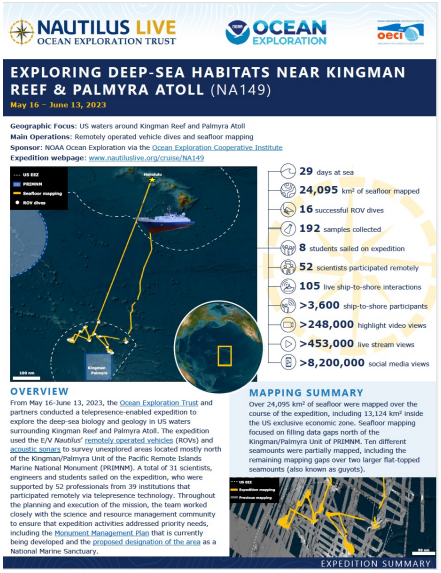
Hello Ocean Explorers!



The 2023 expedition season is in full swing as are a variety of OECI activities. I was fortunate to be able to sail on *E/V Nautilus* for NA149 to the Kingman Reef and Palmyra Atoll region last month. It was a fantastic voyage and particularly timely as the region has been nominated to become a National Marine Sanctuary. Our exploration will provide critical information to decision makers about the future designation of the region. We sailed with a wonderful group, including an intern from Tuskegee University, who had her first at-sea experience and loved it. She has since been joined by additional Tuskegee University interns placed throughout the OECI network (see below for more detail). In addition, we were joined by Ms. Annie Halek from American Samoa who sailed as a science communication fellow and got everyone on board excited about expeditions to American Samoa next year.

Among the highlights from the cruise were the first deployments of subsea Raman spectrometer developed by our partners at Impossible Sensing. This experience is an important stepping point in the development of technology for *in situ* chemical sensing and a hallmark of OECI and NOAA Ocean Exploration's commitment to technology development. As we explored the region, one surprising event was the discovery of four beaked whale rostrums (a beaklike-projection that is part a cetacean skull). These were estimated to be thousands of years old based on the iron-manganese (Fe-Mn) coating on them. Having explored a small fraction of the Kingman Reef and Palmyra Atoll region, we expect that these are a common feature. Discoveries like this remind us how much we have yet to learn when we explore unknown parts of the ocean.

As we head into the heart of summer, and while all of our projects are progressing, we have also completed our annual proposal process. All of the OECI proposals are now submitted and in review or approved by NOAA. We are incredibly grateful to NOAA Ocean Exploration as well as other NOAA partners at MDBC, OCS, and OMAO along with BOEM for continuing to support the incredible work being accomplished by OECI institutional affiliates. A special thanks to the OECI Executive Office for shepherding our collective proposals through the system and into NOAA. At this time, we transition from our proposal period to our reporting period. This is a great opportunity for all of the OECI to share with NOAA and the broad ocean exploration community the progress that we have been able to make across operations, technology development, data, education, and outreach. To see all of our activities reported in one place is truly impressive.

Sending my best wishes for a warm and relaxing, but productive, summer.

Adam

Subscribe: OECI Newsletter

Success at the 2023 SeaPerch Competition!

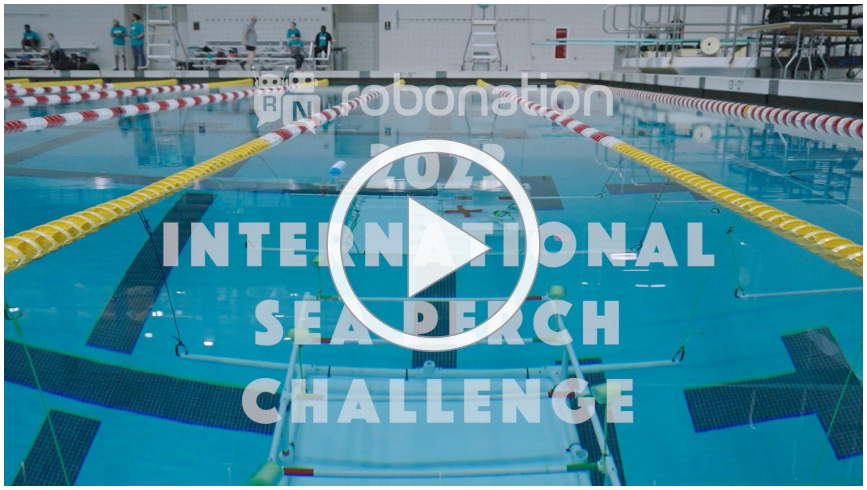
Teams from all over the world competed in the 2023 International SeaPerch Challenge, held in May 2023 at the University of Maryland campus in College Park, Maryland. Over 800 students from 58 middle school teams, 70 high school teams, and 19 open stock

teams participated in this year's underwater robotics competition that consisted of two pool challenges as well as technical report and video presentations.

