - action has been completed or is moving forward as planned    Yellow - action has encountered minor obstacles  Red - action has not been taken or has encountered a serious barrier</p>							
Action #	Theme	Key Action	Performance Target(s)	Responsible Party	Geographic Location	Expected Timeline	Status
<b>Management Approach 1: Promote sustained teacher professional development related to scientific inquiry; science, civics, and economics related to the environment; sustainability and natural-resources education; and rigorous, outdoor learning strategies and pedagogy to improve student learning and citizenship about the environment.</b>							
1.1.a	Teacher Training	Create opportunities for systemic, sustainable teacher PD around EE for DCPS teachers.	Work with DCPS on Engineering is Elementary training being conducted for all elementary grade teachers. Provide local EE content to supplement resource materials.	OSSE, DOE, DCEEC	DC	Dec 2016	
1.1.b	Teacher Training	Provide access to training and models for integrating NGSS, DE Geography Standards, ELP, MWEs, etc.	Conduct monthly lead Science Teacher Workshops on NGSS and available informal education support. Train 1000 teachers in NGSS and connection to Elit	DDOE, DE CIN Coalition, Teacher Leaders	DE	On going	
1.1.c	Teacher Training	Project WILD and Aquatic WILD teacher in-service workshops support the science standards and provide high quality materials to preK-12 classroom educators. Materials include inquiry based lessons on a wide range of wildlife topics including management, habitat, stewardship along with STEM and Field Investigations. Project WILD programs are offered as part of pre-service training at major universities across Virginia	Professional development is available on an ongoing basis and will reach a minimum of 750 K-12 teachers each of the next three years.	VDGIF wildlife education program working with school systems across the Commonwealth	VDGIF headquarters, Henrico VA	On-going	
1.1.d	Teacher Training	In the Trout in the Classroom program, these freshwater fish are raised from eggs for release into headwater streams. The program introduces students to the environmental parameters that high-quality streams must maintain to support the trout when they are released.	Professional development is available each summer for participating teachers and will reach a minimum of 75 K-12 teachers each of the next three years. Eggs are provided for over 200 classroom aquaria.	VA Council of Trout Unlimited and the VA Dept of Game and Inland Fisheries	VDGIF headquarters, Henrico VA	Each school year	
1.1.e	Teacher Training	SCUTES, an Atlantic Sturgeon teacher professional development program developed by NOAA, introduces students to anadromous fish and the issues they face when they return to Virginia waters to spawn.	Professional development is available on request for participating teachers and will reach a minimum of 50 K-12 teachers each of the next three years.	This program is a joint effort of NOAA, VCU-Rice Center, and VDGIF	VA	Upon request kits available for loan	
1.1.f	Teacher Training	The VDGIF Outdoor Skills Program works with Health Education and Physical Education classes to enhance outdoor education opportunities for students. It consists of the following two programs. 4) The National Fishing in the Schools and Angling Education Program provides instructional support and materials to Health & PE teachers reinforcing: i) the importance of aquatic stewardship; and ii) introducing fishing skills to students.	Professional development is available on an ongoing basis and will reach a minimum of 125 K-12 teachers each of the next three years.	DGIF	Schools across VA	Upon request	

1.1.g	Teacher Training	Explore Bowhunting Program(next step in archery as part of the National Archery in the Schools): The program provides hands-on skills and activities that include wildlife identification, tracking, habitat and wildlife observation skills. The course is designed to have students develop an appreciation of wildlife and is an outdoor conservation education program focusing on interactions of people and wildlife.	Professional development is available on an ongoing basis and reach grades 4-12teachers.	DGIF	Schools across VA	Upon request from schools, parks and youth organizations	
1.1.h	Teacher Training	The Virginia Department of Environmental Quality (VDEQ) will conduct Watershed Educator Institutes, consisting of field studies using SOL-correlated materials. DEQ will continue to build capacity for delivering watershed education by training and serving a network of water education trainers. The focus is to "train trainers" in watershed management topics (water quality, water supply/conservation, wetlands, TMDLs, stormwater) so that they can provide teachers with up-to-date scientific information and professional development related to environmental quality, aquatic stewardship, restoration and pedagogy to promote environmental literacy in their students.	Watershed Educator Institute workshops will train 60education leaders annually (DEQ will complete its BWET grant (NOAA Bay Watershed Education and Training) in 2016.	VDEQ	VA	Institute workshops are offered year-round (40 hours minimum)	
