



## Advances in Blue Tech: Where we've been and where we're going

SATURDAY, MAY 2, 2026 • 8:30AM - 4:30PM

WOODS HOLE OCEANOGRAPHIC INSTITUTION  
(WHOI) QUISSETT CAMPUS

### KEYNOTE PRESENTATIONS



**Dr. Zak Swartz**; Assistant Scientist,  
Marine Biological Laboratory

Learn about sea star development,  
CRISPR, and education!



**Bruce Strickrott**; DSV Alvin Manager  
and Lead Submersible Pilot, WHOI

Learn about Alvin yesterday, today,  
and tomorrow!

8:30am..... Registration  
Coffee & Light Breakfast  
Clark Building, 5th Floor

9:00am..... Welcome

9:15am..... Keynote 1

10:00am.... Exhibits/Break

10:30am.... Keynote 2

11:15am.... MME History: Interactive  
(Group Activity)

11:45am.... MME Annual Meeting,  
MME Awards, & Lunch

1:00pm..... Workshops – Session 1

1:55pm..... Workshops – Session 2

2:50pm..... Tours

4:15pm..... Reception @ SEA

Workshop Info will be posted on  
massachusettsmarineeducators.org.

50 years - 1976 - 2026



# Welcome to the 50<sup>th</sup> MME Annual Meeting and Conference at WHOI

On behalf of MME, it is my pleasure to welcome you to this milestone anniversary of the Annual Meeting and Conference. Reaching our 50th year is a testament to the passion, perseverance, and vision of a community devoted to advancing ocean literacy, deepening understanding, and protecting our marine environments.

We are excited to offer a program that highlights the innovation and expertise shaping marine science and education today. I extend my heartfelt appreciation to the entire planning committee for their remarkable dedication. Their enthusiasm, hard work, and creativity have shaped an inspiring program and an engaging experience for all of us.

We look forward to staying connected with you beyond the conference and to continuing our shared commitment to learning, collaborating, and educating for many years to come.

Carolina Bastidas, MME President

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## Agenda

**8:30 am**    **Registration** in Clark Building, 5<sup>th</sup> Floor

**9:00 am**    **Welcome and Opening Remarks**

**9:15 am**    **Keynote: Dr. Zak Swartz**

Assistant Scientist, Marine Biological Laboratory

*"A (Sea) Star is Born: Reproduction and Resilience in a Changing Ocean"*

**10 am**      **Exhibits and Break**

**10:30 am**   **Keynote: Bruce Strickrott**

DSV Alvin Manager and Lead Submersible Pilot, Woods Hole Oceanographic Institution

*"Eco-Evolutionary Dynamics of Range Expanding Species in the Gulf of Maine"*

**11:15 am**   **MME History an Interactive Group Activity**

**11:45 am**   **Annual Meeting, MME Awards, and Lunch**

**1:00 pm**    **Workshops -- Session 1**

**1:55 pm**    **Workshops -- Session 2**

*Information about the keynote speakers is on page 4; Workshop descriptions are provided on pages 5 and 6.*

**2:50 pm**   **Field Trips** (sign up when you check in)

- Tour of the Marine Biological Lab and their Marine Resource Center
- WHOI dock tour where you will see the Alvin and the R/V Atlantis
- Tour of the WHOI David Center for Innovation with test tanks, robotics, and engineering labs
- Self-guided tour of Woods Hole Village
- Self-guided coastal resiliency walking tour through Woods Hole

**4:15 pm**   **Social Reception** at SEA Education Association, Madden Center, 171 Woods Hole Road. All are invited for refreshments and socializing! SEA is on the left, after the set of lights, as you drive toward Falmouth; the Madden Center is at the top of the drive, and parking is nearby.



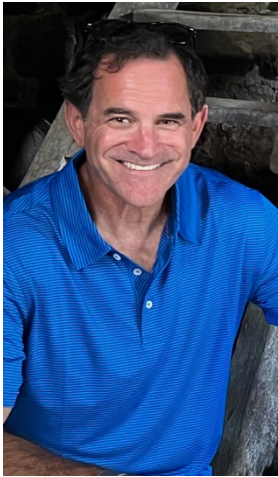
## Keynote Speakers



### **Dr. Zak Swartz – A (Sea) Star is Born: Reproduction and Resilience in a Changing Ocean**

Dr. Swartz has spent his research career exploring animal development and reproduction from a biomedical, evolutionary, and most recently, environmental perspective. He trained as a Ph.D. student at Brown University and was a postdoc at the Whitehead Institute/MIT, where he used sea star oocytes and human cell culture to ask how egg cells maintain themselves in an arrested state, age, and undergo meiosis. He is now a faculty member at the MBL, where he is exploring various aspects of oogenesis and the oocyte-to-embryo transition, using cell biological and developmental approaches in sea stars and other related animals. He is a Pew Biomedical Scholar, and his research is funded by NIH/NIGMS. He currently teaches an undergraduate course in developmental biology for the Semester in Biological Discovery at the MBL.

