The Woods Hole Partnership Education Program (PEP) Directors' Report for 2024 PEP's 16th Summer

September 2024
Onjalé Scott Price

Overview

The Woods Hole Partnership Education Program (PEP) is a ten-week summer internship hosted by six Woods Hole science institutions in collaboration with the University of Maryland Eastern Shore (UMES). Founded in 2009 by the Woods Hole Diversity Initiative (WHDI), PEP was created to bring diverse talent to study and work in the Woods Hole science community.
Over its sixteen years, PEP has developed a model for recruiting and mentoring undergraduates from communities under-represented in marine and environmental sciences. Equally important, the PEP model focuses on facilitating change in the host community, creating a more inclusive and welcoming science community. (See Appendix Two for the PEP Model.)

PEP welcomed its 16th cohort in 2024, a class of 15 students from 15 colleges and universities, including 10 schools that were new to PEP, one HBCU and six Minority Serving Institutions (MSI). PEP has now hosted students from 133 colleges or universities, including 40 HBCU/MSIs (see Appendix One for the complete list of schools).

Front row: Sinclair Strong, Mikayla Harris, Emmanuelle Bogomolni, Arleth Martinez, Brianna Shaw, Onjalé Scott Price (Director)
Middle row: Autumn Johnson (Coordinator), Enzo Inestroza, Mia Martin-Fuller, Alex Brown, Madeleine Stewart
Back row: Jordan Verret, Corinne LePage, Akil Smith, Amari Johnson, Aaron Wickware, Catlin Payne

Recruitment and Selection

Intern recruitment was done both in-person and virtually this year. In-person recruiting is a key component in the PEP model. Most recruiting was done by our colleagues at NOAA, Darius Johnson and George Liles, in conjunction with recruitment for IN FISH. In person recruiting was done at: Morehouse College, Spelman College: Biology Department, Clark Atlanta University, Tuskegee University, Georgia State University, Albany State University, Georgia State University, Albany State University, Fort Valley State University, and North Carolina A&T State University. Virtual recruitment was done at Howard University, Tennessee State University, Savannah State University and Auburn University.

The 2024 recruitment effort yielded an applicant pool that was deep and diverse, with more than 14 completed applications for every one available spot in the program. The Selection Committee was chaired by PEP Director Onjalé Scott Price, with reviewers representing five institutions in Woods Hole, PEP alumni, and former PEP staff.

2024 PEP Roster

First Name	Last Name	College/Univ	Class standing	Major	Mentor	Institution
Emmanuelle	Bogomolni	Boston University	Sophomore	Marine Science	Sean Hayes	NOAA
Alex	Brown	Chowan University	Junior	Environmental Biology	Ken Foreman	MBL
Mikayla	Harris	Heritage University	Sophomore	Environmental Science	Lauren Mullineaux	WHOI
Enzo	Inestroza	Florida Atlantic University	Junior	Biological Sciences	Sara Zeigler	USGS
Amari	Johnson	Prince George's County Community College	Sophomore	Biology	Meagan Eagle/ Seth Ackerman	USGS
Corinne	LePage	Brown University	Sophomore	Environmental Science & Native American and Indigenous Studies	Forrest Horton/ Peter Barry	WHOI
Mia	Martin-Fuller	DePauw University	Sophomore	Environmental Biology	Hauke Kite-Powell	WHOI MPC
Arleth	Martinez	Berea College	Junior	Biology	Elizabeth Sibert	WHOI
Catlin	Payne	University of Massachusetts Boston	Junior	Biology	Carolyn Tepolt/Yaamini Venkataraman	WHOI
Brianna	Shaw	Stony Brook University	Junior	Marine Sciences	Jessica Mark-Welch/Scott Chimeliski	MBL
Akil	Smith	University of Miami	Sophomore	Marine Biology/Ecology	Katie Dever	NOAA
Madeleine	Stewart	University of California Santa Cruz	Junior	Marine Biology	Mike Asaro	NOAA
Sinclair	Strong	Fisk University	Sophomore	Biochemistry and Molecular Biology	Kathleen Savage	Woodwell
Jordan	Verret	University of New Orleans	Senior	Earth and Environmental Science	Chris Neill	Woodwell
Aaron	Wickware	California State University Monterey Bay	Junior	Marine Science Minor in Biology	Andrew Reed/Stace Beaulieu	WHOI

Mentoring

Mentor recruitment is a word-of-mouth, year-round, on-going process. In Fall 2023 we sent emails to the Woods Hole Diversity Initiative (WHDI) partner institutions inviting mentors. Potential new mentors met with the PEP Director Onjalé Scott Price to discuss the program and its goals, and to learn about the potential mentor's motivations for and experiences with mentoring. Most mentors provided a short description of the project they had available for students and those project descriptions were posted on the PEP website for applicants to view.

