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Meet the 2016 PEP Students

Matthew Ball

A computer science major at Bowie State University in Maryland, Matthew Ball plans to graduate in the fall of 2017 and conduct research in a field of science or work in cyber security. With research mentors Heidi Sosik, Stace Beaulieu and Joe Futrelle from Woods Hole Oceanographic Institution (WHOI)'s Biology Department, he spent the summer assessing biodiversity from data produced by an underwater microscope, "basically finding reproducible ways for other scientists to manage 'big data' in order to find meaningful subsets of data that represent biodiversity. The project was totally new to me, and all the course components were new to me." His favorite activities both in Woods Hole and during the school year are shopping and swimming. "Getting the chance to freely immerse myself in an area of science that was new to me as well as being able to make meaningful connections with scientists and fellow rising scientists" was his favorite part of the summer internship. "The PEP experience has been one of the most memorable experiences in my life. I was able to learn so many things that I didn't yet know about computer science as well as the area of science that Woods Hole is most known for. I was able to learn so much about myself and the many things that I am capable of. It has helped me build my confidence, to be able to grow personally, and to be able to grow in my career. This experience is one that no one will ever truly forget."

His hometown is Fort Washington, Maryland.

Vincent Cropper

Groundwater was the focus of Vincent Cropper's summer research project with mentor Ken Foreman of the Marine Biological Laboratory (MBL), or more specifically, nitrogen pathways and eutrophication sampling at wells in Little Pond, Falmouth. A student at West Virginia University majoring in environmental science, he hopes to start his own business and do conservation work as a contractor after graduation. He had a previous summer internship with the US Fish and Wildlife Service aiding in the conservation of the California condor, and says his project this summer was "a totally new experience in a field that I love. Using wrenches, drills and screws were all foreign to me. I never thought of scientists as handymen, but they're like the pool boy for the earth." He enjoys writing, boxing and music, and during the summer learned to ride a bike. He says his PEP experience has meant learning to be a better person and "has painted me in ways I won't realize until I benefit from the seeds planted."

His hometown is Washington, DC.

Spencer "Alex" Davis

Alex Davis was one of the few PEP students who had heard of Woods Hole before, having been a summer intern at the Woods Hole Science Aquarium. Now a junior at the University of Maryland Eastern Shore majoring in environmental sciences with a concentration in marine sciences, he plans to attend graduate

school in marine biology and is interested in working with marine mammals and sharks. His summer project with mentor Gary Shepherd of NOAA's Northeast Fisheries Science Center (NEFSC) compared area and sex differences of black sea bass based on otolith or earbone size, trying to determine which methodology is best to predict the age and length of the fish for stock assessment purposes. Among his new experiences were courses dealing with physical and chemical oceanography, and "living with 10 other people in the same household for the first time, with different dietary needs than me." His favorite part of the program was "having the opportunity to meet with a diverse group of students and staff and learning a lot of what Woods Hole has to offer. This experience has put many things in perspective in regards to my future goals."

His hometown is Orangeburg, South Carolina.

Liomari Diaz-Martinez

PEP was the first internship for Liomari Diaz-Martinez, a recent graduate of the University of Texas Arlington with a bachelor's degree in environmental biology and a minor in environmental sustainability. Almost everything was a new experience as she had not taken any oceanography courses as an undergraduate, so incorporating physics, chemistry, management and geology with oceanography was all new. Her favorite thing about the program was the hand-on learning. "From the courses to my research, I've been able to learn outside in nature and there's not a better way than that." She measured the spatial distribution of soil carbon at the Howland Forest for her summer research project with mentor Kathleen Savage of the Woods Hole Research Center. This fall, she is interning at El Verde Field Station in Puerto Rico's rainforest and participating in the Chronosequence Tree Census. She plans to pursue a master's degree in earth and environmental science at UT Arlington, and in 10 years hopes to influence conservation policies in urban ecosystem by promoting sustainable urban development through research in urban ecology.

Her hometown is Arlington, Texas.

Mia Infante

For Mia Infante, working on a research project was a new experience. With research mentor Ben Harden of SEA, she analyzed the temperature, salinity and density of the North Atlantic Bight for the past 28 years and learned to code through R Studio to manage the data and create plots. A senior majoring in environmental sciences, she plans to graduate in May 2017 from the University of Texas- Rio Grande Valley and is looking to attend graduate school in the fall of 2017 focused on oceanography or a related field. "The hands-on learning and field work I had done in the course helped me understand the material better. I loved the field trips, and the research." Her favorite activities when at home are rock climbing, Tae-Kwon-Do and photography/filming. She also loves to read, write and watch movies. During her PEP internship her favorite activities were "the field work, field trips and all the social events we attended." As for the best advice she received or lesson learned this summer: "I don't have to have my whole career planned out, just seek opportunities and take them, and everything else will follow after that. Never stop exploring. PEP has allowed me to achieve my goal to find my calling and to be pushed out of my comfort zone."

Her hometown is McAllen, Texas.

