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Report of the External Review for the Cooperative Institute for Ocean Exploration (OECEI)

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Beth Orcutt, John Horne (*Ex-officio*)

Background



- NOAA CIAO standard scientific review (4th year of 5-year program)
- Ocean Exploration Cooperative Institute (OEI) award covers the period of July 1, 2019, through June 30, 2024
- Review conducted under previous CIAO guidelines (revised guidelines released June 30, 2023; DE&I not include in review)
- Review was held at University of Rhode Island – Graduate School of Oceanography on April 3 and 4, 2023



Participants



Review Panel	OECI Attendees	NOAA Attendees
Dr. Ruth Perry (SAB) Head of Regulatory Affairs, Shell	Dr. Adam Soule Executive Director University of Rhode Island	Jeremy Weirich Director OER
Dr. Beth Orcutt Sr. Research Scientist Bigelow Laboratory for Ocean Science	Dr. Jason Fahy Deputy Director University of Rhode Island	Dr. Aurora Elmore CI Manager OER
Capt. (Ret.) Matt Borbash Deputy Hydrographer U.S. Navy	Deborah Smith Data Governance Manager University of Rhode Island	Kristen Crossett Outreach and Education Chief OER
Dr. Brendan Roark Director, Environmental Programs Texas A&M University	Allison Fundis Chief Operations Officer Ocean Exploration Trust	Dr. Mashkoor Malik Science and Technology Chief OER
Dr. Jyotika Virmani Executive Director Schmidt Ocean Institute	Dr. Daniel Wagner Chief Scientist Ocean Exploration Trust	Shannon Louie Director CIAO
Dr. John Horne Director, CI for CICOES University of Washington	Dr. Larry Mayer University of New Hampshire	Jim Herzog Specialist CIAO
	Dr. Leila Hamden University of Southern Mississippi	Sandy Byers Specialist CIAO
	Andy Bowen Woods Hole Oceanographic Institute	



OECI Overview



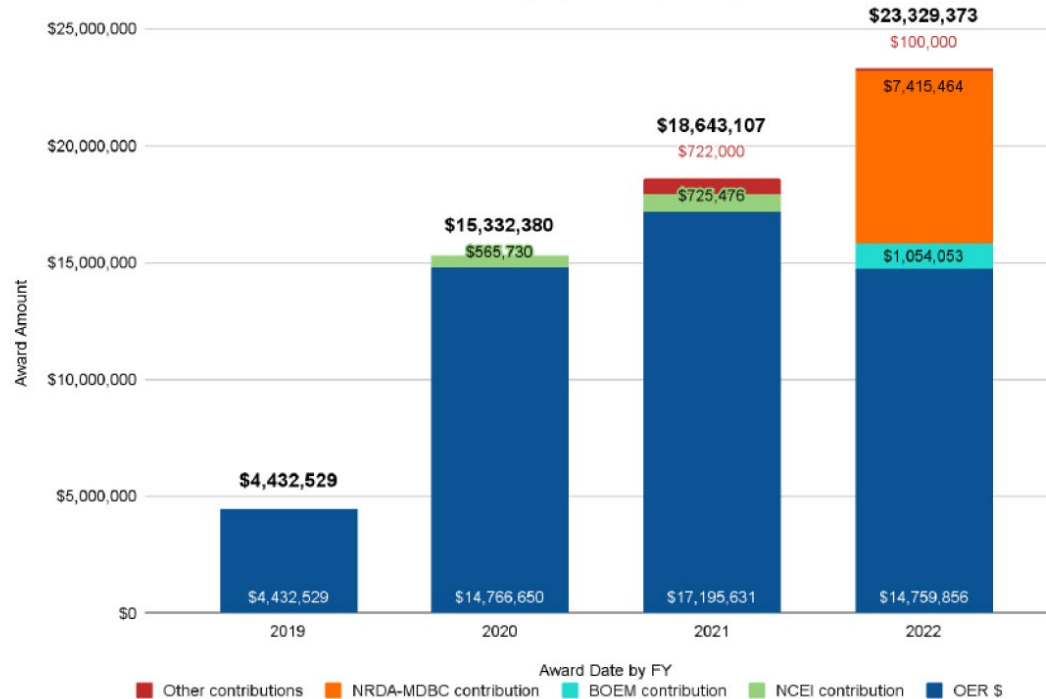
Lead Institution

THE UNIVERSITY OF RHODE ISLAND

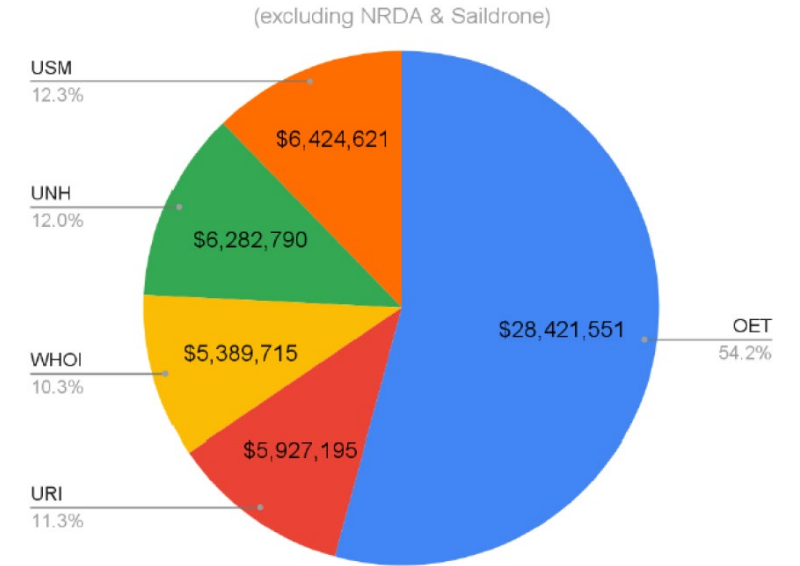
Affiliate Institutions



OECI Awards by Sponsor (Y1-Y4)



