

2016-2017 National Oceanic and Atmospheric Administration Education Implementation Plan



Image credit: Todd Stailey/Tennessee Aquarium

National Oceanic and
Atmospheric Administration

www.education.noaa.gov



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Introduction

The *2016-2017 National Oceanic and Atmospheric Administration (NOAA) Education Implementation Plan* (Implementation Plan) has been developed as a companion to the *2015 - 2035 NOAA Education Strategic Plan: Advancing NOAA's Mission through Education*¹. The NOAA Education Strategic Plan describes the agency's efforts to support an informed society that uses ocean, coastal, Great Lakes, weather, and climate science to make the best social, economic, and environmental decisions. The Strategic Plan also provides a unified structure in which to track and report progress. The Implementation Plan outlines 29 high-priority actions that the NOAA Education community will undertake over the next two years in order to make progress toward the goals and objectives of the Strategic Plan.



Image credit: NOAA

In deciding on the scope of this Implementation Plan, the NOAA Education community chose to highlight priority actions that expand NOAA's current capacity to support, plan, and deliver high-quality education programs. Unlike other implementation plans, this document does not catalog every action that takes place under each element of the Strategic Plan. NOAA will continue to inspire the Nation to use science toward improving ocean and coastal stewardship, increase safety and resilience to environmental hazards, and prepare a future workforce to support NOAA's mission. These efforts reach millions of students, educators, and members of the public (Appendix A). The actions in this Implementation Plan build upon NOAA's ongoing work in education and describe how NOAA plans to update agency-wide priorities, reach more people from all backgrounds, and maintain relevance in a changing world.

¹ http://www.oesd.noaa.gov/leadership/edcouncil/education_plan.html

NOAA Education Council

The Education Council (Council) is the forum in which representatives from NOAA's major education programs coordinate activities, increase capacity for NOAA educators, and monitor progress under the framework of the Strategic Plan. Council members represent Line Offices and Staff Offices within NOAA's organizational structure², including special representation for programs within these Offices whose education activities are specifically authorized by statute (Appendix B). The Council is chaired by the Director of NOAA Education and supported by the Office of Education.

The following Council offices and programs appear in the Implementation Plan tables that follow. Program descriptions are available in Appendix C.

National Environmental Satellite, Data and Information Service

National Environmental Satellite, Data and Information Service Education (NESDIS-At Large)

National Marine Fisheries Service

NOAA Fisheries Education (NMFS-At Large)

NOAA Teacher at Sea Program (TAS)

National Ocean Service

National Ocean Service Education (NOS-At Large)

Office for Coastal Management (OCM)

National Estuarine Research Reserve System (NERRS)

Office of National Marine Sanctuaries (ONMS)

Dr. Nancy Foster Scholarship Program (Nancy Foster)

National Weather Service

National Weather Service Education (NWS-At Large)

Warning Coordination Meteorologist Education (WCM)

Office of Oceanic and Atmospheric Research

Oceanic and Atmospheric Research Education (OAR-At Large)

Climate Communications and Education Program, Climate Program Office (CPO)

National Sea Grant College Program (SG)

Ocean Exploration and Research Program (OER)

Office of Education (OEd)

Competitive Education Grants Program (Ed Grants)

Educational Partnership Program (EPP)

Ernest F. Hollings Undergraduate Scholarship Program (Hollings)

NOAA Bay Watershed Education and Training Program (B-WET)

² <http://www.noaa.gov/organizations.html>

Plan Overview

The Implementation Plan tables that follow are organized by the goals of the Education Strategic Plan, and each priority action (**Action**) appears under the objective (**Obj.**) it supports. The Council program(s) or office(s) implementing the action are noted in the table (**Office or Program**). The tasks (**Tasks**) show major steps planned to accomplish the action. The timeline indicates the fiscal year (**FY16, FY17**) and quarter (**Q1, Q2, Q3, Q4**) in which these tasks are planned to occur. Finally, the outputs and deliverables (**Outputs/Deliverables**) describe expected progress over the next two years.



Image credit: Heidi Chapin/Tennessee Aquarium

These attributes will help the Council assess whether and to what extent the NOAA Education community's efforts have been successful. The actions in this plan are designed to be attainable but ambitious. They reflect the current best thinking on how to continue improving NOAA Education under the new Strategic Plan. However, there are risks and uncertainties associated with any ambitious undertaking. As such, the Council will review this plan annually, and the NOAA Education community may need to adjust its approach as a result of new information and challenges that emerge during implementation.

Out of the 29 high-priority actions in this plan, five of them are called out specifically as Council Actions (one in Goal 4 and the rest in Goal 5). These actions are cross-agency priorities identified by the Council as a whole. They are coordinated by the Council and supported by multiple Council offices and programs across the agency. Developing cross-agency priority actions required the Council to undertake an extensive process that considered needs of Council offices and programs, recommendations from past Council working groups, and the national policy landscape. From a starting list of over fifty candidate actions, the Council focused, combined, and prioritized these ideas to arrive at five actions that support this goal. The NOAA Education community from across the country vetted these ideas and signed up to participate in working groups to undertake these particular actions.

Goal 1

An informed society has access to, interest in, and understanding of NOAA-related sciences and their implications for current and future events.

NOAA's constituents need to be able to access and understand the agency's information so they can make smart decisions that involve society, the environment, and the economy. Goal 1 is the broadest of the goals and many members of the NOAA Education community work in this foundational area. In the next two years, NOAA Education is focusing on understanding how educators and participants use products, developing more successful products, and aligning educational topics with national priorities. Although the approaches differ, many in the NOAA Education community are working to connect educators to NOAA's resources. Professional development can have an amplifying effect, as educators in turn reach dozens or hundreds of students and participants.

OBJECTIVES

- 1.1. Youth and adults from all backgrounds improve their understanding of NOAA-related sciences by participating in education and outreach opportunities.
- 1.2. Formal and informal educators integrate NOAA-related sciences into their curricula, practices, and programs.
- 1.3. Formal and informal education organizations integrate NOAA-related science content and collaborate with NOAA scientists on the development of exhibits, media, materials, and programs that support NOAA's mission.