Kwanza Johnson

A December 2015 graduate of Bethune-Cookman University in Daytona Beach, Florida, Kwanza Johnson majored in integrated environmental science and is now teaching 6th grade earth and space science with the Broward Country school district in Ft. Lauderdale, Florida. She learned about PEP from a graduate

student in the MIT-WHOI Joint Program, having never heard of Woods Hole before. The village became her favorite part of the program. “The shoreline and Woods Hole community are more beautiful than I could have imagined.” Her research project with mentor Porter Hoagland of WHOI’s Marine Policy Center focused on the effects of red tide on tourism on Cape Cod. Although she had worked on a harmful algal bloom in Florida’s Indian River Lagoon for her senior project in GIS/remote sensing, the policy perspective of this summer’s project pushed her outside of her comfort zone. The PEP experience has shown her “the influence and importance of oceanographic and marine science, whether it’s from a microbiological or a policy standpoint. It has been a life changing experience. I plan to continue the project I started this summer and will return each year.”

Her hometown is Cleveland, Ohio.

Alexander Linares

Inspired by his uncle, an electrical engineer and spear fisherman in Puerto Rico, Alexander Linares was born in Miami Beach but grew up in Puerto Rico and Amherst MA. The only child of a single mother who instilled in him the importance of an education, he will complete his bachelor’s degree in marine biology at Barry University in December 2016. He plans to work on his scientific diving certification, participate in SEA Semester, and work as a research assistant, eventually pursuing a career in ocean exploration and conservation. With research mentors Anne Richards and Sandy Sutherland of the NEFSC, he worked on validation of an aging method for monkfish (*Lophius americanus*) as his summer research project, an area completely new to him. PEP was his first internship, and the experience has allowed him to expand his options in scientific careers. His favorite part of the program was the exposure to scientists in many different areas of science, in such a small location. “I was not expecting to go on so many educational trips and events. I absolutely loved attending many of the talks that were offered by the different institutions, meeting and collaborating with the other interns from other programs.” His five word description for his PEP experience: “a big step in the right direction.”

His hometown is Cabo Rojo, Puerto Rico.

Breaun Meeks

Branching out into different areas of oceanography and doing field work are among Braun Meeks favorite aspects of the PEP internship. With a twin brother and five sisters, he is the only one interested in science. His hobbies are hiking, biking, taking photos and watching movies to relax, and he lists Pie in the Sky Bakery and Café and the Woods Hole Science Aquarium as favorite places in Woods Hole. A junior biology major at Bowie State University, he plans to graduate in 2018 and attend graduate school in an as yet undetermined field. His summer research project tracking biofilm growth on early plastisphere colonizers with research mentors Erik Zettler and Linda Amaral-Zettler of MBL opened his eyes to plastic marine debris and microbiology. He went whale watching for the first time this summer, and learned to cook and grocery shop for his housemates. “I have met some awesome people here, and I have learned a lot about myself while being away from home.” His advice for anyone thinking about applying to the program: “Do not be afraid to try new things, and do not limit yourself.”

His hometown is Baltimore, Maryland.

Kanieka Neal

Kanieka Neal is originally from Annapolis and now lives on the eastern shore of Maryland, where she is

attending the University of Maryland Eastern Shore as a chemistry major with plans to graduate in December 2017. She has two sisters and one brother and is the first in her family to attend a four-year university. With research mentor Scott Doney at WHOI, she studied the carbonate system in the California Current, comparing in situ data to a NASA model to determine whether salinity is a good proxy for alkalinity and if the model can substitute for observations of salinity. The project was a totally new experience since she had no background in oceanography and most of her previous knowledge was focused on the medical aspects of science. PEP changed her plans for the future by allowing her “to narrow down my choice of career and gave me a new perspective on graduate school. At first I wasn’t considering a master’s degree, but being around positive, motivated, driven and excelling people changed my drive.” She is now thinking of attending graduate school in forensic toxicology. Among her new experiences were riding the subway, during a group visit to Boston, for the first time. “My experience this summer in PEP has provided me with confidence in my work and in myself.”

Her hometown in Annapolis, Maryland.

Emily Neel

Emily Neel did a lot of searching for environmental sciences internships on the internet before finding PEP. An environmental studies major and intended chemistry minor at Wellesley College, she plans to graduate in Spring 2018 and take a gap year to gain more research and technology experience before entering graduate school. Her summer research project with mentor Amanda Spivak at WHOI involved evaluating plant community response to salt marsh restoration using a chronosequence approach. “I had never seen nor stepped foot in a salt marsh before this summer.” Her favorite thing about the program? “I really like how the course and my research reaffirmed that what I am learning in my labs and courses in college can be applied to a broader or different location.” She enjoyed whale watching and sailing on both a research vessel and a sailboat, and the “endless opportunities to be active on the bike path and swim in the numerous beautiful beaches of the area.” She described her PEP experience as “building relationships, connecting with the outdoors, rewarding, exhausting and fast-paced, and says PEP has allowed her “to get connected with and exposed to the marine science community and obtain the support to understand and engage in science with my peers.”

Her hometown is McMinnville, Oregon.