Total OECI Awards by Partner Y1-Y4



- Total funding support is \$96M (\$19M/yr)
- Funds for Y1 – Y4 total \$63.6M
- 83% of funds from NOAA OER (\$53.0M)
- Distribution across partners is approximately equal, with exception of OET (vessel operations)

Review Panel Findings



- Overall rating: **Satisfactory**
- Recommend NOAA to fund for 2nd 5-year cycle
- Review Panel assessed & rated individual CI components (DE&I out of scope)

OEI Structure	Funding
	Governance & Function
	Reporting Metrics
	Support for Students & Staff
Partnerships	Across OEI
	New Partners/Institutions
	NOAA OER

Mission	Technology	Exploration
		Research
	Vehicles	
	Sensors	
	Development & Testing	
	Operations-to-Science	
	Tech Transfer & IP	

Outreach	Workforce
	Programs
Education & Engagement	Communities
	OE & Scientific Communities
	Education
Data	Accessibility
	Management

Review Panel Findings

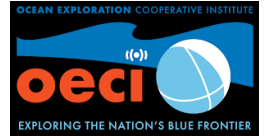


Outstanding
Reporting Metrics (OECI Structure)
Partnerships Across OECI
Programs (Outreach)
Education
Relationship with NOAA OER

Satisfactory
Funding (OECI Structure)
Governance & Function (OECI Structure)
New Partners or Institutions
Exploration (Mission)
Research (Mission)
Vehicles (Mission – Technology)
Development & Testing (Mission – Technology)
Operations-to-Science (Mission – Technology)
Workforce (Outreach)
Communities (Engagement)
Data Accessibility

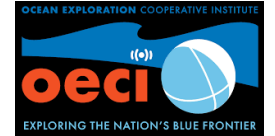
Unsatisfactory
Support for Students & Staff (OECI Structure)
Sensors (Mission – Technology)
Technology Transfer & Intellectual Property (Mission – Technology)
OE & Scientific Communities (Engagement)
Data Management

Review Panel Recommendations



- **Workforce Opportunities:** NOAA should recognize the OECI as a capacity-building resource to aid in future talent recruitment; NOAA to institute necessary formal processes to embed the talent pipeline created from the institute (scientists, technologists, engineers, program managers, students)
- **Student Engagement & Awareness:** Create Working Group for students, consider increasing cross-institute student engagement, and build an alumni network to strengthen cohort of students across institutions involved in OECI (directly & indirectly)
- **Program Management:** Create the space for OECI leadership to conduct necessary performance oversight of projects, mentoring, and functioning of the CI
- **Outreach:** With lifting of COVID restrictions, increase presence at international and industry conferences (to aid in taking necessary risks to lead in ocean exploration technology)
- **Technology (Strategy):** NOAA OER and the OECI co-create a clear vision for what should be achieved with technology development within the CI; NOAA OER provides sufficient Task funds to execute
- **Technology (Vehicles):** In next cycle, NOAA OER and the OECI work towards making the fleet more agnostic to increase usefulness across OE and scientific communities
- **Research Ideation:** Ensure two-way communication, engagement and follow-thru on input solicit by the OECI from the OE and scientific communities
- **Publications:** OECI and NOAA OER should consider a review publication at the end of the first (and second) cycle

Review Panel Recommendations



- A. Redefine OEI's mission to be a cooperative vision, that includes NOAA OER vision and input, and provides OEI with a unique identity that is measurable
- B. Consider streamlining of the OEI governance process
- C. Create opportunities in the OEI program and governance process for contributions from early career scientists
- D. Strengthen guidance and mentoring for graduate students and young career staff
- E. Establish technology transfer plan and a unified intellectual property management plan that utilizes the strengths of the partner institutions
- F. Work with NOAA OER to promote projects that take more exploration and technology risks – “Safe-to-Fail” Approach (requiring NOAA OER to fund beyond a 1-year cycle)
- G. Strengthen connectivity and broader activities in the water column characterization efforts (requiring NOAA OER to determine if water column is an exploration priority)
- H. Separate engagement and education with a renewed focus towards innovating community engagement methods and distributing educational models generated by the OEI
- I. Consider strengthening data management plans to provide longevity beyond the NOAA CI-funding cycles
- J. Initiate planning and execution of a Diversity, Equity, and Inclusion Strategic Plan that stems off of NOAA's DEI Strategic Plan and builds off the strengths brought by the partner institutions

Special Thanks To:

- The Review Panel for their time and effort
- The NOAA OER staff for their planning, input, and organization, especially Aurora Elmore
- The OECl leadership for their planning and execution of the review – incredible effort! And for sharing their candid views.
- The SAB staff who supported in the background, notably Cynthia Decker (her institutional knowledge is unmatched)