1.1.i	Teacher Training	Virginia Department of Forestry (VDOP) Project Learning Tree (PLT) Training for Educators provides professional development to K-12 educators and pre-service teachers in appropriate program modules (preK-8, early childhood, or secondary topic-focused modules), preparing them to address natural resource and watershed topics with their students.	Professional development is available on an ongoing basis and will reach a minimum of 750 K-12 pre- and inservice teachers each of the next three years.	VDOF	VA	Workshops are offered year-round, often by request	
1.1.j	Teacher Training	The Virginia Resource-Use Education Council (VRUEC) will plan and conduct, the Mountains to the Bay Watershed Academies.	The VRUEC will offer three watershed Academies: the Potomac, James, and the York/Rappahannock Academies to provide formal educators with content about particular Virginia river watersheds as well as the overall Chesapeake Bay. The approach is inquiry-based and interdisciplinary. Teachers are also provided with a variety of published curricula they can use in their classrooms and meet natural resource professionals. Teachers participate in many of the activities from the curricula to gain hands-on experience with "meaningful watershed educational experiences" (MWEE).	VRUEC, state/federal/local and NGO natural resources and education agencies	VA	4 different weekends from October through May/June of 2016	
1.1.k	Teacher Training	VDEQ will coordinate Project WET(Water Education for Teachers), classroom and field investigations, which are correlated with the state standards (SOL). The professional development prepares teachers to address water quality, water conservation, and other watershed topics using Project WET's various curriculum guides: 1)K-12 guide;2)Wonder of Wetlands;3)Watershed Manager;4)Healthy Water/Healthy People;and 5)Conserve Water.	Watershed workshops will reach approximately 1,000 educatorsper year. The agency will seek support to maintain a water education program beyond 2016 in order continue to train educators.	VDEQ	VA	Workshops are offered year-round, often by request	

1.1.l	Teacher Training	The Virginia Dept. of Game and Inland Fisheries (VDGIF) will conduct multiple environment-related professional development programs with in-service and pre-service teachers on scientific inquiry; science, civics, economics, sustainability, natural-resources, rigorous outdoor learning strategies, and pedagogy to improve student learning and citizenship. All materials are correlated with the Virginia Standards of Learning (SOL).	Performance targets for each professional development program are described by each program below.	VDGIF, VADOF, VDEQ	VA		
1.1.m	Teacher Training	Develop and implement MWEE PD for teachers in RESA8 to tie to existing WV Content Standards & Objectives and other WVDE priorities	Create focus groups to identify capacity and interests and/or barriers and challenges to teachers' ability to provide Bay MWEE to diverse student populations	CI, TMI, and NGO EE providers	WV Bay Counties	Dec 2017	
1.1.n	Teacher Training	Maintain active environmental education programs in Virginia's resource agencies, including: Watershed Educator Institutes, Project WILD and Aquatic WILD, National Fishing in the Schools and Angling Education Program, the Explore Bowhunting Program, Trout in the Classroom, and SCUTES.		VDGIF, VDEQ, VDOF, VA Council of Trout Unlimited	VA		
1.2.a	Teacher Certification Requirements	Foundational competencies for effective fieldwork-based science and environmental teaching: According to the schedule set by the Virginia Board of Education (VBOE), and through the public process for the revision of college and university teacher education licensure programs, the Virginia Department of Education (VDOE) science office staff will work to: a) show the importance of; and b) advocate for the inclusion of competencies dealing with outdoor field experiences in the state science teacher preparation programs. (VDOE)	1) The field work element currently is not in place in the current state higher education teacher education program competencies and is critical to the state implementation of rigorous, meaningful, educational field work at all levels. 2) The science staff revisions that include the field work competency, K-12, have been incorporated into the initial proposed regulations. The field work teacher training will reach future: 1) pre-service elementary teachers, and 2) middle and high school science teachers if approved in new regulations	VDOE Teacher Education and Licensure Division with input from Science Director and staff. BOE has statutory authority.	VA	1) Proposed regulations were posted for first public review September 2015; and 2) public hearing to be conducted October 22, 2015	
1.2.b	Teacher Certification Requirements	Establish recommendations for pre-service teachers in environmental literacy.	Work with PACTE to determine feasibility and process of implementing environmental literacy for pre-service teachers.	PACTE, PDE, EEAC	PA	Dec 2017	