Nelmary Rodriguez-Sepulveda

Nelmary Rodriguez-Sepulveda enjoyed the chance to live independently during her PEP internship. The change of setting also provided a change of perspective on ocean sciences for the sophomore geology major at the University of Puerto Rico, Mayaguez. She plans to graduate in the next four years and is considering graduate school in a field related to geology. Her summer research project with mentor Deborah Hart of the NEFSC involved analyzing seafloor substrate and developing automated substrate classifiers for Georges Bank and the Mid-Atlantic Bight. “It was almost completely new to me because I had to deal with computers and biology, aside from the geology.” When not in class or working in the lab, she enjoyed reading and exercising, and found Woods Hole to be a very safe place. “I like that I can bike everywhere.” Her favorite activities and places to visit this summer were going on a sailboat, visiting the Harvard Museum of Natural History, and in Falmouth visiting the pier in Spohr Gardens. She plays varsity soccer in college and says it “is the best way for me to clear my mind.” PEP has helped her decide what she wants to do in the future, and she described her experience as eye-opening and interesting.

Her hometown in Guayanilla, Puerto Rico.

Thooba Samimi

Thooba Samimi became involved with PEP after meeting Ben Gutierrez of the US Geological Survey (USGS) at several conferences and was encouraged to apply. Science is nothing new in her family; her mother majored in chemistry and was a teacher, and her father studied mechanics before coming to the U.S. Her aunt is a pharmacist and her uncle a chemical engineer, and many cousins are interested in the medical sciences. Samimi has participated in previous internship programs and has worked previously with USGS on research projects. An environmental geology and computer science major with a minor in electrical engineering at the University of California, Santa Cruz, she plans to graduate in 2018 and then apply to graduate schools in engineering systems or civil/environmental engineering. Her summer research project with mentor Ben Gutierrez involved quantifying the spatial variation of the Cobb Island shoreline changes in southern Virginia. Her favorite parts of the program were working with her mentor and with oceanographer and assistant professor of oceanography Ben Harden of SEA, the physical oceanography part of the course, meeting scientists, and the other PEP students.

Her hometown is Hayward, California.

Ariana Uwaibi

For Ariana Uwaibi, meeting new people and making new friends was her favorite part of PEP. A junior at Florida Agricultural and Mechanical University majoring in environmental science, she plans to pursue a master's degree in microbiology or cell biology and then a Ph.D. in the same field. With mentor Jessica Mark Welch at the Marine Biological Laboratory, she studied the microbiomes of oysters and squid eggs. The project was "mostly new to me. I have done research at my home institution based on microbiology, but I have never studied the bacterial communities within marine organisms." The ecosystem management and policy component of the course were also new to her, but she found it informative to learn the role policy plays in managing fish populations. Visiting the beach, reading and riding a bike, relaxing at Spohr Gardens, and hanging out with the other students were favorite pastimes during the summer internship, which has helped her "understand that I enjoy the field of microbiology and that there is much to be done within the field." Her favorite thing about Woods Hole is "the amount of science that takes place. Who would have guessed that so much great and innovative science could take place in such a small area?"

Her hometown is Tallahassee, Florida.

Luis Valentin-Alvarado

A recent graduate of the University of Puerto Rico at Humacao with a degree in microbiology, Luis Valentin-Alvarado began working as a guest researcher in the Sato Lab at Woods Hole Oceanographic Institution (WHOI) after his PEP experience. Involved in summer internships and research projects since high school, Valentin-Alvarado worked with research mentor Mak Saito of WHOI exploring the potential for carboxysomes proteins as biomarkers for growth-rate estimates of the cyanobacteria *Prochlorococcus* in the ocean. His long-term goal is to conduct research in microbial ecology, especially the ecological, biogeochemical and evolutionary processes associated with microbes in aquatic systems, and to become a professor "dedicated to helping students pursue their goals." His advice for future applicants to PEP: "Take full advantage of everything that the Woods Hole community can offer to you. The magic word is 'networking' because the scientific community is not about one single scientist but about collaboration among scientists from different areas and philosophies."

His hometown is Santa Isabel, Puerto Rico.

Kayla Williams

Connecting with researchers who work with marine mammals was Kayla Williams's favorite part of the PEP internship. A senior marine science major at the University of Delaware, she plans to attend grad school and work with a mentor studying marine mammal behavior. PEP was her first internship, and one of several "firsts" during the summer. She constructed beach profiles during the geology part of the course, ate jambalaya made by one of her housemates, and helped perform a whale necropsy for the first time. Working with research mentor Jim Tang of the MBL, she quantified biomass and carbon flux in freshwater and saltwater marshes on Cape Cod for her summer project, taking measurements in freshwater at Herring River and at many saltwater sites, including Waquoit Bay in East Falmouth. Her PEP internship helped her narrow down her career options. "I finally got the research experience I've wanted for so long. Before PEP I knew I wanted to work with marine mammals, but I wasn't set on a specific career. Now, I'm considering working with acoustics to study whale behavior. In 10 years I see myself with a Ph.D. in acoustic studies." She described her PEP experience as friendship, food, fieldwork, travel and growth and says the summer experience has been life-changing.

Her hometown is Newcastle, Delaware.