Action	Obj.	Office or Program	Tasks	Timeline								Outputs/Deliverables	
				FY16				FY17					
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
1.1 Youth and adults from all backgrounds improve their understanding of NOAA-related sciences by participating in education and outreach opportunities.													
Develop resources and professional development opportunities to improve climate change education and communication.	1.1	ONMS	Develop climate education products.	x	x	x	x	x	x	x	x	Number of people reached through new climate products and climate messages in programs increases.	
			Share products with field sites, visitors centers, and online.				x				x		
			Deliver and participate in training.	x									Percent of ONMS educators who integrate climate interpretation into their programs is over 50 percent.
			Share training or further train additional staff.					x					
			Monitor whether educators further integrate climate information into programs.							x	x		
1.2 Formal and informal educators integrate NOAA-related sciences into their curricula, practices, and programs.													
Improve our understanding of the number and types of NOAA resources and topics used by TAS participants in their curricula and practices.	1.2	TAS	Add questions to pre-cruise survey to identify resources used by TAS prior to cruise.	x	x				x			Modified pre- and post-cruise surveys.	
			Add question in post-cruise survey about TAS intention to use NOAA resources.			x	x			x	x		
			Develop a 10 month follow-up cruise survey that asks about NOAA resources used during school year.		x	x				x		New follow-up cruise survey.	
			Modify database to collect pre- and post-cruise data.	x	x							Percent of teachers who intend to use NOAA resources/topics is monitored.	
			Analyze pre-cruise and post cruise data between participant years.				x				x	Percent of teachers who have used NOAA resources/topics is monitored.	
Align Data in the Classroom (DitC) modules with Next Generation Science Standards (NGSS) and increase use of DitC by partner websites to improve visibility of DitC.	1.2	NESDIS - At Large	Identify which NGSS standards each DitC module supports.	x	x	x						1-2 updated DitC modules aligned with NGSS.	
			Modify 1-2 DitC modules to align with education standards.			x	x	x					
			Explore partnerships between DitC and other websites including the American Meteorological Society, Cooperative program for Operational Meteorology, Education, and Training, and Cooperative Research Program.	x	x					x	x	Link to DitC is present on other websites.	

Action	Obj.	Office or Program	Tasks	Timeline								Outputs/Deliverables
				FY16				FY17				
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Improve the usability, access, content, and awareness of the NOS Education websites.	1.2	NOS - At Large	Redesign website architecture so the content is usable on multiple platforms and mobile technology. Reorganize website content by topic to make content easier to find.	x	x	x	x					Number of educators who are able to access the NOS Education website via multiple platforms and mobile technologies increases.
			Add new game links and other content to the website.	x	x	x					Number of students who access the Serious Games website and new postings increases.	
			Market improved website through traditional and social media.	x	x	x	x	x	x	x	Number of educators and students accessing the NOS Education website increases.	
Improve access to regional climate education workshops and distance learning content to support a larger community of NOAA Climate Stewards educators.	1.2	NOS - At Large	Deliver 6-10 regional climate education workshops for formal and informal NOAA Climate Stewards educators.	x	x	x	x					Number of workshop participants increases. Percent of participants who incorporated what they learned from the workshops into their education work increases. Percent of workshop participants significantly increasing their knowledge of climate science increases.
			Expand marketing efforts for the workshops, including the use of an interactive list-serve.	x	x	x	x				Number of community mentors on the list-serve increases.	
			Expand travel reimbursement opportunities for NOAA Climate Stewards educators.	x	x	x	x				Number of travel reimbursement opportunities provided increases.	
			Expand the range of climate and energy topics covered by distance learning efforts.	x	x	x	x	x	x	x	x	Number and types of educators participating in monthly webinars and discussions increases. Percent of participants who incorporate what they learned from the distance learning efforts into their education work increases.



Action	Obj.	Office or Program	Tasks	Timeline								Outputs/Deliverables
				FY16				FY17				
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Strengthen the ability of NERRS sites to communicate success, deliver, and sustain a Teachers on the Estuary (TOTE) workshop over time.	1.2	NERRS	Strengthen program implementation of TOTE trainings to achieve higher level of consistency.	x	x	x	x	x	x	x	x	Number of Reserves that fund a TOTE Workshop out of their operations grants is sustained or increases.
			Track the number of TOTE trainings provided and funding sources used.			x	x			x	x	
			Refine the NERRS performance measurement system to start collecting specific output data on number of TOTE teachers trained.	x	x							
			Improve system for collecting and reporting success stories.	x	x							
Increase the size of the Climate Literacy and Energy Awareness Network (CLEAN) annotated collection of digital climate educational resources.	1.2	CPO	Conduct a general review of the CLEAN Collection (composed of 650+ resources such as activities, videos, visualizations, and short demonstrations and experiments) through annual Review Camps focused on pedagogical effectiveness.				x				x	Expand the CLEAN collection by 50 new resources per year.
			Conduct expert science reviews of the CLEAN collection for quality and accuracy of the scientific content.				x				x	
			Catalog and align reviewed CLEAN collection with literacy standards including the Next Generation Science Standards.				x				x	
Redesign Okeanos Explorer professional development series to improve reach.	1.2	OER	Blend Vol. 1 "Why Do We Explore?" and Vol. 2 "How Do We Explore?" into a single professional development series including a redesign of the agenda, PowerPoint, workshop supplies, workshop handouts, advertising flyers, pre- and post-surveys, training of facilitators, and facilitator kit.	x	x	x	x					Redesigned professional development series to reflect a blend of Vol. 1 and Vol. 2.
			Roll-out blended professional development series.					x	x	x	x	Number of individual educators reached is almost doubled per year. Percent of educators who incorporate NOAA ocean exploration content/resources into their teaching after participation in the workshop increases.



Action	Obj.	Office or Program	Tasks	Timeline								Outputs/Deliverables
				FY16				FY17				
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
1.3 Formal and informal education organizations integrate NOAA-related science content and collaborate with NOAA scientists on the development of exhibits, media, materials, and programs that support NOAA's mission.												
Increase the use of the Climate Literacy and Energy Awareness Network (CLEAN) annotated collection of digital climate educational resources.	1.3	CPO	Create teachers' guide with basic 'recipes' to weave CLEAN collection (composed of 650+ resources such as activities, videos, visualizations, and short demonstrations and experiments) and other climate change content for K-12 students.	x	x	x						Web-based guide with digital search function and recommended CLEAN materials.
			Develop syndication partnerships for the CLEAN collection.		x			x			Number of partners promoting Climate.gov increases.	
			Syndicate the collection to partners and collect quarterly Google analytics data.			x			x		Number of partners syndicating Climate.gov increases by two syndications.	
			Redesign Climate.gov's Teaching Climate section to increase usability by teachers in NGSS-adopting and NGSS-adapting States and districts.				x				Redesigned Teaching Climate section of Climate.gov.	
			Promote the CLEAN collection to leaders of education systems.			x				x	Number of Climate.gov return users increases.	
Increase public programming around the science occurring on NOAA ships that dock at the Exploratorium in San Francisco, CA.	1.3	OAR - At Large	Finalize a set of coordination protocols with NOAA offices and Exploratorium staff for docking logistics and education content related to the vessel and the science conducted onboard.	x								Coordination protocols document for ship docking, and planning education and outreach around ship dockings at the Exploratorium.
			Identify and bring enthusiastic scientists to the Exploratorium for a short residency to provide training to interact with the public.	x	x	x					Number of scientists trained to interact with the public in informal education institutions and elsewhere increases.	
			Create materials with scientists and education specialists at the Exploratorium for regular use in multiple levels of engagement when NOAA ships are docked at the Exploratorium.		x	x	x	x	x	x	x	Education materials around NOAA cruises that are expected to dock at the Exploratorium.