1.2.c	Teacher Certification Requirements	Convene a committee to look at the establishment of requirements for pre-service teachers in environmental literacy.	Work with the State Professional Standards and Teacher Education Board to determine feasibility and process of establishing requirements in environmental literacy for pre-service teachers [in degree programs provided by institutions of higher education (IHEs)].	MSDE, working with IHEs in MD	MD	Aug 2017	
1.2.d	Teacher Certification Requirements	Produce guidelines of what constitutes effective/comprehensive teacher professional learning in delivering MWEEs		CBP	Regional	Dec 2017	
1.3.a	Teacher Professional Development Planning	Determine needs and identify barriers to participation in professional development.	(1) Develop and communicate strategies for delivering professional development to meet needs and barriers in professional development opportunities. (2) Conduct needs assessments through the Chesapeake Bay Program Environmental Literacy Tool.	PDE, EEAC	PA	Dec 2017	

1.3.b	Teacher Professional Development Planning	Identify sources of funding for professional development.	Communicate opportunities of funding from partners/sources through existing communication networks, such as PAEE, Science Matters, SAS.	DEP, DCNR, EEAC, PDE, PSTA	PA	Dec 2017	
1.3.c	Teacher Professional Development Planning	Provide access to professional development and models for integrating E-Lit / MWEEs with State Standards, STEM, etc.	Provide through existing and new venues for PD, through partners and other resources.	PDE, EE partners	PA	ongoing	
1.3.d	Teacher Professional Development Planning	Provide pre-service teachers with knowledge, skills, and experiences provided by their course work and experiences to implement recognized E&E programs.	Develop lists of professional development providers to train pre-service teachers in nationally recognized E&E programs.	PDE, EEAC, PACTE, PD providers of programs	PA	Dec 2017	
1.3.e	Teacher Professional Development Planning	Promote high quality PD for implementation of E&E Standards and Science, Technology and Engineering Standards along with appropriate standards within Chapter 4.	Communicate professional development opportunities through SAS, Science Matters.	PDE, PAEE, PSTA, DEP	PA	Ongoing	
1.3.f	Teacher Professional Development Planning	Promote and enhance existing databases of national, state programs and E&E resources, such as Project WILD, Wet, PLT, etc.	Identify hosts of databases and promote the availability of resources.	PDE, DCNR, PGC, DEP, PFBC, EEAC, PAEE	PA	Dec 2018	
1.3.g	Teacher Professional Development Planning	Develop a plan to provide statewide professional learning for teachers in methods to integrate environmental literacy education, including meaningful watershed educational experiences (MWEEs) within local curricula. Use needs assessment data from the Environmental Literacy Indicator Tool (ELIT) to inform planning. MSDE staff and partners work in collaboration with E-Lit Points-of-Contact from the LEAs, and assure outreach to and inclusion of teachers in underserved schools.	MSDE/LEAs to develop content, and identify and plan opportunities for delivery such as face-to-face training, webinar, podcast, etc. Provide through existing and new venues for PD, through partners and other resources.	MSDE, working w/ various EE partners statewide	MD	Plan by Dec 2016; begin delivery 2017	
<b>Management Approach 2: Promote, develop, and implement Meaningful Watershed Educational Experiences (MWEEs) with educators, local education agencies, school administrators, and third party providers.</b>							
2.1.a	LEA implementation	Schedule face to face meetings with LEAs to gain buy in around EL and MWEEs, and data reporting on these areas	At least five meetings with five charter LEAs.	OSSE, DCEEC	DC	Jun 2016	
2.1.b	LEA implementation	Expand availability of overnight MWEE to all 5th graders District wide and promote the program to ensure full participation		DOEE, AFF, LC, NB, OSSE	DC	Dec 2016	
2.1.c	LEA implementation	Convene a series of facilitated regional coordination meetings to plan for local, systemic E-Lit implementation and MWEEs and strengthen partnerships among formal and nonformal educators.	Host facilitated, model MWEE experiences for local school division administrators, involving EE partners, to improve leadership support to increase MWEE implementation in all school systems. Highlight the value of a hands-on field experience and sustained learning; discuss implementation opportunities and solutions to challenges. Use data from COMAR and CBP "ELIT" assessments to identify gaps/ need.	MSDE with assistance of CIN partners	MD	Dec 2016 through 2017	

2.1.d	LEA implementation	Provide workshops, trainings and assistance to teachers, school administrators and building managers to implement MWEEs.	Increase the number of schools providing MWEE experiences in classrooms over 2014 levels.	PDE, DEP, EEAC, DCNR	PA	Dec 2017	
2.1.e	LEA implementation	Strengthen partnerships between providers of programs and school districts.	Increase the number of providers of programs working with LEAs over 2014 levels.	PDE, DCNR, PGC, DEP, PFBC, EEAC, PAEE	PA	ongoing	