The application instructions asked the students to indicate which mentors and projects most interested them, but in keeping with the PEP Model we explained to potential applicants that the PEP staff does the matching, considering any interests expressed by the students but not guaranteeing the students would be matched with the mentors they identified. The matching process was led by Onjalé. Shortly after the students were accepted, the matches were announced.

The May 10 training session was a half-day workshop on cross-cultural mentorship (recognizing we and the students have been through several years of mostly virtual-only mentorship), the roles of mentors, and allyship. The trainer was Dr. Marisela Martinez-Cola, an Assistant Professor of Sociology at Morehouse College. The workshop included facilitated 'active listening', and 'what would you do scenario' activities.

In addition to having a research mentor, every PEP intern is assigned a Program Advisor.
These advisors are generally members of the PEP senior staff (or in some cases alumni of the program). The Advisors meet regularly with their advisees over the summer to support and encourage the interns, ensuring they are having a productive experience in all elements of the program and helping facilitate networking.

Again this year, "coding mentors" were engaged to help the students through the course and their research projects. These mentors were fellows, research assistants or graduate students from the participating institutions (mostly WHOI) who were excited to teach others about coding. Many students took advantage of these mentors and met with them in small groups and individually to learn coding skills.

Staffing

PEP staffing changes from year to year as we respond to changing times and changing challenges and opportunities. The staffing is designed to provide ample support for the interns and an ever-evolving suite of career-building activities.

The 2024 staff was composed of Dr. Ambrose Jearld, Jr., Senior Advisor who has advisory oversight of all aspects of the program. PEP Institutional Advisor George Liles focused on strategic planning and overall program development, while Director Onjalé Scott Price oversaw all aspects of the current program. Autumn Johnson (PEP 2023 alum) joined the staff as Program Coordinator and managed the students and various logistics throughout the summer, and Dr. Ben Harden returned as Course Director.

Course

The PEP 2024 course ("Global Climate Change: Ocean and Environmental Sciences") was offered in partnership with the University of Maryland Eastern Shore and taught by Dr. Benjamin Harden. The course was held on Mondays in June and July (excluding holidays) from 9-noon. The course focused on exposing students to various areas of environmental and marine science through coursework, assignments and guest lecturers. Each week a scientist from one of PEP's partner institutions presented about their research and their career trajectory, answered questions and offered advice for young scientists. Dr. Harden also included coursework that included R Studio (programming software) that is now a common data analysis and imaging tool.
About halfway through the summer the students gave 5-minute presentations to each other about their summer research project. This presentation provides an opportunity for students to start preparing for their final symposium and to receive useful feedback earlier in the summer.

A new addition this year was the assignment of coursework that directly related to the student's research. This included submitting a draft abstract, reading a relevant research paper and preparing a summary, and practice making figures.

Projects

Research projects are always at the heart of PEP. The students are matched with mentors well before they arrive for orientation, and they are encouraged to be in touch with their mentors for background reading, familiarizing themselves with new software, etc. The course schedule (being held only on Monday mornings) provided the opportunity for interns to start working in their labs at least 4 days a week starting at the beginning of the program.

Most mentors (10) were returning, with five mentoring for the first time. The projects covered a wide range of scientific interests and questions, spanning benthic ecology, wetland restoration, marine policy, endangered species protection, oceanography, geology, marine biology, fisheries science, and microbiology.

Institutionally, students worked with mentors at MBL (2) WHOI (6), Woodwell Climate Research Center (2), Woods Hole USGS (2), and NOAA NEFSC (3). The students presented their work during an in-person symposium on August 9 (see Appendix Four for project titles).

