



2017-18 PROGRESS REPORT

The following report addresses key outcomes of the 2017-18 ExPLORE NC (*Experiencing Place-based Learning Outdoors in Rivers and Ecosystems of North Carolina*) program led by the UNC Institute for the Environment (UNC IE) with funding provided by the Albemarle-Pamlico National Estuary Partnership (APNEP) and the Eddie and Jo Allison Smith Family Foundation.

This multi-component program provided teachers with an experiential, in-depth investigation of watersheds of eastern North Carolina and access to quality, science-based activities, tools, and resources that support the North Carolina Essential Standards.



This year-long program commenced with a Summer Institute held at the Trinity Center in Salter Path, NC from July 17-20, 2017. Twenty 4th and 5th grade teachers participated in this immersive professional development experience.



Program participants also attended at least one of two weekend retreats. The Fall Retreat was held at Goose Creek State Park in Washington, NC from November 4-5, 2017 and the Spring Retreat was held in and around Franklin County, NC with field trips to the Historic Cascade Mill and Medoc Mountain State Park from March 24-25, 2018.

Both weekend experiences reinforced the experiential investigations of watersheds initiated at the Summer Institute, included place-based lessons that support the North Carolina Essential Standards, and provided interactions with scientists, historians, and non-formal environmental educators.

Program Goals

- Increase teacher knowledge of current watershed science in the Albemarle-Pamlico region;
- Increase teacher confidence in using the outdoors and local natural resources to teach required curriculum; and
- Support participating teachers in using watershed-focused lessons with students and establish connections with regional environmental education resources, including our partner organizations.

Program Content

Teachers participated in a variety of sessions and activities focused on building knowledge of watershed science and promoting awareness of curricula and online resources that help students explore their local watersheds. Programming included curricula such as *EGRET* and *Project Learning Tree*, along with online mapping tools and field experiences. Throughout the year, teachers had opportunities to engage with current content pertaining to watershed science, ecosystems, and how geography and availability of natural resources in the region affect human settlement.



ExPLORE NC

Experiencing Place-based Learning Outdoors in Rivers and Ecosystems of North Carolina

Hands-on activities combined with authentic outdoor learning experiences were emphasized throughout the year. Participants experienced first-hand explorations of the maritime forest, estuary, salt marsh, and coastal blackwater river ecosystems found in the Albemarle-Pamlico region, examining biotic and abiotic features using relevant technologies.

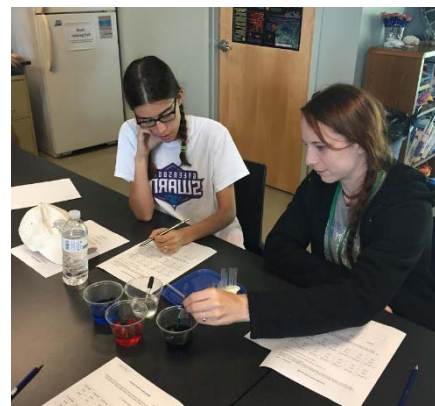


Each teacher received instructional materials including curriculum-related maps, posters, books, and other support materials for use in the classroom. The Summer Institute and Retreat agendas all included team-based planning time to provide teachers with the opportunity to work alongside colleagues to integrate content covered throughout the year into classroom instruction and to adapt resources and activities featured to their schools' river basins. Teachers were introduced to online mapping tools that can be used to explore the unique features of their river basins and resources. Throughout the year, teachers were given time to discuss their experiences using the new resources and activities in their classroom and receive feedback. Resources were made available to the entire group via a shared Google Drive folder and a Google Classroom was utilized to enable discussion and feedback throughout the year and after the program convened.

Teachers earned up to 50 contact hours to apply toward Continuing Education Units (CEUs) required for the renewal of their NC teaching certificates and up to 48 hours of credit towards becoming Certified Environmental Educators in North Carolina.

Alignment to APNEP's Comprehensive Conservation and Management Plan

UNC IE's efforts to engage teachers is directly relevant to APNEP's Comprehensive Conservation and Management Plan Component D; Engage. In particular, the efforts described in this report directly addresses *Objective D2: Conduct targeted environmental education efforts regarding sustainable use, habitats, and ecosystem services*. In particular, activities support *Actions D2.1: provide and promote opportunities for outdoor experiences that connect individuals with the Albemarle-Pamlico ecosystem* and *D2.2: provide environmental education training opportunities for educators in the region*. To improve awareness and understanding of environmental issues facing the Albemarle-Pamlico region, teachers were engaged in hands-on, field-based activities designed to provide authentic and meaningful outdoor experiences with terrestrial, aquatic and marine ecosystems within the APNEP region. By using the interdisciplinary approach of environmental education,





teachers learned how to address important watershed issues with their students, both in the classroom and in outdoor environments, as they moved from the sounds to the headwaters. Furthermore, activities fostered individual and collective stewardship of the region's resources, including interactions with scientists and others conducting relevant research in this region through experiences that modeled current research efforts including citizen science projects. For example, teachers learned about living shorelines and oyster restoration efforts by direct observation and monitoring of a living shoreline project at the Trinity Center with the NC Coastal Federation.