2.1.f	LEA implementation	Conduct NOAA B-WET award to align NGSS/GEOG, work on MWEE development and habitat construction, and deliver student experiences and teacher training	Fulfilment of specific requirements	DDOE, DE CIN , Coalition Partners	DE	Summer 2015-Summer 2018	
2.1.g	LEA implementation	Broadly engage Potomac Highlands communities in stormwater runoff mitigation BMPs including schoolyard based BMPs tied to MWEE.	3,000 students engaged in hands-on BMP implementation	CI	WV Bay Counties	Jun 2016	
2.2.a	State Leadership	Use and share data from the 2015 CBP "ELIT" tool to facilitate development of collaborative approaches to further developing and implementing school E-Lit programs.	Establish baseline and distribute information from the survey to LEAs. Distribute the information to providers of services in developing/promoting programs.	PDE, CSIU, EEAC	PA	Jun 2016	
2.2.b	State Leadership	Formal and Informal Educator team will design 3 levels of MWEEs for school students integrated with NGSS and ELP and provide these as examples for teacher leaders.	Review of NGSS and ELP, MWEE development, marketing to educators,	DE CIN Coordinator, DOE Partners - Informal educators, teachers	DE	Summer 2015-Summer 2018	
2.2.c	State Leadership	Develop a plan for implementation of MWEEs in pre-service education.	Partner with PACTE to develop implementation plans for MWEEs.	PDE, PACTE, EEAC	PA	Dec 2017	
2.2.d	State Leadership	Develop a plan for implementation of MWEEs in professional development.	Partner with professional development providers to ensure access to MWEE experiences across the commonwealth.	PD Providers, EEAC	PA	Dec 2017	
2.3.a	Informal Programs	Work with School Garden Coordinators and farm field trip providers to integrate concept of MWEE into existing school garden and farm to school efforts	Incorporate MWEE requirement into next OSSE School Garden Grant application. Grantees will be required to complete one systemic garden or farm-based MWEE for one grade.	OSSE	DC	Mar 2016	
2.3.b	Informal Programs	Informal Educators will provide MWEEs for school students using schoolyard and other habitats and meeting needs of NGSS and ELP.	Creation of Habitats, Review of NGSS and ELP, MWEE development, MWEEs delivered	DE CIN Coordinator, DOE Partners - Informal educators, teachers	DE	Summer 2015-Summer 2018	
2.3.c	Informal Programs	VDEQ will provide Field-based Learning Experiences for Schools supporting field activities offered to schools by other agencies and local non-formal partners. Biologists, geologists, and other scientists from the agency's six regional offices will provide instruction and equipment for activities such as macro-invertebrate sampling, water quality analysis, wetland identification, recycling, etc.(VDEQ) (Supports S1,S2,S3,S5,S6)		VDEQ	VA	Ongoing, but most field experiences are held in spring	

2.3.d	Informal Programs	VDOF will provide Field-based Learning Experiences for Schools at the New Kent Forestry Center. Foresters, forest education specialists, and forest technicians will provide leadership and instruction in the classroom and in the field.		VDOF	VA	ongoing	
<b>Management Approach 3: Communicate information about the outdoors, MWEEs, educational resources, and funding opportunities to support the development and implementation of rigorous, inquiry-based instruction and MWEE programs.</b>							
3.1.a	Information dissemination	Staff communication and training:VDEQ works with a variety of partners, including watershed groups and K-12 educators to implement TMDL (Total Maximum Daily Loads) to restore local watersheds. (Supports S2, S5)	As funding allows, VDEQ will seek to build capacity within its regional offices to support working with educators to address watershed issues. VDEQ will provide staff with additional information and training that includes best practices and strategies for restoration and authentic student learning. Participation will be dependent on demand by schools and available staff resources.	VDEQ	VA	Ongoing	
3.1.b	Information dissemination	Promote and enhance existing databases of national, state programs and E&E resources, such as Project WILD, Wet, PLT, etc.	Identify hosts of databases and promote the availability of resources.	PDE, DCNR, PGC, DEP, PFBC, EEAC, PAEE	PA	Dec 2018	
3.1.c	Information dissemination	Develop and distribute sustainable school resources, including needs assessments, funding and professional development opportunities.	Post resources to PA Green and Healthy School's Partnership and Pathways to Green Schools websites, along with school/environmental education email distribution and social media	PDE, PA DEP	PA	Dec 2017	
3.1.d	Information dissemination	Identify and promote MWEE funding opportunities.	Increase number of DEP EE grant applications over 2014 levels.	PA DEP, EEAC, Providers	PA	Dec 2017	
3.1.e	Information dissemination	Develop and make available shared messages, information, approaches, and research references to improve awareness of, support for, and delivery of outdoor learning.		MD CIN and partners	MD	ongoing	