Photo 1: Sinclair collecting samples in Howland Forest (Maine); Photo 2: Alex sorting samples collected from Little Pond (Falmouth, MA); Photo 3: Catlin showing his research organism, Carcinus maenas (European Green Crab); Photo 4: Brianna holding up samples in the lab

Activities

PEP has from its 2009 inception been a three-legged stool, with career development activities being as critical as the course and research projects. The suite of career development activities evolves every year and always includes activities designed to provide information about graduate school and careers and professional life; networking opportunities; and cohort building activities. Specific networking events are also hosted with local organizations of interest to the PEP interns. Field trips are fun cohort building activities that also allow interns to explore and appreciate the culture and history of New England. This year (and in 2023), PEP reserved a 60 seat capacity bus and invited students from throughout Woods Hole on the field trips. On each organized field trip, many students from other programs joined us.

The career development activities were exclusively in person, with one specific exception; the students wanted to talk to PEP alumni about graduate school, which could only be done virtually. Another change this year was hosting 'panel dinners', where invited members of the community (graduate students through senior scientists) participated in a panel discussion around a topic followed by a dinner. This allowed for students to have a panel discussion and continue more informal discussions over dinner. Each panel dinner was scheduled for one hour, with all of them lasting at least two hours.

Panel dinners:

- Managing Mental Health
- Abstract Writing
- Careers Outside of Academia/Gap Year Experiences
- Managing Field/At-Sea Experiences

Field trips:

- Whale Watching in Provincetown (scheduled to coincide with the Portuguese Festival)
- Harvard Natural History Museum + Explore Cambridge/Boston 'on-your-own'
- New Bedford Whaling Museum + walking tour of waterfront with John Bullard, including time aboard the Schooner Ernestina-Morrissey

Networking events/activities:

- Summer Student BBQ (with all summer students around Woods Hole)
- Juneteenth Events - some hosted by DAC, MBL and other local organizations
- Dinner with the ACE-MCS Research Team
- Cookout hosted by SEA Faculty and Staff
- "Tea Party" with Dr. Harden (hosted at his home)
- John K. Bullard Diversity Award presentation to Dr. George Liles

Other PEP activities:

- Opportunities after PEP: panel of representatives from WHOI, NOAA, SEA, MBL, and Woodwell
- Applying to Graduate School; panel of 4 PEP alumni (virtual)
- Tour of SEA's *SSV Corwith Cramer*

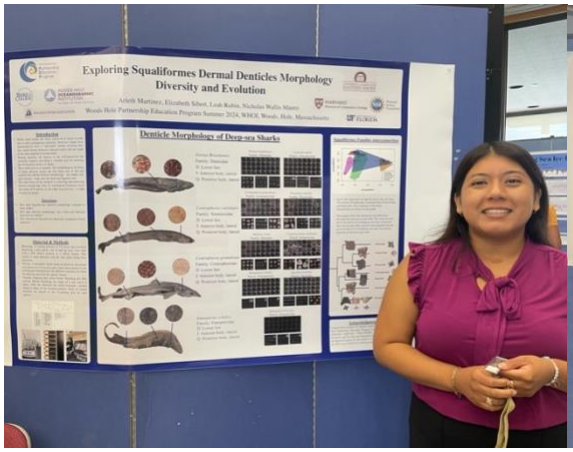
Additional activities hosted by other Woods Hole institutions:

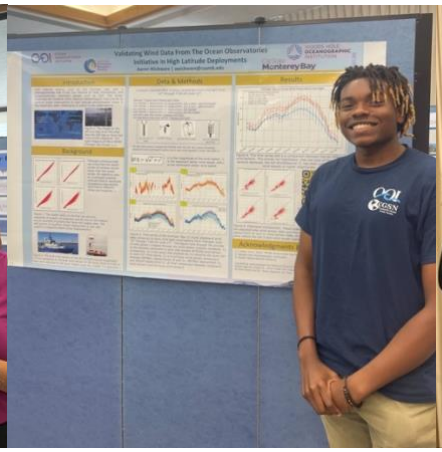
These activities were strongly encouraged, with few being mandatory (*denotes a mandatory event). All were held in-person.