Abstract: Human quality of life is linked to the health of our oceans, and much the economic and cultural value we derive from the ocean depends on the ability of marine organisms to reproduce and thrive. A great diversity of marine animals reproduce through a process called broadcast spawning, where eggs and sperm are released directly into the water to undergo fertilization and development. Because in many cases such eggs lack protective barriers, they must undergo delicate cell division processes in the context of environmental fluctuations. How robust are these processes in the face of environmental stress? In my talk, I will share our unpublished work on how we are using the sea stars *Patiria miniata* and *Asterias forbesi* as test cases to define the thermal resilience of early cellular events during external development. I will also discuss how we are applying various forms of microscopy, and our new CRISPR/Cas9 based approaches, to these questions. Last, I will highlight several educational programs for high school and undergraduate students at the Marine Biological Laboratory.



### **Bruce Strickrott – The 6,500m Alvin, the flagship submersible for US Deep Sea Science'**

Bruce Strickrott is the lead pilot and program manager of the deep submergence vehicle Alvin, at the Woods Hole Oceanographic Institution. Bruce joined the Alvin operations team in 1996 and has spent 30 years diving with Alvin. He has logged over 400 dives in the submersible on over 150 voyages aboard Alvin's support vessel, the R/V Atlantis. As of 2025 he has accumulated nearly 2800 hours in the submersible. During his time with the program he has helped identify many new marine animals, including the deepest recorded hagfish "*Eptatretus Strickrotti*" and a new species of deep-sea ragworm "*Pectinereis Strickrotti*" named to recognize his many years in support for ocean science and exploration. Bruce is an honorably discharged U.S. Navy veteran who served on two guided missile cruisers, the USS Horne (CG-30) and the USS FOX (CG-33) during operations Earnest Will and Desert Shield/Desert Storm. Bruce graduated cum laude from Florida Atlantic University with a degree in ocean engineering and is a 'fellow national' of the

Explorers Club. Bruce lives in Cape Cod, MA with his wife Genai and his two daughters and enjoys promoting exciting careers in science, math, and engineering with the hope of motivating the next generation of explorers.

Abstract: The presentation will give an overview of the newest version of Alvin including a brief history of the submersible, it's technology, and examples of the environments we visit.

## [Afternoon Workshop Session 1 \(1:00-1:45\)](#)

### **What the Shell? Investigating Oysters in Changing Oceans**

**Clark 507**

In this hands-on workshop, participants will measure various oyster shell lengths and thicknesses. They will observe some headlines related to oysters from around the United States. This will establish that shells are smaller and oyster populations are declining compared to years past. We have a whole unit's worth of activities and materials to share with participants as well.

**Presenters:** Kristin Bergeron and Samantha Scola, Needham High School

### **Across Oceans: Using DNA Fingerprinting to Uncover Great White Shark Migration**

**Clark 201**

This interactive session engages participants in investigating global migration of the Great White Shark using classroom-ready molecular biology tools. Learners investigate an “international research mystery,” analyzing dorsal fin photographs and performing kit-based DNA fingerprinting with gel electrophoresis to determine whether sharks spotted in Australia, California, Hawai’i, and South Africa are the same individual. Participants interpret gel banding patterns, construct evidence-based claims, and compare genetic methods with electronic tagging. The session highlights authentic conservation science, connects biotechnology to marine ecology, and models inquiry-driven strategies for teaching both about genetics and migration.

**Presenter:** Don Pinkerton, Lynn Labs

### **PolarSTEAM: Educator Fellowships and Resource Hub Lessons**

**Clark 237**

The PolarSTEAM program engages educators in polar science through in-person fieldwork or virtual collaboration in order to get more polar science into the classroom! This workshop will introduce the program from the perspective of an educator fellow from the 2024-2025 cohort. Educator fellows create educational resources that reflect their experience with polar science research and these resources are then published by PolarSTEAM. After introducing the program, we will take a “tour” of the resource hub and discuss lesson plans that are available. PolarSTEAM educator fellows include informal educators, middle and high school teachers, and faculty from community colleges and Primarily Undergraduate Serving Institutions (PUI), and therefore the educational resources available extend to a wide range of audiences!