3.2.a	Online	Evaluate the use of Bay Backpack and how it can be maximized by jurisdictions		CBP	Regional		
3.2.b	Online	Provide website page with short descriptions and links or other contact information to known resources (such as Bay Backpack), funding, and teacher training opportunities: online and on-site; free and fee; local and remote; etc.	Create within CIN website, engage task team, collect and provide information and links, set up ongoing maintenance and updates. Keep original information only on those items not available by link	DE CIN Coordinator, CIN partner task team	DE+	on going/ June 2018	
3.2.c	Online	Centralize and promote online information sharing resources among partners to improve their content, reach and use by educators – to provide improved access to instructional resources, PD opportunities, program models, and research supporting outdoor learning and environmental literacy.	Use Bay Backpack as a hub for regional information on non-formal EE partners; a dedicated MSDE E-Lit website for state formal education information; the MAEOE website for general training resources; and MADE CLEAR website to connect to climate change education resources. Share links to these through CIN website, EE partners' sites, social media and other outlets.	NOAA, MSDE, MAEOE, MD CIN/DNR, with assistance from all partners	MD	ongoing, keep information current	
3.3.a	State leadership	Distribute ELIT and MWEE information to Superintendents via NGSS Newsletter		DDOE	DE	On going	



3.3.b	State leadership	Watershed education and environmental literacy communication plan: The Virginia Department of Education (VDOE) will implement a communication plan to inform and update K-12 schools and school divisions of the Chesapeake Bay Agreement, watershed education, and environmental literacy efforts underway in the Commonwealth. (Meets Management Approaches S3, ELP2, ELP3, ELP4.)	1) The creation of an environmental literacy Web page on the VDOE Web site that highlights programs, practices, and products available to schools and also highlights other pertinent information. 2) At least four periodic Superintendent's Memoranda and e-mails during 2014 and 2015: a) alerting school divisions of programs, efforts, and resources that support K-12 environmental literacy; and b) requesting school divisions to complete necessary environmental education data reporting 3) VDOE staff and education partners will conduct multiple targeted sessions at certain state education leadership and discipline area conferences (minimum of five) on K-12 environmental literacy and its place in state education goals and outcomes.	VDOE Science Director and staff	VA	1) Web page 9-30-2015 2) Supts Memos 3) Supts e-mails 4) Targeted sessions at VASSP VAESP VAST Supts Advisory Council ELIT mini-Conference VSELA VA EE Conference	
3.3.c	State leadership	Statewide monthly (semi-monthly) e-mail newsletter to science and environmental education stakeholders (VDOE)	At least sixteen newsletters to 500 + science and environmental stakeholders with updates, professional development opportunities, research, and other pertinent announcements will be shared statewide. The newsletter features an Environmental Literacy heading.	VDOE Science Director	VA	At least Monthly	
3.3.d	State leadership	Communicate on a regular basis with LEAs and teachers.	Increase numbers of individuals on email listservs and within databases.	PDE, DCNR, PGC, DEP, PFBC, EEAC, PAEE, Science matters	PA	Ongoing	
<b>Management Approach 4: Support a state network of environmental education providers, including professional-development opportunities on research-based practices and up-to-date scientific and environmental information.</b>							
4.1.a	Non-formal Educator Training	Review Next Generation Content Standards and Objectives for Science (Policy 2520.3C) for rigorous science, EE, and EL content.	Create focus groups to identify capacity and interests and/or barriers and challenges to federal, state, and local natural resource agency, and NGO, engagement in Bay MWEES	CI, TMI, and NGO EE providers	WV		
4.1.b	Non-Formal Certification	Develop an environmental educator certification program. Meets management approaches S1, S3, S4, S5, SS3, SS4, ELP1, ELP2, ELP4, and ELP5. (VDCR)	The Office of Environmental Education will possess a nonformal, professional development training curriculum leading to a certification in environmental education by the target date.	VDCR	VA	Jul 2017	
4.1.c	Non-Formal Certification	Promote EE Certification.	Increase numbers of certifications completed over 2015 levels.	PAEE, PICE,	PA	Dec 2017	
4.2.a	Non-formal Educator Training	Provide training for EE providers on NGSS and how to align their programming to NGSS	Identify EE providers and schedule trainings	OSSE, DCEEC	DC	on-going	
4.2.b	Non-formal Educator Training	Offer trainings for environmental education providers on up-to-date earth science research and topics through the NOAA Environmental Science Training Center		NOAA	Regional		