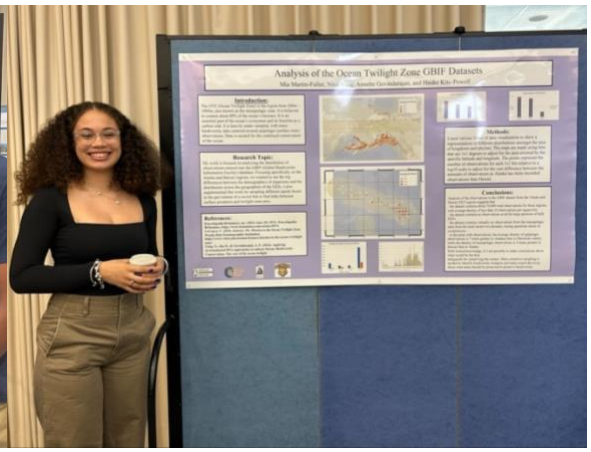
- Ambrose Jearld, Jr. Lecture, presented by Dr. Robert Livingston*
- WHOI Summer Student Fellow lectures (held weekly)
- WHOI Ethics Workshop*
- USGS & NOAA Federal Career Panels
    - Federal Careers
    - Navigating USAJOBS
- WHOI Tioga – single day cruise aboard *R/V Tioga* out of Woods Hole*
- WHOI sponsored Graduate School panel + discussion
- WHOI Scientific Poster Workshop
- WHOI SSF and WHOI supported PEP students poster session
- WHOI Science Communication Event
- Video chat with astronauts on the International Space Station + Q&A with astronaut Loral O'Hara (former WHOI scientist)



Photo 1: From left to right: Maddi, Aaron, Mikayla, Arleth, Amari - preparing for their sail aboard WHOI's RV Tioga; Photo 2: Emmanuelle and Akil holding whale bones in New Bedford's Whaling Museum; Photo 3: A photo of the video chat screen with the International Space Station







From left to right: Arleth, Aaron, and Mia with their respective posters for the WHOI Summer Student Poster Session

PEP Students, PEP Coordinator and one IN FISH students in Provincetown for Whale Watching

Evaluation

Since PEP was founded in 2009, the program has had an unwavering commitment to rigorous evaluation. This year we are employing a new set of evaluators which will provide a new perspective on our evaluation. The evaluators are Dr. Christina Yao (University of South Carolina), Dr.'s Chrystal George Mwangi and Marisa Laly (George Mason University), and Dr. Vijay Kanagala (Salem State University). Dr. Laly attended the final symposium and Dr.'s Laly and Kanagala performed focus group interviews with the students the day after the symposium. All members of the evaluation team will conduct virtual interviews during the Fall with a handful of new and returning mentors, members of the WHDI, and PEP staff. Anyone interested in the evaluation report may contact PEP Director Onjalé Scott Price.

Photo 1: Jordan snaps a great selfie with a while in Provincetown; Photo 2: Corinne giving her presentation at the Symposium; Photo 3: Enzo showing off something he found at the beach

PEP Students & Staff (Program Director, Course Director, Program Coordinator and Program Advisor) at the 2024 graduation ceremony.

Program Data

PEP students' ethnic identities (as self-identified), 2009-2024**:** African (2), African- American/Black (118), Afro-Caribbean (1), Asian/Chinese/Thai (6), Bengali (1), Bi- Racial/Mixed (20), Cape Verdean (1), Caucasian/White (22), Filipino (2), Hispanic or Latinx (43), Indian (1), Japanese American (1), Mexican or Mexican American (4), Native American (7), Native Hawaiian (1), Pacific Islander (3), Puerto Rican (1), West Indian (2), Declined to identify (7).

In fifteen years (2009-2024), 244 students have completed PEP. Just over half (126) of the 244 PEP alumni have come from HBCU/MSIs. PEP graduates include 124 women and 87 men from minority groups under-represented in science. Additionally, PEP has provided career building opportunities for six people (all African-American Women) who served as coordinators in 2010-2024.

PEP gathers data about degrees and jobs status of program alumni. The last official data gathering project was in the spring of 2019. Those data showed that 70% of our alumni go on to do graduate work, including 25% matriculated in PhD or MD/DVM programs. In 2019, 81 of the first 122 PEP alumni were employed in science, with 17 employed by government (federal, state, local, tribal), 15 employed by an NGO, 21 working in industry, and 28 doing science in academia.

Looking Forward

At the end of our 16th year, PEP is a strong, well-established, high-profile program that is having an impact on the Woods Hole science community. PEP continues to serve as the flagship program devoted to increasing diversity in the Woods Hole scientific community. PEP is also having an impact outside Woods Hole: a ten-week NOAA Fisheries internship program (IN FISH) modeled on PEP began in 2021 and provides career-building experiences for a diverse cohort of undergraduates.