As the lead event sponsor for the competition season, OECI technology and exploration activities were highlighted in the mission course that teams had to complete as part of their timed, pool-based challenge. OECI exhibit tables were staffed during the event, allowing members from OECI affiliated institutions to engage with youth and educators on site during the competition, sharing information about underwater vehicle technologies and operations, OECI and NOAA Ocean Exploration expeditions activities, and deep sea discoveries.

OECI members also participated in pool side activities as judges and course timers. NOAA Ocean Exploration and OECI team members were also on site to bestow Real World Innovation awards as part of the 2023 competition (top team posters, as well as fan favorites).

OECI cameras followed the action throughout this year's competition at the University of Maryland- we invite you to watch the highlight video below and dive into this year's event! The OECI looks to again sponsor the competition during the 2023/2024 season; please be on the lookout for ways to get involved!



OECI Support of the Mesophotic and Deep Benthic Communities (MDBC) Restoration Program

Aiding in the restoration of deep water coral communities that were damaged by the DeepWater Horizon oil spill is a growing and rewarding portion of the OECI portfolio. We are excited to continue our support of the Mesophotic and Deep Benthic Communities (MDBC) program this year.

Our contributions leverage expertise from across the OECI affiliated institutions. Woods Hole Oceanographic Institution (WHOI) is providing autonomous underwater vehicle

support support with expeditions utilizing AUV *Sentry* and, separately, a Remus 600. Over the last two years WHOI has been working to upgrade the Remus vehicle with a synthetic aperture sonar and a combination camera and laser scanner to enable both wide area and fine scale data collection. The team is also providing a new launch and recovery system for the AUV to increase the operational window available for safe operations.

The University of Southern Mississippi has projects collecting samples and analyzing microbes and is developing and deploying short term seabed landers. At the University of Rhode Island (URI), Graduate School of Oceanography scientists and engineers are developing landers to be deployed for up to a year; telepresence and outreach support is also being provided for a number of expeditions, with efforts incorporating live broadcasts from sea. URI's College of Life Sciences is also consulting on coral sampling techniques and conducting sample analysis while the Ocean Engineering department is prototyping new ROV grippers and ways to deploy adhesives underwater to aid in deep water coral restoration. All total, NOAA awarded $3.9M for these projects, which are expected to be completed by June 2024.

OECI Intern Updates

As the Community College of Rhode Island (CCRI) academic year ended in May 2023, so did the OECI's Year 4 Bridge to Ocean Exploration (B2OE) part-time, paid experiential program. Throughout the 2022/2023 academic year, five CCRI students actively worked with OECI mentors on projects focused in website development, machine learning, water column data analysis, and media production/storytelling. Their efforts have led to graphical and mobile enhancements of the OECI website, compilation of video learning sets for algorithmic training, and the identification of a potential target of interest in Saildrone Surveyor data from offshore Alaska. In addition to their project activities, students participated in field excursions, including a tour of URI-GSO's R/V *Endeavor.* In their exit evaluations, all students expressed a positive experience with the program, especially with regards to learning about the breadth of career opportunities in ocean exploration and/or Blue Economy fields. Students also stated they developed important skills in networking, time management, and communication, and learned how important these [soft skills] are. All said they would recommend the program to their peers.

Another key feature of the B2OE program is the Blue Economy (BE) Career Awareness Fair, which is held virtually each year and provides an opportunity for students and early career scientists from diverse backgrounds to connect with and ask questions of individuals in BE fields. This year's program was held in April 2023 with ten BE sector representatives (ocean science/technology, fisheries, ferries/transportation, aquaculture, coastal planning, offshore wind, ports, defense, media production, and sailing). Informational presentations and interactive Q&A took place over two sessions. A brief feedback survey was distributed after the event, and all respondents indicated that, post-event, they had a better understanding of what the Blue Economy was and the various career paths available. All stated they would be interested in pursuing a BE carer, and that they would recommend

the program to their peers as a key networking opportunity.

As the B2OE program wrapped up in April and May, the Tuskegee University (TU) Ocean Explorers OECI internship program in partnership with the University of Southern Mississippi ramped up, and has now reached the midway point of its summer programming. A total of 10 TU students have been placed with OECI affiliated institutions for paid, hands-on ocean science and exploration experiences this summer. In addition to field and lab-based work, this year's summer-intensive program also features professional development opportunities, including "Wednesday Workshops", hosted online by USM's Marine Education Center and the Gulf Coast Library. The internship program will culminate in August 2023 with the (hybrid) Ocean Explorers Research Symposium.

All are encouraged to follow @TU.OceanExplorationClub on Instagram as the 2023 Cohort shares about their internship experiences though the OE Club Instagram! You can also follow along through The Ocean Exploration Club at Tuskegee University Facebook page!