4.2.c	Non-formal Educator Training	Maintain annual training sessions for PA State Park staff at existing levels.	School attendance numbers will increase over 2015 levels.	DCNR	PA	Dec 2017	
4.2.d	Non-formal Educator Training	Promote and encourage attendance at the PAEE conference.	Conference attendance will increase over the 2015 levels.	PAEE, PDE, EEAC, DEP	PA	Dec 2017	

4.2.e	Non-formal Educator Training	Provide training for EE providers in PA and how to align their programming to incorporate inquiry and unifying themes (scientific thinking and crosscutting concepts).	Identify EE providers and schedule trainings.	PDE, DCNR, PGC, DEP, PFBC, EEAC, PAEE	PA	Dec 2017	
4.2.f	Non-formal Educator Training	Develop a plan to coordinate, promote and track training statewide for non-formal environmental education (EE) providers on current requirements and practices (NGSS, STEM, Social Studies C-3, etc.), and how to align their materials and programming to formal requirements across disciplines. Promote use of quality guidelines for training from NAAEE, as well as existing effective tools for evaluation to assist with aligning to state education standards.		MD CIN and MAEOE lead; with MSDE, NOAA	MD	Plan by Dec 2016; implement in 2017	
4.2.g	Non-formal Educator Training	Provide professional development for EE professional development providers.	Reestablish a one day conference for science and EE leaders.	PAEE, PDE, EEAC, DEP, DCNR	PA	Apr 2017	
4.3.a	Building Partnerships	Review Next Generation Content Standards and Objectives for Science (Policy 2520.3C) for rigorous science, EE, and EL content.	Create focus groups to identify capacity and interests and/or barriers and challenges to federal, state, and local natural resource agency, and NGO, engagement in Bay MWEs	CI, TMI, and NGO EE providers	WV Bay Counties	Dec 2017	
4.3.b	Building Partnerships	Identify partners (government, academia, non profit) to assist schools and teachers in environmental education/action projects	Organize a meeting to determine best ways to strengthen university connections.	DOEE, OSSE, DCEEC	DC	Dec 2016	
4.3.c	Building Partnerships	Build community-school partnerships		DE CIN, DDOE	DE	On going	
4.3.d	Building Partnerships	Build informal / formal educator/ research institution partnerships	Review existing work on barriers to these partnerships, determine models that work best,	DAEE, DE CIN, DDOE, Colleges and University research groups (e.g. Sea Grant, WRA, DGA, etc), agency research groups (e.g.DNREC Watershed group) and various informal education organizations	DE	On going	
4.3.e	Building Partnerships	Promote statewide networks of environmental education providers.	Increase membership levels in statewide professional organizations over 2015 levels.	EEAC, PAEE, PSTA	PA	Dec 2017	
4.3.f	Building Partnerships	Utilize EEAC to identify partners and develop a plan for utilization of regional resources.	Increase the number of schools partnering with regional resources and providers of services.	EEAC	PA	Dec 2017	

4.3.g	Building Partnerships	Convene the MD Association for Environmental and Outdoor Education (MAEOE) annual conference, professional development opportunities, and other actions to promote collaboration and communication.		MAEOE	MD	annual, ongoing	
<b>Management Approach 5: Work with state and local education and natural resource agencies to ensure that rigorous science and environment-related content is effectively represented in the Standards of Learning and the Curriculum Frameworks, and that agency and provider educational-support materials are fully aligned with the intent of the standards.</b>							
5.1.a	Provide Models	Sample lessons and units on environment-related topics keyed to the state standards:VDOE will maintain a collection of sample lessons and instructional units focused on K-12 environmental topics that are aligned to the Virginia science standards.(Also meet S3)(VDOE)	These will be predominantly organized in the next revision of the SOL Enhanced Scope and Sequence (ESS) and will be available to educators on the VDOE Web site.	VDOE Science Director, staff, and external partners	VA	This will be completed on a timeline based on a to-be-determined schedule for the next SOL and ESS revision.	
5.1.b	Provide Models	Develop a series of 5E system science modules to support the teaching of middle school Common Core Math standards	Hold workshop; Work with teachers to develop modules; Pilot test; Release to public.	NOAA, CBT, MSDE	Regional	Jun 2018	
5.1.c	Provide Models	Convene a regional conversation about alignment of MWEEs and NGSS		CBP, MSDE, DDOE, OSSE, DCIN	Regional		
5.1.d	Provide Models	Provide sample lessons for E&E teachers/LEAs.	Increase the number of resources available to teachers above the 2014 level.	PDE	PA	Ongoing	
5.2.a	Identify Needs/Opportunities	Identify MWEE opportunities within DCPS Scope and Sequence documents.	Teachers will identify areas within elementary, middle, biology, chemistry, and environmental science.	DCEEC	DC	Jun 2016	
5.2.b	Identify Needs/Opportunities	Convene a regional conversation about alignment of MWEEs and NGSS		CBP, MSDE, DDOE, OSSE, DCIN	Regional		
