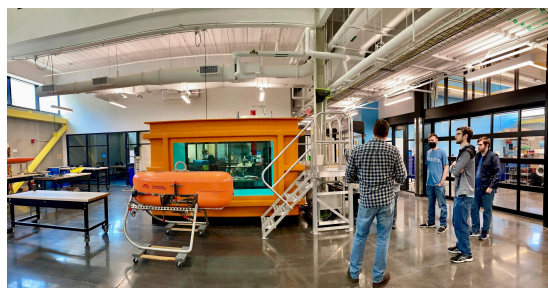
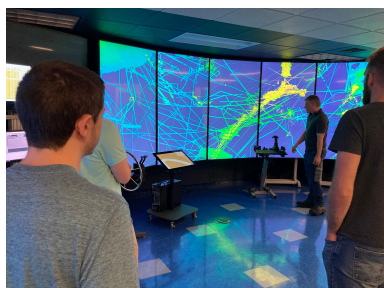


Dive into the **Bridge to Ocean Exploration (B2OE) Program** with the Ocean Exploration Cooperative Institute (OECI) at the **University of Rhode Island's (URI) Graduate School of Oceanography (GSO)**! Dip your toes into the multidisciplinary world that is ocean science with opportunities in ocean engineering and underwater robotics, deep sea coral science, polar and deep sea data engineering, and machine learning exploration.



The OECI (<https://web.uri.edu/oeci/>) is a unique consortium of top oceanographic institutions: URI, Woods Hole Oceanographic Institution (WHOI), University of New Hampshire (UNH), the University of Southern Mississippi, and the non-profit, Ocean Exploration Trust. They work together to push the boundaries of ocean exploration with research and innovation in remotely-operated and autonomous vehicle operations, virtual engineering connectivity, and ocean science communication and engagement.

A core mission of the OECI is to inspire future generations of ocean scientists and engineers, and foster Blue Economy workforce development. The B2OE Program is an experiential learning program key to advancing this mission. Currently, the OECI is recruiting **up to 9 students** to create a **6th B2OE Cohort** and participate in this **PAID, part-time program**. Potential, student project pathways may include:

Computer science/programming
Ocean exploration data science
Ocean engineering and robotics
Deep sea biology

Project Pathway Breakdown: Computer Science/ Programming (there are FOUR potential projects in this pathway)

1. Computer Programming: Python/eDNA Pipeline and Graphical User Interface (GUI)
(Deep sea biology and biogeochemistry; ([Dr. Roxanne Beinart](#)))

This project seeks to recruit a student intern to enhance a Python Snakemake analysis pipeline, which was developed by the Beinart Lab for querying publicly available environmental DNA (eDNA) datasets and enables high-throughput meta-analysis to assess the distribution and diversity of specific organisms of interest. The rapid expansion of eDNA sequencing has generated vast publicly available datasets, offering unprecedented opportunities to explore global biodiversity across diverse marine ecosystems. The intern will build on the pipeline to support flexible, user-configurable marker gene selection to accommodate the diverse marker genes commonly used in eDNA research. This will make the tool broadly applicable across microbial, metazoan, and fungal community analyses in publicly available datasets. Second, the student intern will explore development of a graphical user interface (GUI) or web-based front end, lowering the barrier to entry for researchers without command-line expertise and enabling wider adoption across the oceanographic and biodiversity research community. Together, these enhancements aim to transform the pipeline from a specialized research tool into a flexible, accessible platform for global eDNA meta-analysis — with significant potential to advance NOAA's mission of exploring and understanding the world's oceans.

Useful coursework/experience requested for this project pathway:

- Seeking students who have completed at least 1 year at CCRI
- Candidates should have Python (or similar programming) proficiency. Experience with Snakemake and data visualization is a plus.
- Familiarity with bioinformatics tools, workflow managers, or web development is a plus but not required.
- Suggested courses:
 - Computer literacy, including familiarity with programming languages (e.g. Python, Matlab), markup languages (HTML, XML), operating systems (e.g. Linux) and data structures/algorithms
 - Introduction to Software Engineering, Programming Concepts, Database Design & Management, Technical Math

2. Computer Science, Machine Learning (ML) Video Analysis (Deep sea and coastal exploration/engineering ([Dr. Chris Roman](#)))

The Rhode Island Department of Environmental Management (DEM) is interested in studying bay scallop habitat in coastal salt ponds (of RI). DEM completes scuba diver surveys each fall to assess the scallop population in Point Judith Pond. For the last several years, Dr. Chris Roman's robotics lab at URI has also collected bottom images using a robotic kayak to evaluate how computer vision methods could be used to document the scallop habitat. These data are currently being processed using both manual counts and

automated artificial intelligence (AI)-based methods to detect scallops in the imagery. Connections to deep-sea machine learning applications will be explored.

