

PREFERRED CITATION

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FRONT COVER

A high-density habitat consisting of deep-sea sponge, coral, and squat lobsters on a previously unmapped and unexplored seamount in Papahānaumokuākea Marine National Monument. The photo was taken during E/V Nautilus cruise NA101. Image credit: D. Fornari (WHOI-MISO Facility) and OET

The R/V Falkor team dove on "Rosebud," a whale fall that was placed by researchers off San Diego, California, in La Jolla Canyon. Researchers noted changes in composition and life forms around the location in a beautiful, exciting dive investigating ecosystems unique to whale falls. Image credit: SOI



Over a Decade of Training the Next Generation: The Explorer-in-Training Program

By Derek Sowers, Mashkoor Malik, Elizabeth Lobecker, and Michael P. White

NOAA's Office of Ocean Exploration and Research Explorer-in-Training (EiT) program, developed in partnership with the University Corporation for Atmospheric Research, provides undergraduates and graduate students hands-on experience in seafloor mapping at the University of New Hampshire Center for Coastal and Ocean Mapping/Joint Hydrographic Center, as well as aboard NOAA Ship Okeanos Explorer. In addition to directly learning the theory and practice of ocean mapping while at sea, these early career scientists get to contribute to the whole ocean exploration endeavor firsthand. These opportunities are also extended to students within NOAA's Educational Partnership Program (EPP), which provides scholarships and internships to students studying at minority-serving institutions.

Explorer-in-Training participants have come from across the country and US territories, as indicated by the states highlighted in red in the map.

American Sāmoa Community College student Claudia Thompson (left) was trained both onshore and onboard *Okeanos Explorer* as a hydrographer through NOAA's Explorer-in-Training program by Expedition Coordinator Meme Lobecker (right). As part of the science team, Claudia brought a unique perspective to the expedition while building a bridge to her local community.

Over 10 years of *Okeanos Explorer* operations (2008–2018), OER has provided 165 seafloor mapping training opportunities to 122 early career scientists, with many returning for second and third experiences to further develop their skills.

Recruitment efforts for the program also target involvement of local student scientists when *Okeanos Explorer* is working in more remote parts of the world ocean. The mission team benefits by having people on board who can share local knowledge, and the students benefit by returning to their place of work/study with in-depth knowledge of OER data sets relevant to their region.

The EiT program provides a pragmatic pathway to support advancement of the next generation of marine science academics and explorers. For many participants, it is their first at-sea expedition experience and an invaluable contribution toward their subsequent academic and career pursuits. Many EiTs have converted their new mapping skills into careers as hydrographers for NOAA or private survey companies, marine spatial planners, consultants, marine archaeologists, and marine resource managers. Others have used their new skills to pursue or enhance their graduate school research (at both the master's and PhD level) in marine science, geography, and ocean engineering.

The success of this training program is perhaps best exemplified by highlighting a couple of former EiTs who continue to work for OER as consultants or staff. Former EiT Neah Baechler (2015) now runs her own business as a private hydrographic contractor and works several cruises





a year for *Okeanos Explorer* as an at-sea Watch Lead. Neah has also completed work for the Ocean Exploration Trust aboard E/V *Nautilus*. The most recent addition to the OER Mapping Team is Shannon Hoy—a former EiT (2010) who participated in numerous research expeditions, working for multiple institutions, including the US Geological Survey, Ocean Exploration Trust, and the University of Bristol. She is completing a MS degree in ocean mapping at the University of New Hampshire.

The mission team from the 2017 Okeanos Explorer trip through the Panama Canal and transit mapping through the Caribbean. Back row (from left to right): Miya Pavlock McAullife (EPP), Derek Sowers (OER Expedition Coordinator/Mapping Lead), Daniel Freitas (Watch Lead), Susan Haynes (OER Education Program Manager), Charles Wilkins (Senior Survey Technician), Ko Barrett (NOAA Office of Oceanic and Atmospheric Research Deputy Assistant Administrator). Front row (from left to right): Amanda Bittinger (Watch Lead), Rebekah Hernandez (EPP), Kelsey Lane (EiT), and Victoria Dickey (EiT).

Demonstrating Commitment to Diversity, Equity, and Inclusion 2018

By Catalina Martinez, Daniel Wagner, Mashkoor Malik, Derek Sowers, and Susan Haynes

A key recommendation of a recent external review of the OER education program was to develop new opportunities to engage a broader audience. As part of this effort, OER is collaborating with the NOAA Office of Education and the newly developed Ocean Discovery Institute (ODI) in San Diego, California, to develop and implement ocean science/exploration programming tailored to the diverse City Heights community served by ODI. Listening sessions, an effort OER began at the American Indian Science and Engineering Society Annual Conference in fall 2018, will be conducted through this partnership to ensure all efforts meet the specific interests, needs, and requirements of the particular communities and groups OER hopes to reach.

OER continues working with teams across NOAA on a more visible and coordinated presence at key minority-serving conferences focused on relevant STEM fields. The strategy includes student-centered networking, engagement, and professional/career development opportunities, as well as recruitment efforts, leadership engagement, and a more deliberate approach to staffing and participation overall.

NOAA personnel worked with Kendall Moore, a University of Rhode Island professor of journalism, on a documentary titled "Can we Talk? Difficult Conversations with Underrepresented People of Color: Sense of Belonging and Obstacles to STEM Fields," that includes interviews with



Global Foundation for Ocean Exploration Engineer Fernando Aragón explaining ROV operations in Spanish during ship tours of *Okeanos Explorer* while docked in San Juan, Puerto Rico, prior to the Océano Profundo 2018 expedition. Close to 50 local partners participated in the tours, including representatives from local management agencies, academic institutions, nongovernmental institutions, school groups, and the private sector. Ship tours, as well as other science and outreach activities, where given in both Spanish and English in order to engage a wide diversity of audiences in ocean exploration.