Goal 2

Individuals and communities are actively involved in stewardship behaviors and decisions that conserve, restore, and protect natural and cultural resources related to NOAA's mission.

NOAA is responsible for fulfilling conservation laws that protect ecosystems, conserve marine species, and promote sustainable use of living marine resources. At NOAA, conservation and stewardship education aims to give people an active voice in managing and protecting resources that affect them on both a local and global scale. In the next two years, NOAA Education is working to expand education resources related to endangered marine species, engage underserved and underrepresented audiences in stewardship projects, and bring stewardship education to life in classrooms and communities. Under the Education Strategic Plan, these actions also focus on developing a more deliberate emphasis on stewardship in a way that can be measured and tracked.

OBJECTIVES

- 2.1. Youth and adults from all backgrounds are knowledgeable about conservation and stewardship practices and skilled in applying them to address local, regional, national, and global issues related to NOAA's mission.
- 2.2. Formal and informal educators integrate NOAA-related conservation and stewardship concepts and activities into their curricula, practices, and programs.
- 2.3. Formal and informal education organizations establish guidance and provide support towards increasing participation of education audiences in conservation and stewardship activities related to NOAA's mission.

Action	Obj.	Office or Program	Tasks	Timeline								Outputs/Deliverables
				FY16				FY17				
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
2.1 Youth and adults from all backgrounds are knowledgeable about conservation and stewardship practices and skilled in applying them to address local, regional, national, and global issues related to NOAA's mission.												
Create or update educational materials on endangered species managed by NMFS, including conservation, management, and stewardship messages where appropriate.	2.1	NMFS - At Large	Inventory existing educational materials on endangered species managed by NMFS, assessing the materials for up-to-date conservation and stewardship information and determining any gaps.	x	x	x	x					Number of educational products on endangered species is monitored.
			Determine common key messages for updating educational materials, prioritize which materials need to be updated, and make appropriate changes to educational materials to include up-to-date conservation and stewardship information.						x	x	x	x
Promote the Ocean Guardian program to underserved and underrepresented schools in urban areas.	2.1	ONMS	Target outreach and marketing to underserved and underrepresented schools in urban areas		x					x		Number of underserved and underrepresented schools in urban areas engaged in Ocean Guardian activities increases.
			Provide technical assistance for planning and implementation to underserved and underrepresented schools in urban areas interested in the Ocean Guardian program.			x					x	
			Convene a summit for underserved and underrepresented Ocean Guardian schools in urban areas to share lessons-learned and other information with one another.								x	
Support a larger community of educators engaged in stewardship projects through the NOAA Climate Stewards Education Project (CSEP).	2.1	NOS - At Large	Open the application season earlier and expand marketing of the program.	x					x			Number of educators accepted into CSEP Stewardship community increases.
			Deliver additional training to peer leaders.	x	x	x			x	x	x	Number of stewardship projects funded increases when more peer leaders are available to support educators.
			Integrate measurement of students' knowledge and attitude into stewardship projects.		x	x				x	x	Attitude and knowledge data collected from students and/or community members participating in stewardship projects increases.



Action	Obj.	Office or Program	Tasks	Timeline								Outputs/Deliverables
				FY16				FY17				
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
2.3 Formal and informal education organizations establish guidance and provide support towards increasing participation of education audiences in conservation and stewardship activities related to NOAA's mission.												
Fund more B-WET grants that include stewardship action projects.	2.3	B-WET	Use Meaningful Watershed Educational Experience (MWEE) definition that puts greater emphasis on stewardship action projects in FY16 Federal Funding Opportunities (FFOs) and competition-related communication with potential applicants.	x				x				Number of FFOs and applicants that reference new MWEE definition increases.
			Refine evaluation system question to capture data on stewardship action projects (Spring 2016) and collect data from FY15 (baseline) and FY16 grantees.	x	x			x			x	Percent of B-WET grantees who incorporate stewardship actions into their MWEE programming increases between FY15 and FY16.



Goal 3

Individuals and communities are informed and actively involved in decisions and actions that improve preparedness, response, and resilience to challenges and impacts of hazardous weather, changes in climate, and other environmental threats monitored by NOAA.

NOAA plays an integral role in helping our Nation prepare for and respond to environmental hazards involving water, weather, and climate. Safety and preparedness decisions not only protect lives and property, but also maintain safe access to recreational opportunities and support vibrant economies on land and sea. In the next two years, NOAA Education is focusing on developing and honing the role of education in community resilience. Clear and consistent information is critical to support individual and community safety and preparedness. Information access is also essential and will be a priority.

OBJECTIVES

- 3.1. Youth and adults from all backgrounds are aware of, prepare for, and appropriately respond to environmental hazards that impact health, safety, and the economy in their communities.
- 3.2. Formal and informal educators use and produce education materials and programs that integrate and promote consistent science-based messaging on hazards, impacts, and societal challenges related to water, weather, and climate.
- 3.3. Formal and informal education institutions integrate water, weather, and climate hazard awareness, preparedness, and response information into curricula, exhibits, and programs that create learning opportunities for youth and adults.



Action	Obj.	Office or Program	Tasks	Timeline								Outputs/Deliverables
				FY16				FY17				
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
3.1 Youth and adults from all backgrounds are aware of, prepare for, and appropriately respond to environmental hazards that impact health, safety, and the economy in their communities.												
Strengthen OCM partners' (to include NERRS and Coastal Zone Management Programs) use of coastal resilience tools and concepts.	3.1	OCM	Inventory NERRS education programs to learn what products, events, and outreach efforts have been implemented; which audiences targeted; which resources used or created; and needs in the areas of safety, preparedness, green infrastructure, and severe weather.	x	x	x	x					Summary analysis report about work done by NERRS education programs in the various areas of coastal resilience.
			Provide technical assistance to a small subset of NERRS education programs interested in adopting and adapting Digital Coast tools in their educational programming.			x	x	x	x			Success stories describing use of Digital Coast tools by OCM partners in the field of education.
			Engage OCM partners in advancing a joint initiative in a specific focus area of coastal resilience.							x	x	Number of OCM partners that agree to be part of the initiative.
Strengthen the NWS's use of technology to reach educational audiences about safety, preparedness, and weather education.	3.1	NWS - At Large, WCM	Monitor web traffic and social media activity and capture data in National Weather Service Outreach Education Event System (NOEES) database.	x	x	x	x	x	x	x	x	Data from social media and website traffic are monitored in central database.
			Develop and test new approaches to identify best practices.							x	x	Social media and website traffic metrics are monitored in central database.
			Share best practices across NWS network and education partners.									x