- Results from this work are helping evaluate the potential for robotic tools and will identify future improvements to make the system more effective.
- Participation in the project would entail working with the collected images, vehicle navigation data, and the YOLO AI program for identifying scallops

Useful coursework/experience requested for this project pathway:

- Seeking students who have completed at least 1 year at CCRI
- Suggested courses/experience:
 - Computer literacy, including familiarity with programming languages (e.g. Python), markup languages (HTML, XML), operating systems (e.g. Linux) and data structures/algorithms
 - Introduction to Software Engineering, Programming Concepts, Database Design & Management, Technical Math
- Interest in image processing and/or marine habitat assessment

3. Computer engineering and programming: Building a “Lander Brain” (Ocean engineering: Benthic observing systems ([Dr. Andrew Davies](#)))

Observation is a fundamental area of science that underpins much that comes after, such as models, forecasting, and experimentation. Ocean observing is extremely challenging, however, especially offshore and in the deeper waters. Benthic landers, a deep sea technology developed [through the Davies’ lab](#), function as an instrument-rich ocean observatory, providing critical data on environmental conditions and other factors that affect deep-sea communities. This project will involve the development of an instrument muxing system using microcontrollers. This will be a prototype data integration system to take in multiple datastreams, mux them, and then ultimately feed the output to an AI decision tool.

Useful coursework/experience requested for this project pathway:

- Seeking students who have completed at least 1 year at CCRI
- Suggested courses:
 - Computer literacy, including familiarity with programming languages (e.g. Python, JSON), markup languages (HTML, XML), operating systems (e.g. Linux) and data structures/algorithms
 - Introduction to Software Engineering, Programming Concepts, Database Design & Management, Technical Math

4. Mapping the Distribution and Character of Deep-sea Nodules (Marine geology and geophysics; [Rob Pockalny](#))

Manganese nodules are marble- to softball-sized spheres of rare/strategic minerals frequently observed over large expanses of the ocean floor. Previous predictions of their distribution indicate they most frequently occur between 3 and 6 km below sea level on flat seafloor. High-resolution video data from recent deep-sea surveys with remotely operated vehicles (ROVs) in the remote Central North Pacific Ocean will be used to identify the

distribution and character of manganese nodules with the goal of using these videos as training data sets for more automated machine-language approaches. The B2OE student will be trained on using high-resolution video data, identifying nodules, measuring nodule size and abundance, and possibly developing machine-learning protocols.

Useful coursework/experience requested for this project pathway:

- Seeking students who have completed at least 1 year at CCRI
- Suggested courses:
 - Computer literacy, including familiarity with programming languages (e.g. Python, JSON), markup languages (HTML, XML), operating systems (e.g. Linux) and data structures/algorithms
 - Introduction to Software Engineering, Programming Concepts, Database Design & Management, Technical Math
- Interest in image/video processing and/or marine habitat assessment

Benefits to B2OE Program participation:

- Paid, part-time experience: up to \$21/hour equivalent (paid via two stipends, one in early March 2026, and the other in late May 2026- as long as students are meeting project deadlines and complete all program requirements)
- Exposure to cutting-edge ocean science, engineering, and media production technologies and best practices within the OECl
- Collaboration with OECl personnel; field trips to tour URI, WHOI, and other facilities, as well as local industry (if/when possible)
- Opportunity to remotely participate in NOAA *Okeanos Explorer* and EV *Nautilus* expeditions (if/when possible)
- Peer-to-peer interaction to build communication skills
- Information exchange and networking opportunities with industry professionals during a virtual Blue Economy Career Awareness Fa

In addition to the above mentioned part-time experience, **additional program requirements and expectations include:**

- Time commitment of up to 10h/week (December 2026- [end of] May 2026)
- Potential for onsite and/or tele-work
- Weekly tag-ups with mentors to gauge project progress and answer questions (mentors are also available via email for questions, etc. at any time)
- Participation in OECl student events, including Lunch and Learn networking events, site visits, and a virtual Blue Economy Career Awareness Fair
- Final project summary report and presentation
- Participation in pre- and post-experience 360° evaluation

Eligibility:

- U.S. Citizenship (or F-1, J-1 visa status if applicable)
- Currently enrolled CCRI students (undergraduate/associate's degree, and/or workforce certificate)
- Degree, major, or intent to major in a field relevant to the OECl's mission; these can include, but are not limited to: STEM (science, technology, engineering and math), computer science, media production and graphic design, communications, education, and/or business operations/administration

B2OE Program Timeline/Key Dates:

- Interested CCRI students must complete the [OEI B2OE online application](#) by on or before 11:59 pm ET, November 6, 2026.
 - In addition to this application, interested individuals will also be required to submit their **current resume or curriculum vitae (CV)**, with **3 professional references listed** (who can speak to the applicant's character and professional and/or academic background- this can be a professor, advisor, teacher, community member, work supervisor, mentor, etc.).
- Potential participants will be **notified on or before November 11, 2026, for a virtual interview.** Applications will be reviewed on a rolling basis, considering individual merit and relevant experience.
- **Final student selections** will be made on or before **November 19, 2026.**
- **An anticipated program start date, with an on-site orientation at URI's Graduate School of Oceanography campus in Narragansett, RI, will be on or before December 1, 2026.**



Questions? Please contact Holly Morin (holly_morin@uri.edu)