PEP remains true to its founding principles, envisioned by PEP founding director Dr. Ambrose Jearld, Jr., and articulated in PEP Model (Appendix Two). While PEP continues to embrace those founding principles, the program is evolving and exploring ways to increase the impact on students' careers and on the Woods Hole community that seeks to attract these students to return to our scientific workforces.

Over the last few years, PEP has added staff, expanded mentor training, and increased mentor-to-mentor interaction. We know that one experience in Woods Hole is a great start but that additional experiences (such as PEP-II) are needed to open more doors for PEP alumni and other students from underrepresented groups in STEM. One such opportunity is the ACES Woods Hole program, an NSF funded post-baccalaureate program that is based on the PEP model. The grant was awarded during the Summer of 2024 with a project start date of November 1, 2024, and a goal of welcoming the first cohort of post-baccalaureate fellows in Summer 2025 for a year of research, career development opportunities, networking and collaboration with Falmouth Public Schools.

The PEP staff is frequently invited to participate on panels and to engage in discussions about increasing diversity in marine and environmental sciences. Considering the growing national focus on diversity, inclusion, and equity in STEM, the PEP story should be made more widely available. PEP was invited to submit two abstracts to the American Geophysical Union (AGU) conference in December in Washington, D.C. and PEP/DAC staff will host a booth at the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) conference in Phoenix, AZ.

Appendices

One: Participating Colleges
Two: PEP Model
Three: PEP Symposium

Appendix One: Participating Colleges and Universities, 2009-2024

Institutions (133) that have sent students to PEP:

Italic = Historically Black Colleges and Universities and/or Minority Serving Institution (43)

Amherst College
Arkansas State University (2) Auburn University
Barry University
Beloit College
Bethune Cookman University (3)
Berea College
Boston College (2)
Boston University
Bridgewater State University (2)
Bowdoin College
Bowie State University (3)
Brown University (2)
Bryn Mawr College
Cal Poly Humboldt (formerly Humboldt State University) (16)
California Polytechnic State University
California State University, Bakersfield
California State University, Chico (2)
California State University Long Beach
California State University Monterey Bay
Cape Cod Community College
Cheney State University
Chowan University
City University of New York
Coastal Carolina University
College of San Mateo
College of the Holy Cross
College of William and Mary
Colorado State University
Columbia University
Cornell University (2)
Dakota State University
Davidson College
Delaware State University (3)
DePaul University
DePauw University
Dillard University
Duke University
East Carolina University
Eastern Michigan University
Elizabeth City State University (2)
Fisk University (2)
Florida A&M University (5)
Florida Atlantic University
Fort Valley State University
Georgia State University (2)
Green Mountain College
Grinnell College
Hampton University (2)
Harvard University
Heritage University
Howard University (4)
Illinois State University
Jackson State University Juniata College
Kentucky State University
Loyola University Chicago *Morehouse College (6)*
Morgan State University (4)
New Mexico Institute of Mining and Technology
New Mexico State University, Socorro
New York City College of Technology
New York University, Abu Dhabi
North Carolina Agricultural and Technical State University (6)
North Carolina Central University (5)
Northeastern University
Nova Southeastern University Oklahoma State University *Philander Smith College*
Prince George's County Community College
Rice University
San Jose State University
Savannah State University (6)
Skidmore College
South Carolina State University
Southwestern College

Spelman College (2)
St. Augustine's University
St. George's University
St. Mary's College of Maryland (2)
St. John's University
Stony Brook University
SUNY Albany
SUNY Maritime College Syracuse
University Temple University
Tennessee State University (3)
Texas A&M University
Tuskegee University (5)
University of Arkansas, Fayetteville
University of Arkansas, Pine Bluff
University of California, Berkeley
University of California, San Diego (2)
University of California Santa Cruz (4)
University of Central Florida
University of Connecticut
University of Delaware
University of Florida
University of Guam
University of Hawaii
University of Hawai'i at Hilo
University of Illinois Urbana Champaign
University of Maryland, Baltimore County
University of Maryland, College Park (2)
University of Maryland Eastern Shore (15)
University of Massachusetts, Amherst (2)
University of Massachusetts Boston (5)
University of Miami (3)
University of New England (2)
University of New Haven
University of New Orleans
University of North Carolina, Pembroke
University of North Carolina, Wilmington
University of Puerto Rico, Humacao (2)
University of Puerto Rico, Mayaguez (2)
University of Rhode Island (2)
University of Rochester University of San Francisco
University of South Carolina, Columbia (2)
University of South Florida
University of Tampa (2)
University of Texas, Arlington
University of Texas at El Paso (6)
University of Texas, Rio Grande Valley
University of Toronto
University of the Virgin Islands (2)
University of Wisconsin, Stevens Point (2)
Virginia Commonwealth University
Virginia State University
Wellesley College (2)
West Virginia University
Western Washington University (2)
Wheaton (MA) College (2)