Action	Obj.	Office or Program	Tasks	Timeline								Outputs/Deliverables
				FY16				FY17				
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
3.2 Formal and informal educators use and produce education materials and programs that integrate and promote consistent science-based messaging on hazards, impacts, and societal challenges related to water, weather, and climate.												
Develop NWS Education Resources Guide to promote consistent messaging and make resources available for NWS field offices and partners.	3.2	NWS - At Large, WCM	Conduct needs assessment to identify how NWS headquarters can support NWS field offices.		x	x	x	x				Analysis of findings from field needs assessment.
			Conduct needs assessment to identify how NWS as a whole can support external educators and partners.		x	x	x	x				Analysis of findings from external needs assessment.
			Create comprehensive inventory to identify the activities, tools, and resources that are conducted by NWS field offices.		x	x	x	x				Inventory of current activities, tools, and resources that are employed in the field.
			Develop consolidated NWS Education Resources Guide for NWS field offices and partners.						x	x	x	Comprehensive online NWS Education Resources Guide for NWS field offices and partners.
3.3 Formal and informal education institutions integrate water, weather, and climate hazard awareness, preparedness, and response information into curricula, exhibits, and programs that create learning opportunities for youth and adults.												
Build capacity of Environmental Literacy Grants (ELG) grantees to integrate community resilience tools and concepts into their projects.	3.3	Ed Grants	Calculate percentage of FY15 and FY16 awards that integrate resiliency information into their education projects relative to the entire ELG portfolio.	x				x				Percent of ELG award recipients that integrate resiliency information into their education projects is monitored.
			Analyze progress reports from ELG grantees to identify challenges and potential best practices for integrating community resilience-related tools and information into education projects.					x		x		Report of challenges and best practices, which is updated over time.
			Facilitate sharing of lessons learned among project teams of active ELG awards.				x		x		x	Number of learning opportunities offered is monitored. Percent of active awardees attending these opportunities is monitored.



Goal 4

A diverse and highly-skilled future workforce pursues careers in disciplines that support NOAA's mission.

If NOAA is to continue building resilient communities, ecosystems, and economies, the agency needs to support and sustain a talented, qualified workforce that reflects the diversity of the Nation. NOAA offers career exploration programs, internships, fellowships, and other opportunities that give the best and the brightest from all backgrounds a chance to develop skills that support NOAA's mission and advance in their careers. In the next 2 years, NOAA Education plans to diversify the applicant pool and give underrepresented students more entry points to NOAA-mission fields. NOAA is also focused on understanding career trajectories of students trained in NOAA-related-sciences and improving diversity and inclusion in the NOAA workforce.

OBJECTIVES

- 4.1. Students, particularly from underrepresented groups, consider education and career pathways in disciplines that support NOAA's mission.
- 4.2. NOAA and partner institutions leverage federally-funded assets to provide students, particularly those from underrepresented groups, with experiential learning, research, and scholarship opportunities.
- 4.3. Postsecondary students, particularly from underrepresented groups, pursue and complete degrees in disciplines critical to NOAA's mission.
- 4.4. Graduates completing NOAA-supported student opportunities continue education, enter the workforce, and advance in careers that support NOAA's mission.



Action	Obj.	Office or Program	Tasks	Timeline								Outputs/Deliverables
				FY16				FY17				
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
4.2 NOAA and partner institutions leverage federally-funded assets to provide students, particularly those from underrepresented groups, with experiential learning, research, and scholarship opportunities.												
Target new institutions to encourage more non-traditional applicants to the Dr. Nancy Foster Scholarship Program.	4.2	Nancy Foster	Collaborate with the Educational Partnership Program (EPP) and other key partners to identify universities from which students have not traditionally applied.	x					x			Number of new institutions from which applicants are applying increases.
			Target communication to the universities identified through collaboration with EPP and other key partners to share information about the Dr. Nancy Foster Scholarship Program.	x				x	x			
4.3 Postsecondary students, particularly from underrepresented groups, pursue and complete degrees in disciplines critical to NOAA's mission.												
Recruit more students underrepresented in NOAA mission fields to the Hollings Scholarship Program.	4.3	Hollings	Develop search criteria for universities and the National Science Foundation Research Experience for Undergraduates (REU) programs training underrepresented students in NOAA mission fields to target for recruitment, identify educators in the region who can help recruit, and brief these educators on the Hollings Scholarship Program.	x	x	x	x					Number of applicants from targeted universities and REU programs, and the success rate of these applicants increases.
			Conduct outreach including informational webinars for EPP institutions on the Hollings Scholarship Program.	x	x				x	x		Number of applicants from EPP institutions, and the success rate of these applicants increases.
			Analyze applicant acceptance rate for universities from which students have not traditionally applied and compare to overall applicant acceptance rate.		x	x				x	x	Number of applicants from universities from which students have not traditionally applied, and the success rate of these applicants are monitored.



Action	Obj.	Office or Program	Tasks	Timeline								Outputs/Deliverables
				FY16				FY17				
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
4.4 Graduates completing NOAA-supported student opportunities continue education, enter the workforce, and advance in careers that support NOAA's mission.												
Strengthen data quality and program metrics for the EPP and the Hollings Scholarship Program.	4.4	EPP, Hollings	Conduct gap analysis and work with EPP Cooperative Science Centers to backfill missing data identified in the Student Performance Measures Tracking System.	x								Percent completion of student and alumni data in the Student Performance Measures Tracking System is monitored.
			Work with EPP Cooperative Science Centers and Hollings Scholarship Program to increase the percentage of post-graduation alumni records over time.	x	x	x	x	x	x	x	x	
			Improve user interface of Student Performance Measures Tracking System to make entering student data easier for Cooperative Science Center Coordinators and others.	x	x	x	x					
			Promote Voluntary Alumni Update System use among Hollings and EPP alumni and current students.	x	x	x	x	x	x	x	x	
			Analyze data from evaluation survey and review findings of formal evaluation report for the Hollings Scholarship Program.							x	x	
COUNCIL ACTION: Develop recruitment, retention, and advancement strategies to promote diversity and inclusion in the NOAA workforce.	4.4	NWS-At Large (Lead)	Analyze results from diversity survey of NOAA employees in order to examine retention and upward mobility.		x							Report describing challenges and barriers to inclusion experienced by current NOAA employees.
		NESDIS-At Large, NOS-At Large, NMFS-At Large				x	x					Briefing to NOAA leadership on survey results.
		Equal Employment Opportunity and Civil Rights						x	x	x	x	Workforce analysis describing employee trajectories.
								x	x	x	x	Recommendations to NOAA leadership for improving diversity and inclusion among NOAA employees.



Goal 5

NOAA functions in a unified manner to support, plan, and deliver effective educational programs and partnerships that advance NOAA's mission.

To deliver successful education programs, NOAA must operate efficiently and effectively. This goal supports the infrastructure that allows NOAA to provide learning opportunities to people around the Nation. Members of the NOAA Education community are based all across the country and are in tune with NOAA's mission as it relates to the needs of each particular locale. In the next two years, NOAA Education will focus on leveraging ties within their geographically distributed networks to surface synergies and facilitate peer-to-peer learning. The Council will also be undertaking cross-agency priorities to improve coordination around regional collaboration, high-value educational products and professional development opportunities, building capacity of the NOAA Education community, and serving underserved audiences.