5.3.a	Create Alignment Frameworks	Alignment of MWEEs with Environmental Literacy Framework	Create guidance document for teachers and MWEE providers on correlation of MWEEs with NGSS	OSSE, DCEEC	DC	Dec 2016	
5.3.b	Create Alignment Frameworks	Alignment of MWEEs with NGSS Standards	Create Guidance document for teachers and MWEE providers on correlation of MWEEs with NGSS	DDOE, DE CIN	DE	Ongoing	
5.3.c	Create Alignment Frameworks	Alignment of NGSS and geographic standards	Create Guidance document on correlation of with NGSS and Geographic Standards	DE CIN, DDOE, DGA, other DE CIN Partners	DE+	Summer 2016	
5.3.d	Create Alignment Frameworks	Produce and disseminate curriculum maps illustrating examples of the integration of environmental literacy standards within content areas, PreK-12. MSDE staff work in collaboration with LEA Environmental Literacy Points-of-Contact.		MSDE	MD	12/1/16	

5.4.a	Update Standards	Revising the Science Standards of Learning (SOL): In accordance with the Virginia General Assembly's statute requiring the periodic review of the state's learning standards, the science office continually gathers feedback from educators and other citizens, including comments concerning environment-related science concepts, for potential revisions of the Science Standards of Learning. A formal comment window for the each review (every seven years) is traditionally open at several points during the process. As in the five previous standards writing/review sessions (1983, 1988, 1995, 2003, and 2010) and the anticipated 2016-2017 review, a broad-based team, including environment and resource education professionals, will examine the public input and make recommendations for potential changes. As is part of the defined and transparent regulatory process, VDOE will present any proposed revisions, including environment- and Bay/watershed-related changes to the Virginia Board of Education (VBOE) for its consideration according to the established review schedule.(VDOE)	1) The VDOE science office will ensure, within its authority, that Virginia Interagency Education Workgroup (VIEW) partners, the Virginia Resource-Use Education Council (VRUEC), and the Virginia No Child Left Inside Coalition have formal input in the review process. It is anticipated that the Science SOL review process may commence in January 2016 and be completed in early 2017. 2) Success indicators will include letters of support from the three groups previously mentioned as the reviewed standards are taken to the BOE for final review anticipated during the winter/spring 2017.	VDOE partners for review include VIEW, VRUEC, and NCLI. The VBOE has statutory authority of the process.	VA	Anticipated January 2016-January 2017 depending on State BOE approved schedule and process	
5.4.b	Update Standards	Environmental literacy in the Standards of Learning: VDOE will develop a resource document that defines the high-correlation, environment-related standards that focus on the a) science of the environment, b) citizenship decision-making skills, c) environmental health, d) conservation, and e) sustainability across the Standards of Learning disciplines organized by grade level. This document will allow Virginia stakeholders to easily access the total plan for environmental literacy in the K-12 public school program.	The document will be posted on the VDOE's Environmental Literacy Web page, and discussed statewide at professional education conference sessions.	VDOE Science Director, staff,	VA	The document will be completed in accordance with the scheduled standards revision for 2016-2017, and the finalized revised document.	
5.4.c	Update Standards	Review current E&E Standards, Science and Technology Standards as stated in Chapter 4.	Review to reflect current research in teaching and learning of E&E and Science and Technology.	PDE	PA	Dec 2016	
5.5.a	Update/Align Educational Resources	Educational resources for schools- VDOF - publications designed to support student environmental learning.	VDOF will continue to develop educational resources for K-12 students and teachers, including lesson plans and publications correlated with SOL. VDOF will make these available on its Web site (and by hard copy, as funding allows). VDOF will promote all of its products to teachers through local staff contacts and partner agencies such as VDOE. VDOF will maintain a list of helpful links and resources for teachers on its Web site.	VDOF	VA	Ongoing	

5.5.b	Update/Align Educational Resources	"Your Backyard Classroom" is a supplemental curriculum that supports Virginia's learning standards in several discipline areas. It provides high-inquiry, critical-thinking lessons and investigations that are used in the context of certain Bay watershed state parks. The revision meets management approaches S2, S4, S5, S6, SS4, and ELP2. (VDCR)	Professional development sessions are ongoing on the Your Backyard Classroom curriculum. As the revisions to the curriculum are completed, it is embedded and utilized immediately at any next training session. Three to five sessions per year are planned at state park and other venues.	VDCR	VA	June 2016, a revision to "Your Backyard Classroom" will be complete.	