**Presenters:** Lynn Brennan, PolarSTEAM

### **Teaching Coastal Resiliency**

**Clark 271**

Coastal communities in Massachusetts and around the world are looking to adapt to climate-driven issues and improve their coastal resiliency. This workshop will guide participants through hands-on classroom activities to address sea-level rise, storms, and erosion. Some activities promote problem solving through experimentation by comparing different hardscapes and natural habitats, and others promote creativity in balancing ocean access and protection of neighborhoods. Activities are designed to meet MA STE standards for 2nd through 8th grades, and Ocean Literacy Principles 2, 3, and 6.

**Presenters:** Sonia Ahrabi-Nejad and Jayne DiCandio, Waquoit Bay National Estuarine Research Reserve

## [Afternoon Workshop Session 2 \(1:55-2:40\)](#)

### **Woods Hole Oceanographic Institution's (WHOI) new "Ocean Learning Hub" website with searchable content**

**Clark 507**

The WHOI website has a wealth of ocean resources but was previously difficult to search and use. We cataloged the content based on alignment with NGSS, MA STE standards, and Ocean Literacy principles as well as topic and type of media. The Ocean Learning Hub website is now a searchable database that provides easy and fast access to content as well as a bookmarking system so you can collate your resources for future reference in the classroom or for student assignments. You can import directly into Google Classroom. We will walk you through our process, give you examples of the content you can access on the website, demonstrate the new navigation that is available to you, and have you try it our yourself! Please bring a device such as a laptop or cell phone.

**Presenter: Grace Simpkins, WHOI Sea Grant**

### **Transparency Among the Tides: Using Genetic Testing and Settling Plates to Better Understand Jellyfish Populations in Nantucket Sound**

**Clark 201**

Some of our jellyfish genetics work has focused on potential invasive or introduced jellyfish species in Nantucket Sound waters. Settling plates suspended from local docks help us to determine if local bays may be host to jellyfish polyps and also monitor fouling invasive species. Moon jelly genetic testing in Nantucket Sound has resulted in finding a potentially "genetically unique" species of moon jelly. This workshop will discuss these findings and why adaptability is allowing jellyfish to thrive in even poor water quality conditions.

**Presenters: Nicole Corbett and Jillian Donovan, Popponesset Water Stewardship Alliance**

### **Salt Marshes for Humanity: An Ecosystem Game**

**Clark 237**

This fun and educational board game, developed by a Northeastern University graduate student, invites players to explore salt marsh ecology and to experience the challenge of developing a management plan for a fictional marsh with many inhabitants and stakeholders! Join us to play a few rounds, discuss the complexities of ecosystem management, and learn how you can download a version for your own classroom.

**Presenter: Sierra Muñoz, Northeastern University Marine Science Center**

### **Tracking range shift changes of marine species**

**Clark 271**

Hands-on workshop introducing databases with occurrence, abundance and distribution of marine species, and showing an example of analysis and interpretation of this data from the US coastal Northeast. Using an interactive website focused on non-native species, participants explore spatial and temporal patterns of species distribution using timelines, site-specific pop-ups, and customizable data layers. The activity emphasizes real-world applications, encouraging discussions about warming waters effects on marine species and the role of data-driven tools in supporting scientists, policymakers, and communities.

**Presenter: Carolina Bastidas, MIT Sea Grant**

# MME extends its gratitude to our 2026 Exhibitors

Be the Solution to Pollution

Manomet Conservation Sciences

MIT Sea Grant

New England Coastal Wildlife Alliance

NOAA Stellwagen Bank National Marine Sanctuary

Sea Education Association

Waquoit Bay National Estuarine Research Reserve

Whale & Dolphin Conservation (WDC)

Woods Hole Oceanographic Institution & WHOI Sea Grant

## **THANK YOU!**

Massachusetts Marine Educators thanks all the generous members and friends who have donated funds to the MME Scholarship Account. These funds help deserving high school students attend the annual MME High School Marine Science Symposium.

Joseph LaPointe  
Linda McIntosh  
Grace Simpkins  
David Eatough  
Donna Nugent  
Katy Acheson

Jack Crowley  
David Robinson  
Joan Pierce  
Eve Lippold  
Don Pinkerton

MME thanks all the conference planning committee members:

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