OBJECTIVES

- 5.1. Leaders internal and external to NOAA recognize and support education investments as a way to achieve agency mandates, mission, and goals.
- 5.2. The NOAA Education community develops implementation plans and establishes agency education priorities informed by stakeholder needs and national initiatives.
- 5.3. NOAA educators and partners collaborate at local, regional, and national levels to coordinate efforts, build capacity, and better serve educational audiences.
- 5.4. NOAA and partner organizations use effective evaluation, performance monitoring, and evidence-based approaches in the design and management of educational programs, products, and services.
- 5.5. NOAA develops and supports a coordinated portfolio of products, programs, and partnerships that improves education opportunities in NOAA-related content areas for underserved audiences.



Action	Obj.	Office or Program	Tasks	Timeline								Outputs/Deliverables
				FY16				FY17				
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
5.3 NOAA educators and partners collaborate at local regional and national levels to coordinate efforts, build capacity, and better serve educational audiences.												
Improve the Sea Grant Educators' Network (SGEN) internal communication and collaboration.	5.3	SG	Gather information from Sea Grant educators about what they expect from and will contribute to the SGEN.	x	x							Percent of Sea Grant educators that are actively participating in SGEN activities increases.
			Host regular webinar series to present and discuss thematic areas relevant to SGEN to increase regular communication.		x	x	x	x	x	x	x	A monthly/bimonthly webinar recordings/presentations for Sea Grant educators.
			Identify and assist with opportunities for grant collaboration amongst Sea Grant educators.						x	x	x	Number of new collaborative grant proposals among Sea Grant educators increases.
Increase regional collaboration and coordination between NMFS educators and other NOAA educators internal to NOAA and educational organizations external to NOAA.	5.3	NMFS - At Large	Track NMFS educators who identify and reach out to key education contacts/groups internal to NOAA and external to NOAA in their region.	x	x	x	x	x	x	x	x	Number of new internal-to-NOAA education connections made by NMFS educators is monitored. Number of new external-to-NOAA education connections made by NMFS educators is monitored.
			Identify and share training and tools for cross-NOAA collaboration, and possible events that could be used to foster regional collaboration both among NOAA educators and local education networks.			x	x	x	x	x	x	Number of shared training, tools, or events for cross-NOAA collaboration is monitored.
			Draft goals and strategies that would enable NWS field office staff to better coordinate, develop consistent messages, and function as a unified educational program.	x								Draft strategic plan framework.
Establish a common vision and goals for NWS education.	5.3	NWS - At Large, WCM	Collect feedback from NWS field offices, leadership, and external partners.		x	x						Revised draft strategic plan incorporating feedback from educators, leadership, and partners.
			Obtain approval and publish a strategic plan that establishes a common vision for NWS education.				x	x				Final strategic plan published online.



Action	Obj.	Office or Program	Tasks	Timeline								Outputs/Deliverables
				FY16				FY17				
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
5.3 NOAA educators and partners collaborate at local regional and national levels to coordinate efforts, build capacity, and better serve educational audiences.												
<p>COUNCIL ACTION: Support the establishment and maintenance of regional NOAA educator networks to enable cross-agency communication, coordination, and collaboration around high priority education topics.</p>	5.3	<p>NMFS - At Large, OCM (Leads) B-WET, SG, ONMS, NERRS, TAS, OEd</p>	<p>Identify pilot regions and codify high priority regional issues that will serve as a focal point for coordinated project(s).</p>	x	x	x	x					<p>At least two regional pilots are established that have regular, sustained communication and are conducting coordinated projects towards identified priorities.</p> <p>Standard operating procedure document on reporting across pilot regions and to the Education Council.</p> <p>Briefing to the Education Council on working with regional partners to embed NOAA content into STEM education initiatives.</p>
			<p>Create a toolkit with points of contact on Google Sites to share best practices on enhancing network communication, coordination, and collaboration such as protocols for using video conference capabilities, using cloud-based information sharing, newsletters, and identifying and executing coordinated projects.</p>		x	x	x	x	x	x	x	
			<p>Define what information needs to be shared across regional pilot leads and with the Education Council, and document process for reporting and communication.</p>		x	x	x	x	x	x	x	
			<p>Identify pilot regions that are or will focus on collaborating with local/state education agencies, informal science education groups, and partners to embed NOAA content into science, technology, engineering, and math (STEM) education initiatives; document lessons-learned; and brief the Education Council.</p>							x	x	
<p>COUNCIL ACTION: Develop a process to identify stakeholder needs, identify NOAA's high-value products and professional development opportunities that meet those needs, and disseminate them through improved marketing and partnerships.</p>	5.3	<p>NOS - At Large, CPO (Leads) NERRS, ONMS, NMFS - At Large, OEd, NWS - At Large, OCM</p>	<p>Conduct an analysis of the product and professional development needs of formal, informal, and outreach/public engagement stakeholders.</p>	x	x	x						Results of stakeholder analysis.
			<p>Identify characteristics of high quality products and professional development opportunities, compile a collection of existing products and opportunities that meet those criteria, distribute the identified products and opportunities to selected stakeholders for incorporation into education activities, and evaluate access to these products and opportunities.</p>		x	x	x	x				<p>Criteria for high quality products and professional development opportunities.</p> <p>Sample collections of existing products and professional development opportunities by audience type (formal, informal, outreach/public engagement) based on stakeholder needs assessments and the selection criteria.</p> <p>Results of Google Analytics of sample products.</p>
			<p>Document selection criteria and best practices for NOAA products and professional development opportunities, and request revision, development, and dissemination support from the Education Council in the future.</p>					x	x	x	x	Final report on high-value products and professional development opportunities for the Education Council.

Action	Obj.	Office or Program	Tasks	Timeline								Outputs/Deliverables
				FY16				FY17				
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
5.4 NOAA and partner organizations use effective evaluation, performance monitoring, and evidence-based approaches in the design and management of educational programs, products, and services.												
COUNCIL ACTION: Develop and implement a process for prioritizing needs and providing professional development on evidence-based approaches to the NOAA Education community.	5.4	SG, Ed Grants (Leads) NOS - At Large, ONMS, OER, OEd	Prioritize professional development needs identified by the 2014 needs assessment and other feedback received from the NOAA Education community.	x		x		x		x		Matrix or decision tree capturing factors that influence prioritization of professional development offerings.
			Test different delivery methods and topic offerings based on available resources and prioritized needs.		x		x		x		x	Two professional development opportunities on evidence-based practices are provided per fiscal year.
			Evaluate each professional development offering to examine important outcomes regarding learning and delivery that will help inform plans for subsequent professional development activities to meet ongoing needs of NOAA educators.		x	x	x	x	x	x	x	Documentation of the impact, usefulness, and required resources of each professional development.
5.5 NOAA develops and supports a coordinated portfolio of products, programs, and partnerships that improves education opportunities in NOAA-related content areas for underserved audiences.												
COUNCIL ACTION: Build a community of NOAA educators working with underserved audiences by developing an inventory and case studies on NOAA programs successfully reaching underserved audiences and communicating findings to NOAA leadership.	5.5	EPP/Hollings, NESDIS - At Large (Leads) ONMS, NERRS, NMFS - At Large, OER, NWS - At Large, OEd	Conduct survey on programs reaching underserved audiences at NOAA and analyze data.	x	x							Inventory of NOAA programs and activities reaching underserved audiences.
			Conduct internal case study review, analysis, and literature review of programs reaching underserved audiences.	x	x	x	x	x				Set of 6-12 case studies or programs and activities reaching underserved audiences.
			Develop products to communicate best practices regarding NOAA programs successfully reaching underserved audiences for science literacy, stewardship, preparedness, and recruitment to NOAA leadership.					x	x	x	x	Communications products including a research report, executive summary, and presentations.