Appendix Two: The PEP Model

Woods Hole Partnership Education Program Model Key Design Elements

Partnership Overview

Participating Organizations

The Woods Hole Partnership Education Program (PEP) is a social intervention designed to address a specific societal issue, that is, the underrepresentation of Blacks, Hispanics, Native (Indigenous) American and Asian Americans (hereafter referred to as underrepresented minorities (URM)) in the marine and ocean sciences. PEP is a project of the Woods Hole Diversity Initiative (DI), and a multi- institutional effort with the overarching goal to promote diversity in the Woods Hole Science Community, via a 2004 Memorandum of Agreement (MOU) signed by the six CEOs of participating institutions and recommitted in 2012 and again in 2021.

Eligibility

PEP is designed primarily for college juniors and seniors. Prerequisite coursework includes oceanography, marine and/or environmental science, or some combination of biology, chemistry, geology, and physics. Applications are welcome from students from all backgrounds and especially students from groups underrepresented in the marine and environmental sciences. Housing, tuition, travel allowance, room and board, and a stipend are provided to students. A Student Contract is in place and includes language about adherence to organizational policies.

Goals and Objectives

Diversity Initiative-Related Goals

- Be a resource that supports students in achieving their full potential within the Woods Hole research, learning, and work environment regardless of their race, religion, color, creed, gender, age, national origin, citizenship status, sexual orientation, physical or mental ability, socio-economic status, or veteran status.
- Cooperatively undertake recruitment, retention and mentoring programs that will result in a diverse group of students (and ultimately) employees and postdoctoral researchers in ocean sciences, biological sciences, geosciences, and ocean engineering and technology, marine and environmental policy activities undertaken by the Woods Hole scientific and educational organizations.

PEP-Specific Objectives

- Member Institutions develop outreach/mentoring/intern programs at and among the institutions by making a concerted effort to attract individuals from underrepresented groups and to offer them support (housing, board, and funding) to be in Woods Hole.
- Offer students from under-represented groups the opportunity to study, conduct research, and receive training in their areas of interest, working in labs with leading researchers in marine and environmental sciences.
- Provide a first-hand introduction to emerging issues and real-world training in the research skills students need to advance in science, either as graduate students or bachelors-level working scientists.

Guiding Principles

Selection Criteria.

PEP established selection criteria that broaden the diversity of the available pool of students for the ocean and marine sciences. PEP shifted from traditional quantifiable criteria such as GPA, test and broad scores to more expansive and holistic factors. The PEP selection process considers a broad array of factors that include the applicant's academic, educational, social, cultural, and personal background characteristics.

Critical Mass.

Each summer, PEP brings at least 15 students to Woods Hole. This is consistent with our belief that to have meaningful impact and to effect change, a sufficient number of individuals from the requisite racial/ethnic and academic backgrounds must be introduced into the Woods Hole Community.

Resource Availability.

PEP benefits from resources that are allocated from local institutions based on a specific formula. This aligns with our perspective that programs offering summer experiences must provide a level of financial support that is sufficient for efficient program operations and constantly be alert to funding prospects.

Management and Administration.

Over its 16 years, PEP has stabilized its management and administration infrastructure to include personnel whose race/ethnic, academic and career/professional backgrounds are well aligned with student participants. PEP sees these synergistic affiliations as essential to its creation of an environment of support.

Monitoring and Evaluation.

Continuous self-reflection and awareness coupled with responsive and strategic actions are a hallmark of PEP design, development, and sustainability planning. Thus, informal, and formal evaluative mechanism have been in place since the program's inception.

Diversity Training.

Diversity (and inclusion) are at the forefront of PEP's work. To ensure that the Woods Hole community has a fuller and PEP-aligned understanding of the tenets and underpinnings of diversity, annual trainings are provided.

Program Components

PEP is an integrated program that includes two primary components as well as supplemental activities. The two primary components are an educational credit-bearing course and an experiential research internship. Supplemental activities include a variety of career, personal, and professional development.