Participant Recruitment and Demographics

Fourth and fifth grade teachers were recruited using a variety of outlets: the NC-EE listserv, NCSciTeach listserv, EarthSciTeach listserv, posting on the APNEP website, as well as emails to past IE workshop participants. In addition, APNEP region teachers were targeted specifically by emailing district level science and professional development coordinators, requesting that they forward the application materials to teachers in their districts. Emails were also sent directly to 4th and 5th grade teachers in the Tar-Pamlico river basin, a target audience for the Smith Family Foundation.



The twenty participants came from the piedmont and coast of NC, representing seven river basins (Cape Fear, Catawba, Chowan, Lumber, Neuse, Tar-Pamlico, and White Oak). Fourteen counties were represented by program participants: Alamance, Carteret, Chatham, Cleveland, Cumberland, Edgecombe, Franklin, Gates, Guilford, Hoke, Nash, Pitt, Scotland, and Wake. 80% percent of participants taught fourth and/or fifth grade only, and 20% of participants were science

specialists or AIG facilitators. Collectively, these 20 teachers are estimated to have the opportunity to reach over 800 students in the 2017-18 school year.

Evaluation

Nineteen teachers completed a post-institute evaluation and 18 teachers completed an end-of-program evaluation. Results are summarized below and n=18 unless otherwise stated. Overall, 100% of respondents believed the Summer Institute component of ExPLORE NC to have been an "Excellent" experience, and they would recommend it to other educators.

Highlights of the program cited by participants included field experiences that provided first-hand access to native ecosystems and increased knowledge of relevant natural and cultural history, access to researchers and environmental education experts, including opportunities to have experts model hands-on activities that can be used in the classroom, access to resources, technology and field equipment for classroom use, and time for networking and planning with colleagues. Goal specific evaluation data are reported below.



Goal 1: Increase teacher knowledge of current watershed science in the APNEP region:

100% of respondents to the end-of-program survey self-reported an **increase in their knowledge of current watershed science** after participating in ExPLORE NC compared to their knowledge before participating in the program.

Goal 2: Increase teacher confidence in using the outdoors to teach required curriculum:

78% of respondents to the post-institute survey reported an **increased level of confidence in using the outdoors to teach required curriculum** compared to their initial application. In general, those teachers who did not report an increase already had a high level of confidence using the outdoors at the start of the program.

Goal 3: Support participating teachers in using watershed-focused lessons with students and establish connections with regional environmental education resources:

100% of respondents to the post-institute survey reported that they **planned to incorporate one or more of the lessons, activities, materials or ideas into their instruction in the upcoming academic year**. NC Educational State Forests, NC Coastal Federation, NC Coastal Reserve/National Estuarine Research Reserves and NC Sea Grant were among the EE providers that teachers mentioned they had contacted during the school year.



Conclusion

Based on the evaluation results highlighted above as well as anecdotal observations, we are satisfied in concluding that this professional development program met its objective of providing teachers with an in-depth investigation of watershed science and increasing their confidence in using outdoor learning approaches in instruction. The content covered and activities conducted throughout the institute were relevant to a range of science and social studies subject areas, and teachers were able to use program content in their curricula over the academic year.

Overall, participant satisfaction was high and teachers enjoyed the variety of experiences, access to scientific experts, and hands-on activities. Teachers indicated that the training was effective at increasing their knowledge of watershed science and their confidence in using the outdoors to teach. They benefited from the immersive experiences in the ecosystems of the Albemarle-Pamlico region, as learned how to replicate these learning approaches with their students. Teachers were able to successfully apply the knowledge and skills they gained during the program in their classrooms over the course of the program year, and plan to continue to use these resources.



APPENDIX

Program Partners & Facilitators

The following individuals and organizations contributed directly to the 2017-18 program by delivering content and/or facilitating field experiences:



Ranger Roy Austin, Medoc Mountain State Park
Rachel Bisesi, NC Coastal Federation (*pictured, left*)
Simon Brough, Historic Cascade Mill
Ranger Nicole Crider, Goose Creek State Park
Bill Crowell, Albemarle-Pamlico National Estuary Partnership
Lori Davis, NC Coastal Reserve/National Estuarine Research Reserve
Kelsey Ellis, Albemarle-Pamlico National Estuary Partnership
Chris Goforth, NC Museum of Natural Sciences
Jenna Hartley, US EPA
Ranger Joseph Hawley, Goose Creek State Park
Terri Kirby Hathaway, North Carolina Sea Grant
Wayne Justice, NC Aquarium at Pine Knoll Shores
Megan Rodgers, UNC Institute for the Environment
Ranger Candace Rose, Goose Creek State Park
Kim Smart, NC Museum of Natural Sciences
Andrew Snyder, Jordan Lake Educational State Forest
Steve Stadelman, Novozymes
Toni Stadelman, Franklin County Schools
Sarah Yelton, UNC Institute for the Environment

Leveraged Funding

APNEP provided \$24,000 to support the ExPLORE NC program's summer institute in 2017-18. This contribution was leveraged by an additional \$52,200 in ExPLORE NC program support provided by the Eddie & Jo Allison Smith Family Foundation, an anonymous donor and institutional support from the UNC Institute for the Environment.

In addition, partner organizations and facilitators contributed an estimated 111 hours preparing and facilitating program content. Using the Independent Sector value of volunteer time at \$24.69/hour, this amounts to an additional \$2,740 leveraged.

Altogether, APNEP's \$24,000 contribution leveraged \$54,940 from other sources.