Appendix A: NOAA Education Common Measures

NOAA's education activities focus on connecting NOAA-related sciences, places, products, and services with the public, students (P-12 through post-graduate) and educators across the country. The following measures are common across the Education Council, and are reported on an annual basis.³

Number of people that visit museums, aquariums, and other informal education institutions hosting NOAA-supported exhibits or programs that enhance stewardship and promote informed decision making.

Number of institutions with increased educational capacity through NOAA-supported education programs or hosting exhibits that extend NOAA Education's reach and capabilities.

Number of youth and adults who participated in NOAA-supported informal education programs that promote and inform environmental stewardship and decision-making.

Number of P-12 students who participated in NOAA-supported formal education programs that enhance understanding and use of NOAA science and other resources.

Number of educators who participated in NOAA-supported professional development programs that enhance understanding of NOAA-related topics and use of NOAA educational and scientific resources.

Percent of educators who intend to integrate what they learned in NOAA-supported professional development programs to educate others about NOAA-related topics or with NOAA educational and scientific resources.

Percent of educators who integrated what they learned in NOAA-supported professional development programs to educate others about NOAA-related topics or with NOAA educational and scientific resources.

Number of website visitors to NOAA Education websites that support a broad spectrum of educational activities and provide critical information to the Nation.

Number of postsecondary students trained in NOAA-mission related sciences through NOAA-funded higher education programs that prepare students for career paths at NOAA and related organizations.

Number of postsecondary degrees in NOAA-related disciplines awarded to students who were supported by NOAA in higher education programs.

³ <http://www.oesd.noaa.gov/accomplishments.html>

Appendix B: NOAA's Mandate to Educate

NOAA's role in science education is defined in the America COMPETES Act (P.L. 110-69), which provides broad authority for educational activities. The Act states: "The Administrator of the National Oceanic and Atmospheric Administration shall conduct, develop, support, promote, and coordinate formal and informal educational activities at all levels to enhance public awareness and understanding of ocean, coastal, Great Lakes, and atmospheric science and stewardship by the general public and other coastal stakeholders, including underrepresented groups in ocean and atmospheric science and policy careers. In conducting those activities, the Administrator shall build upon the educational programs and activities of the agency."

The America COMPETES Act complements standing mandates that authorize education in NOAA's programs, such as the National Marine Sanctuaries System, the National Sea Grant College Program, and the National Estuarine Research Reserve System (see the full list below). These statutes acknowledge the importance of education in fulfilling the distinct laws that NOAA executes, while the America COMPETES Act provides a unifying mandate for educational activities across the agency.

America COMPETES Act—2007, 2010

National Sea Grant College Program Act—1966, 1976, 2002, 2008

National Marine Sanctuaries Act—1972, 1980, 1984, 1988, 1992, 1996, 2000

National Estuarine Research Reserve System, Coastal Zone Management Act—reauthorized or amended eight times since 1972–1996

Magnuson-Stevens Fishery Conservation and Management Act—1976, 2006

Ernest F. Hollings Scholarship Program, Consolidated Appropriations Act—2005

Coral Reef Conservation Act—2000

Tsunami Warning and Education Act—2006

Marine Debris Research, Prevention, and Reduction Act—2006

Federal Ocean Acidification Research and Monitoring Act, Omnibus Public Land Management Act—2009

Ocean Exploration and Research, Omnibus Public Land Management Act—2009



Appendix C: NOAA Education Program Descriptions

National Environmental Satellite, Data and Information Service Education (NESDIS-At Large)

NESDIS education activities support meteorologists, students, and educators of remote sensing and atmospheric sciences through cooperative partnerships, partnerships with museums and science centers by providing data and visualizations, and community and location specific public education activities. www.nesdis.noaa.gov

NOAA Fisheries Education, National Marine Fisheries Service (NMFS-At Large)

The NOAA Fisheries education program increases environmental literacy to support 1) productivity and sustainability of fisheries and fishing communities and 2) recovery and conservation of protected marine species. Educators and scientists develop learning tools and promote learning experiences for students, teachers, and families through a variety of internal and external partnerships. <http://www.nmfs.noaa.gov>

NOAA Teacher at Sea Program (TAS)

NOAA's Teacher at Sea Program provides authentic research experiences to kindergarten through college level teachers from around the U.S. aboard NOAA ships conducting scientific research. The successful communication of NOAA science is built on the close partnership with the teachers and NOAA scientists. Teachers' logs, photos, videos, and education products are available for public use and can be found online at <http://teacheratsea.noaa.gov>.

National Ocean Service Education (NOS-At Large)

The National Ocean Service (NOS) education team engages formal and informal education audiences to build environmental literacy through products and programs that incorporate the applied science of NOS. The team supports teacher infusion of NOS content into local curricula through professional development opportunities at conferences and through Web-based avenues. The NOS education team also works to build partnerships with education partners and federal agencies that will enhance classroom-based science, technology, and engineering education. <http://oceanservice.noaa.gov/education>

Office for Coastal Management (OCM)

NOAA's Office for Coastal Management (OCM) works to be a unifying force in promoting community resilience. OCM provides unbiased data, planning tools, and opportunities for communities to come together and work smarter by working together. Through education and outreach, citizens are able to learn how coastal management science and strategies can be used to address their specific issues, such as protecting endangered species, mitigating coastal erosion, or generating codes for building storm-resistant buildings. Programs are also available to help teachers and students work with the real-life data and situations. <http://coast.noaa.gov>

National Estuarine Research Reserve System (NERRS)

The National Estuarine Research Reserves System (NERRS) resides within the Office for Coastal Management, and is a partnership program between NOAA and 28 reserves located in 22 states and Puerto Rico. NERRS provides

placed-based educational opportunities for teachers, students and the public and helps communities develop strategies to deal successfully with coastal resource management issues. <http://nerrs.noaa.gov/education/>

Office of National Marine Sanctuaries (ONMS)

Since 1972, ONMS has been federally mandated to promote environmental education through 13 national marine sanctuaries and one marine national monument. Through hands-on activities, workshops, classroom curricula, and innovative technology ONMS reaches over 39 million people a year with messages about the ocean and its resources. <http://sanctuaries.noaa.gov/education>

Dr. Nancy Foster Scholarship Program (Nancy Foster)

NOAA's Dr. Nancy Foster Scholarship Program recognizes outstanding scholarship and encourages independent graduate level research –particularly by female and minority students— in NOAA mission-related sciences of oceanography, marine biology, and maritime archaeology, including all science, engineering, and resource management of ocean and coastal areas. <http://fosterscholars.noaa.gov/>

National Weather Service Education (NWS-At Large)

In support of NOAA's strategic initiative of building a Weather-Ready Nation— community resilience in the face of increasing vulnerability to extreme weather and water events—the National Weather Service (NWS) conducts an extensive education and outreach program. NWS education and outreach also supports the expansion of NOAA's recruitment to include the social science competencies needed for building a Weather-Ready Nation.