Education.

PEP's educational component is a four-credit, four-week course (Global Climate Change) offered through the University of Maryland Eastern Shore (UMES). The course has evolved since PEP's inception and now includes career building skills, and coding support. The course description (content and structure) was submitted to the UMES Curriculum Committee for approval, course number, and credit assignment. Students can request transfer of credits from UMES to their own institution, added to their transcript and used to fulfill degree requirements in their respective institution.

THE WOODS HOLE Partnership Education Program

Research Internship.

The experiential learning component takes the form of a ten-week mentored research internship in a lab in one of the partner research institutions. Each participating student is matched with a locally based research scientist who submits a short description of the proposed project prior to student assignment. Projects are closely related to the scientists' primary interest and involve tasks that are a part of current work or that would guide future areas of research that respond to major scientific questions.

Supplemental Activities.

Students are provided a variety of supplemental activities that leverage resources within the Woods Hole community, including those listed in the 'activities' section above, as well as field trips to museums and New England sites related to science, fishing, and whaling.

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Appendix Three: PEP Symposium

Recording: https://youtu.be/pIeZn8jdVZk?si=61-ztCJntJrQswbk

Projects (in order of symposium presentation)

Catlin Payne, University of Massachusetts Boston - Understanding the Effect of Parasite Infection on Invasive Species *Carcinus maenas*
Mentors: Yaamini R. Venkataraman and Carolyn Tepolt, Woods Hole Oceanographic Institution

Madeleine Stewart, University of California Santa Cruz - Modeling Entanglement Risk and Risk Reduction Measures for Atlantic Large Whales
Mentor: Michael Asaro, National Oceanic and Atmospheric Administration

Enzo Inestroza, Florida Atlantic University - Enhancing Coastal Stability through Restoration Projects in the Gulf of Mexico
Mentor: Sara Zeigler, United States Geological Survey

Mikayla Harris, Heritage University - Life on Deep Sea Inactive Sulfides
Mentor: Lauren Mullineaux, Woods Hole Oceanographic Institution

Jordan Verret, University of New Orleans - Climate Data Analysis of Falmouth and Surrounding Areas
Mentor: Christopher Neil and Kristin Huizenga, Woodwell Climate Research Center

Mia Martin-Fuller, DePauw University - Analysis of the Ocean Twilight Zone GBIF Datasets
Mentor: Hauke Kite-Powell, Woods Hole Oceanographic Institution - Marine Policy Center

Akil Smith, University of Miami - Substrate Dependent Burrowing Patterns in Squilla Empusa: Analysis on Their Excavation Process
Mentor: Katie Dever, National Oceanic and Atmospheric Administration

Corinne LePage, Brown University - Geochemical Monitoring of Lavas: Measuring Helium Isotopes in the 2018 Kīlauea Volcanic Eruption
Mentors: Forrest Horton and Peter Barry, Woods Hole Oceanographic Institution

Brianna Shaw, Stony Brook University - Investigating Bacterial Interactions That Form Corncob Structures in Human Dental Plaque Biofilms
Mentors: Scott Chimileski and Jessica Mark-Welch, Marine Biological Laboratory

Amari Johnson, Prince George's County Community College - Salt Marsh Restoration: Remote Sensing and Water Fluctuation of an Artificial Salt Marsh at Different Tidal Events
Seth Ackerman and Meagan Eagle, United States Geological Survey

Emmanuelle Bogomolni, Boston University - Small Home for a Big Whale: Fin Whale Use of Marine Protected Areas
Mentor: Sean Hayes, National Oceanic and Atmospheric Administration

Aaron Wickware, California State University Monterey Bay - Validating Wind Data from the Ocean Observatories Initiative in High Latitude Deployments.
Mentors: Andrew Reed and Stace Beaulieu, Woods Hole Oceanographic Institution

Sinclair Strong, Fisk University - Moisture as a Driver of Net Soil CH4 Exchange in a Northern Forest.
Mentor: Kathleen Savage, Woodwell Climate Research Center

Alex Brown, Chowan University - Importance of Macro Detrital Flux In Net Exchange Between “Little Pond” and “Vineyard Sound”
Mentor: Ken Foreman, Marine Biological Laboratory

Arleth Martinez, Berea College - Exploring Squaliformes Dermal Denticle Morphology Diversity and Evolution.
Mentor: Elizabeth Sibert, Woods Hole Oceanographic Institution