2023 Ocean Explorers Internship

Intern	Opportunity	Host Site	Mentor(s)	Co-Mentors
Kimberly H.	Biodiversity	WHOI	Dr. Annette Govindarajan	Nina Yang Sarah Stover
Peyton L.	Marine Ecology	UNH	Dr. Easton White	Brittany Jellison
Dheaven A.	Phytoplankton Ecology	UNH	Dr. Elizabeth Harvey	Dr. Hannah Reich
Madya W.	Ocean Engineering	UNH	Dr. Theresa Oehmke	Tom Lippmann Tracy Mandel
Jasmine R.	Deep Sea Habitat Characterization	URI	Dr. Andrew Davies	Dr. Kristofer Gomes
Koby B.	Ocean Robotics	URI	Dr. Brennan Phillips	Alex Yin Johann Becke Jason Noel
Imani J.	Habitat Mapping	URI	Dr. Chris Roman	Dave Casagrande
Guadalupe Z.	Ocean Science and Storytelling	OET/URI	Dr. Adam Soule, Alex Deciccio, Megan Cook and Lila Bellucci	Coralie Rodriguez Ryan Campos
Makya C.	Marine Geology	USM	Dr. Leo Macelloni	Marco D'Emidio
Kristopher B.	Ocean Data	USM	Dr. Jason Mckenna	Christian Schmachtenberger Robert Coniglione Dr. Soumya Kar Dr. Vishwa Sunkara William Rippy

Announcements, Events, and Opportunities

Apply for the CERF Inclusive Leadership Program (CILP)

C-COAST
Changing the Culture of our Occupations to Achieve Systemic Transformation

The CERF Inclusive Leadership Program (CILP) is a new and dynamic learning community for leaders and future leaders in the coastal sciences. This **18-month program** is funded by a five-year grant called *C-Coast* from the National Science Foundation BioLEAPS program and is designed to develop personal and professional skills that will help individuals become an agent of change in their field.

The program is aimed at **leaders at all career stages** who care about the **culture and climate of the coastal and marine science**s and want to make a positive impact in their discipline and beyond. These are individuals who want to grow their knowledge about diversity, equity, and inclusion, and hone their leadership skills to implement DEI initiatives

effectively.

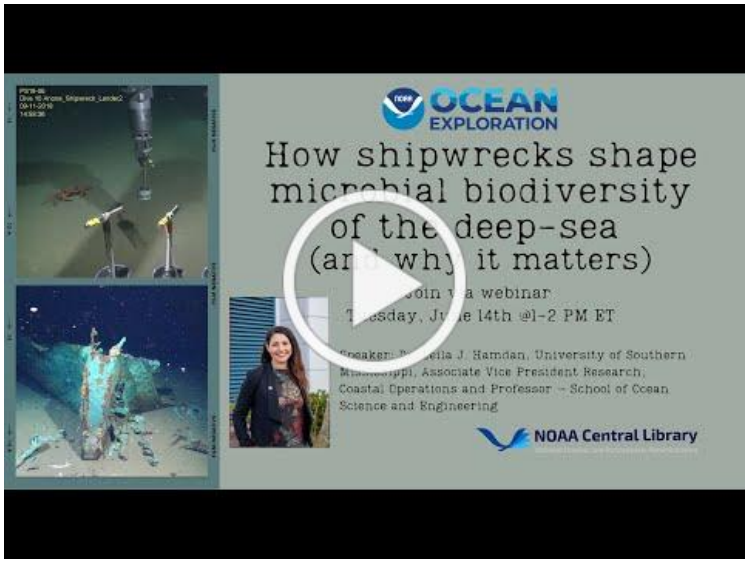
As a participant in the program, there will be an opportunity to work with experts in workshops and coaching sessions to uncover individual strengths and further develop plans for impact. By joining this program, individuals will gain key insights into their own leadership style, tools and strategies for effective management, an inclusive vocabulary for impactful communication and management, and a personal commitment plan to make real change at your institution and beyond.

A kick-off retreat, workshops before and during the CERF conference, virtual coaching sessions and trainings, and an online group learning community are all part of the planned program. The program will cover the cost of participation, including travel and accommodation for the kick-off retreat and workshops.

To apply, **complete the online application form by July 26, 2023**. **Successful applicants will be notified by August 21, 2023.**

NOAA Central Library Seminar: How shipwrecks shape microbial biodiversity of the deep-sea (and why it matters)

On June 14, 2023, the **University of Southern Mississippi's, Dr. Leila Hamden** (OECI Co-PI), gave a presentation on how the built environment shapes microscopic life on the seabed. Case studies of the impact that built structures in the Gulf of Mexico have on microbiome richness and diversity in the surrounding environment were reviewed. The presentation also provided evidence of an island effect on seabed microbiomes and the emergence of ecological transition zones where built habitats meet the surrounding environment.



OneNOAA Seminar: Community Based Exploration, E/V Nautilus 2023 Field Season Overview

On April 19, 2023, **Dr. Daniel Wagner, Chief Scientist, Ocean Exploration Trust** (OET; OECI affiliated institution) provided an overview of OET's 2023 field season to explore deep-sea habitats throughout the Central and Eastern Pacific. This webinar reviewed the objectives of the 2023 expeditions, as well as how everyone can connect with the E/V *Nautilus and* participate in these ocean exploration activities via telepresence technology.