<http://www.nws.noaa.gov/com/weatherreadynation/>

Warning Coordination Meteorologist Education (WCM)

Warning Coordination Meteorologists (WCM) and Service Coordination Hydrologists (SCH) serve as the National Weather Services' (NWS) primary liaisons for interacting with the public across the network of 122 Forecast Offices, 13 River Forecast Centers, and 9 National Centers. Utilizing a mix of formal and informal education and outreach, NWS staff engage local communities so that individuals can learn about and prepare for extreme water and weather events. WCMs and SCHs also interface with emergency management organizations Weather Ready Ambassadors – external organizations that are committed to creating societal response – in order to achieve an integrated response to environmental hazards. <http://www.nws.noaa.gov/com/weatherreadynation/>

Oceanic and Atmospheric Research Education (OAR-At Large)

The Office of Oceanic and Atmospheric Research (OAR) - or "NOAA Research" - provides the research foundation for understanding the complex systems that support our planet. NOAA Research enables better forecasts, earlier warnings for natural disasters, and a greater understanding of the Earth. NOAA Research Laboratories are located across the country and have established formal collaborative agreements with universities/non-profit research institutions to form joint research institutes. OAR also coordinates the NOAA Cooperative Institutes, academic and

non-profit research institutions that foster strong, long-term collaborations between scientists in the laboratories and in the university. <http://research.noaa.gov/>

Climate Communications and Education Program, Climate Program Office (CPO)

The NOAA Climate Communications and Education Program in the Climate Program Office aims to foster a climate-literate public that understands its vulnerabilities to a changing climate and makes informed decisions. In response to public demand, CPO provides climate data and information to help build a climate-smart, resilient nation. The program integrates climate data and information from NOAA and its partners into programs, tools, and resources designed to increase students', educators', and life-long learners' climate literacy.

<http://cpo.noaa.gov/OutreachandEducation>

National Sea Grant College Program (SG)

The Sea Grant model of integrating research, outreach, and education uniquely positions Sea Grant Educators to bring ocean, coastal, and Great Lakes science literacy to the U.S. population, beginning with preschool students and continuing through lifelong learners. Educators' backgrounds and expertise in both technical science and education, as well as Sea Grant's strong affiliation with research universities, results in an education network unequaled in its ability to obtain and deliver current ocean, coastal, and Great Lakes science to students of all ages.

<http://seagrant.noaa.gov/HowWeWork/Education>

Ocean Exploration and Research Program (OER)

NOAA's Office of OER is committed to enhancing America's environmental literacy by bringing the excitement of ocean exploration and discovery to a wide variety of audiences. Educators are essential to this mission and OER offers opportunities for them to learn how to bring NOAA science and advanced technologies associated with exploring the ocean in near-real time into their classrooms. <http://oceanexplorer.noaa.gov/edu/welcome.html>

Competitive Education Grants (Ed Grants)

NOAA's competitive education grants portfolio is designed to increase environmental stewardship and informed decision-making through strategic investments at the national, regional, and local levels. A targeted group of competitions offered through the Office of Education's Environmental Literacy Grants (ELG) Program provides competitive funding for formal and informal education projects implemented on local to national scales.

<http://www.oesd.noaa.gov/grants/elg.html>

Additional competitive grants and in-kind support are provided for strategic, longstanding education initiatives, foundational environmental education studies, and capacity-building activities among grantees and partners.

<http://www.oesd.noaa.gov/grants/othergrants.html>



Educational Partnership Program (EPP)

EPP with Minority Serving Institutions supports four Cooperative Science Centers that involve 23 academic partners in 11 states, Puerto Rico, and the District of Columbia. The program's goal is to increase the number of students from underrepresented communities who are trained and graduate with degrees in STEM fields directly related to NOAA. Funds support faculty, research and students pursuing degrees in NOAA sciences.

<http://www.epp.noaa.gov>

Ernest F. Hollings Undergraduate Scholarship Program (Hollings)

The Ernest F. Hollings Scholarship program provides successful undergraduate applicants with academic assistance and a 10-week NOAA internship that provides “hands-on” experiences in NOAA-mission science, technology, and educational activities. The program is legislatively mandated to increase undergraduate training in oceanic and atmospheric science, technology, and education; recruit and prepare students for public service careers at NOAA and related mission agencies; recruit and prepare students for careers as educators in oceanic and atmospheric sciences; and improve environmental literacy and stewardship. http://www.oesd.noaa.gov/Hollings_info.html

NOAA Bay Watershed Education and Training Program (B-WET)

The NOAA B-WET program supports place-based experiential watershed education for students and teachers in seven regions around the country. B-WET competitive awards emphasize meaningful watershed educational experiences (MWEEs): multi-stage activities that include learning both outdoors and in the classroom, and aim to increase the understanding and stewardship of watersheds and related ocean, coastal, riverine, estuarine, and Great Lakes ecosystems of all participants. <http://www.oesd.noaa.gov/grants/bwet.html>



Glossary

Adults. Individuals, 18 years and older, who engage in lifelong learning activities with the aim of enhancing their own knowledge, skills, and competencies from a personal, civic, social, or employment-related perspective.

Disciplines that support NOAA’s mission. The entire suite of professional disciplines that support NOAA. This includes all NOAA-related sciences, as well as engineering, vessel and airplane operation, nautical charting, policy, graphic design, illustration, communications, law, management, uniformed services, social sciences, and marine observer programs.