5.5.c	Update/Align Educational Resources	On-line wildlife educational resources(Supports S3, S4)	VDGIF will provide information and classroom activities on its Education Web page. Included will be downloadable watershed maps, life history of wildlife species and schoolyard habitat improvement.	VDGIF	VA	Ongoing	
5.5.d	Update/Align Educational Resources	In school wildlife education resources	VDGIF will provide schools with free subscription to Virginia Wildlife magazine and other wildlife information and posters	VDGIF	VA	Ongoing	
5.5.e	Update/Align Educational Resources	On-line educational resources(Supports S3, S4)	VDEQ will contribute information related to environmental quality to new and ongoing collective efforts to provide information about Virginia's environment (e.g. Virginia Naturally and the Natural Resources Education Guide). VDEQ will also continue to maintain its agency Web site with current information and curricula related to air and water quality, waste management, coastal resources, pollution prevention and other environmental management topics for teachers and schools to help promote environmental literacy in their students. These resources include curricula for Air, Water & Land Protection:	VDEQ	VA	Ongoing	
5.6.a	Train/Inform Curriculum Developers	Facilitate PD program to utilize standards and curriculum framework in developing curricula.	Statewide conference to focus on consistent implementation of curricula within schools/LEAs.	PDE, EEAC	PA	Dec 2017	
5.6.b	Train/Inform Curriculum Developers	Provide professional learning opportunities for EE providers to assist them with aligning their programs and materials with current instructional standards and practices across disciplines.	Regional PD provided for providers of services.	PDE, DCNR, EEAC	PA	Ongoing	
<b>Management Approach 6: Develop and promote opportunities for students to pursue out of school leadership and enrichment programs, including afterschool and summer programs, that support in-depth understanding of environmental issues and opportunities to engage with solutions.</b>							
6.1.a	Student Recognition	Anacostia Environmental Youth Summit-Showcase for student action and opportunity for hands on activities	Engage approximately 400 students in this event.	DOEE, DCEEC	DC	On-going (each May)	
6.2.a	Student Training	Design a training program for students to provide environmental/sustainability tours of their school buildings	Train students from at least five schools.	OSSE, DOEE, DGS, PCSB, DCPS	DC	Dec 2016	

6.2.b	Student Training	VDOF Forestry Camp: The Virginia Department of Forestry, in cooperation with natural resource conservation agencies and organizations, will administer Holiday Lake Forestry Camp June 20-25, 2016. This camping experience introduces young Virginians to the challenges, special skills and knowledge needed for managing the forest resources. Students will experience hands-on, experiential learning about natural resources conservation. Course in the program include: Sustainable Forest Management, Forest Ecology, Reforestation and Tree Improvement, Tree Measurements, Environmental Protection, and Wildlife Management.		VDOF Holiday Lake Forestry Camp Coordinator.	VA	June 20-25, 2016	
6.3.a	Envirothon	Envirothon The Virginia Envirothon, a recognized outreach program supported by the state legislature in code, is a natural resources competition through which high school students around the Commonwealth compete by demonstrating their knowledge of environmental science and natural resource management. In preparation for the event, teams of students spend the year studying soils, forestry, aquatics, wildlife, and a current specific environmental issue. Students also apply their knowledge of these topics and problem solving skills through an oral presentation in which they solve real-life environmental problems.	Virginia Envirothon training sessions and competitions are conducted statewide in multiple regions beginning in February 2016.	VA Assn of Soil & Water Conservation Districts	VA	Virginia's Dominion Envirothon State Competition May 15-16, 2016	
6.3.b	Envirothon	Promote the Pennsylvania Envirothon program.	Ongoing support to promote and increase awareness of the Envirothon program to increase number of participants from 2014 levels.	PDE, DCNR, EEAC, DEP, Conservation Districts	PA	Ongoing	
6.4.a	Program Development/Coordination	Promote summer education based programs.	Increase number of applications for each program (e. g., PA Institute of Conservation Education, PAYSDN, NYSC, County Conservation Schools, local programs) from 2014 levels.	DCNR, PDE, Conservation Districts,	PA	Ongoing	
6.4.b	Program Development/Coordination	Partner with informal education providers that include after school programs to implement programs that focus on environmental problems and solutions.	Identify and coordinate efforts with different organizations, such as PASYDN, museums, nature centers, along with others providing support that have not been identified.	PDE, CSIU, DCNR, EEAC	PA	Ongoing	
<b>Management Approach 7: Support programs and networks that provide authentic student experiences towards college and career readiness related to STEM, Next Generation Science Standards or other rigorous science standards, social studies, and other related disciplines. *</b>							
7.1.a	Identify/Promote Opportunities	Work to better identify and highlight STEM activities within the E-Lit plan that promote college and career readiness related to environmental education.		DE Nature Society, DE State Parks, DE STEM Council	DE	Ongoing	

7.1.b	Identify/Promote Opportunities	Provide students with clear information about careers in Science/Environment/ STEM fields and the pipeline to successfully pursue them. Outline coursework (from middle or high school through college) and experiences recommended to enter these career fields; and distribute to school guidance offices and other networks. Include opportunities for student internships and job training, and strive for greater inclusion of students from diverse backgrounds.	Convene a variety of existing programs such as student conservation corps and similar to identify gaps in information, opportunities, courses (preK-20) related to natural resources career fields, and to suggest solutions/make recommendations. Involve national, regional, state and local student/ youth/ careers organizations and Institutions of Higher Education (IHEs).	MD CIN / DNR, MSDE, IHEs (universities); with CBT, USFWS	MD	Convene groups by Dec 2016, information provided in 2017	
7.1.c	Identify/Promote Opportunities	Provide teachers/schools/LEAs with information regarding occupations in E&E, STEM, and Science related fields.	Increase implementation of STEM related activities in EE education.	PDE, EEAC	PA	Ongoing	