Image credit: Waggoner, NOAA

Diversity. A collection of individual attributes that together help agencies pursue organizational objectives efficiently and effectively. These include, but are not limited to, characteristics such as national origin, language, race, color, disability, ethnicity, gender, age, religion, sexual orientation, gender identity, socioeconomic status, veteran status, and family structures. The concept also encompasses differences among people concerning where they are from and where they have lived and their differences of thought and life experiences. (Source: Government-Wide Diversity and Inclusion Strategic Plan 2011, <https://www.opm.gov/policy-data-oversight/diversity-and-inclusion/reports/governmentwidedistrategicplan.pdf>)

Earth system science. An integrated approach to the study of the Earth that stresses investigations of the interactions among the Earth’s components in order to explain Earth dynamics, evolution, and global change. (Source: NASA’s Earth Observatory Glossary, <http://earthobservatory.nasa.gov/Library/glossary.php3?mode=alpha&seg=e>)

Education. The process by which individuals develop their knowledge, values, and skills. Education encompasses both teaching and learning. (Source: adapted from The Definitions Project, <http://www.definitionsproject.com/>)

Engagement. A two-way relationship between a service provider and society. It implies a commitment of service to society through a partnership based on reciprocity and sharing of goals, objectives, and resources, e.g., between NOAA and the society it serves. Implicit to engagement is a respect for each partner that involves listening, dialogue, understanding, and mutual support.

Environmental literacy. An environmentally-literate person is someone who, both individually and together with others, makes informed decisions concerning the environment; is willing to act on these decisions to improve the

well-being of other individuals, societies, and the global environment; and participates in civic life. Those who are environmentally literate possess, to varying degrees: the knowledge and understanding of a wide range of environmental concepts, problems, and issues; a set of cognitive and affective dispositions; a set of cognitive skills and abilities; and the appropriate behavioral strategies to apply such knowledge and understanding in order to make sound and effective decisions in a range of environmental contexts. (Source: [Hollweg et al. 2011](#))

Environmental stewardship. The responsible use and protection of the natural environment through conservation and sustainable practices to enhance ecosystem resilience and human well-being. (Source: [Chapin et al. 2011](#))

Experiential learning. Experiential education programs engage learners in constructing meaning by immersing them in direct and meaningful hands-on experiences. This approach incorporates learning using real-world problems and interaction with natural phenomena. (Source: Association for Experiential Education, <http://www.aee.org/>)

Fiscal Year (FY). October 1 – September 30.

Formal education. Learning within a structured education system in which children or adults are required to demonstrate proficiency.

Free-choice learning. Self-directed, voluntary education guided by an individual's needs and interests.

Inclusion. A culture that connects each employee to the organization; encourages collaboration, flexibility, and fairness; and leverages diversity throughout the organization so that all individuals are able to participate and contribute to their full potential. (Source: Government-Wide Diversity and Inclusion Strategic Plan 2011, <https://www.opm.gov/policy-data-oversight/diversity-and-inclusion/reports/governmentwidedistrategicplan.pdf>)

Informal education. Learning outside the established formal system that meets clearly defined objectives through organized education activities.

K-12. Kindergarten through grade 12.

Lifelong learning. All learning activity, formal and informal, undertaken throughout life, with the aim of enhancing knowledge, skills, and competencies from a personal, civic, social, or employment-related perspective.

Meaningful Watershed Educational Experience (MWEE). Multi-stage activities that include learning both outdoors and in the classroom, and aim to increase the understanding and stewardship of watersheds and related



ocean, coastal, riverine, estuarine, and Great Lakes ecosystems of all participants. (Source: http://www.oesd.noaa.gov/grants/docs/MWEE_Definition-final2015-7-29v3.pdf)

Minority Serving Institutions. Colleges and universities, including state colleges, private schools, religiously affiliated colleges, liberal arts colleges, and community colleges, that have a special focus on serving the needs of a minority audience. These universities have a historical tradition or mandate to serve a specific demographic of student, but often serve non-minority students as well. The term “minority institution” means an institution of higher education whose enrollment of a single minority or a combination of minorities exceeds 50 percent of the total enrollment. (Source: [U.S. Department of Education, 20 U.S.C. § 1067k\(3\)](#))

NOAA Education. Education efforts undertaken by NOAA-supported programs.

NOAA Education community. Individuals who engage in education activities on behalf of NOAA.

NOAA-related science. The collection of scientific disciplines that NOAA employs in its investigations, monitoring, evaluating, and forecasting of conditions and trends in the ocean, coasts, Great Lakes, weather, and climate and in building understanding of these natural systems and their relationship with human activities.

Outreach. Opportunities designed to build awareness, develop relationships, and inspire action (e.g., pursuit of further learning opportunities, behavioral change). Involves information exchange between provider and target audience. Frequently designed to reach diverse audiences, but can be personal and interactive, designed to identify and appeal to an individual’s personal interest or motivation for information. Outreach for education activities are designed to build awareness, develop relationships, promote education products, and inspire educators, students, and the public to pursue further learning opportunities.

Place-based education. This method of instruction encourages participants to use the schoolyard, community, public lands, and other special places as resources, turning communities into classrooms. (Modified from source: Place-based Education Evaluation Collaborative definition, http://www.peecworks.org/PEEC/Benefits_of_PBE-PEEC_2008_web.pdf)

P-12. Preschool through grade 12.

Quarter. First quarter (Q1), October 1 – December 31. Second quarter (Q2), January 1 – March 31. Third quarter (Q3), April 1 – June 30. Fourth quarter (Q4), July 1 – September 30.



Resilience. The ability to adapt to changing conditions and withstand and rapidly recover from disruption due to emergencies. (Source: Presidential Policy Directive 8: National Preparedness, <http://www.dhs.gov/presidential-policy-directive-8-national-preparedness>)

Social science. Academic disciplines concerned with the study of the social life of human groups, and individuals, including anthropology, economics, communications, geography, philosophy, psychology, history, education, outreach, political science, and sociology.

STEM. An acronym for science, technology, engineering, and mathematics – disciplines that are crucial to maintaining America’s competitiveness in a rapidly changing global society (Source: National Academies, 2005)

Stewardship education. Programs and activities specifically designed to educate participants about environmental issues and the connection between human actions and environmental impacts; and that facilitate learning how to practice stewardship behaviors and decisions.

Stewardship behaviors. Protection, restoration, and conservation actions, sustainable practices, and civic engagement activities that help prevent or mitigate environmental threats.

Student opportunities. Internships, grants, scholarships, fellowships, and educational programs provided to students on a competitive basis for introducing them to careers and to support their pursuit of higher education in disciplines that support NOAA’s mission.

Training. A process of transferring knowledge and skills using standardized instructional methods and techniques to targeted professional audiences for the purpose of developing and enhancing professional competencies.

Underserved audiences. Individuals and groups who have traditionally not had access to environmental education or interpretive programs, activities, or experiences. (Source: adapted from the National Association for Interpretation)

Underrepresented audiences. Demographic groups that have disproportionately less representation in specific workforce occupations than in the general populace.

Workforce development. Education, employment, and job training systems designed to provide the skilled workers that employers need to succeed and the education and training that individuals need to succeed in today’s labor market. (Source: National Governors Association, 2008)



Youth. Individuals, younger than 18 years old, who engage in lifelong learning activities with the aim of enhancing their own knowledge, skills, and competencies from a personal, civic, social, or employment-related perspective.

