

WHOI Sea Grant's competitive research program is guided by community needs and scientific merit. Funded through the 2026–2027 research competition, these five projects address pressing challenges facing Massachusetts' coast, generating new knowledge, data, and tools to strengthen resilience and support informed decisions that benefit coastal communities, businesses, and ecosystems.



Photo by WHOI Sea Grant

Finding a Restoration Lullaby: Using soundscapes to support oyster reefs

The Eastern oyster supports a \$30 million annual aquaculture industry in Massachusetts while also providing shoreline protection, improving water quality, and enhancing coastal ecosystems. Town shellfish managers and restoration groups have noted that increasing oyster settlement rates can help stimulate the growth of healthy reefs, once prolific in the area. Oysters in the settlement phase of development have responded well to healthy reef soundscapes (the collection of sounds produced by fish, invertebrates, and the physical environment) in various experiments. Applying these novel methods from soundscape ecology, Woods Hole Oceanographic Institution researchers Aran Mooney and Andria K. Salas work to better understand which acoustic cues can initiate settlement most effectively in New England waters.



Photo by Edward Bremner / UMass Lowell

Winter Is Changing: Enhancing oyster overwintering practices

In New England, oysters are often grown for at least two summers, requiring maintenance during at least one winter. To cope with winter's challenges (extreme temperatures, storms, and ice), growers employ different strategies to protect their gear and oysters, but overwintering still poses health risks to the bivalves. With this study, researchers Sarah Gignoux-Wolfsohn of University of Massachusetts Lowell and Sarah Donelan of University of Rhode Island will offer growers more data to help guide overwintering decisions. The research team will assess the impacts of different winter conditions and husbandry practices on oyster growth, survival and disease.



Photo by Micah Dean / Mass. DMF

Just Keep Swimming (North): Building a sustainable black sea bass fishery

Black sea bass are moving up the U.S. East Coast, evidenced by increased landings in Massachusetts over the last decade. Changing ocean conditions are likely to encourage black sea bass fisheries to grow in the Gulf of Maine. University of Massachusetts Amherst researchers Brian Cheng and Lisa Komoroske study fundamental aspects of the black sea bass populations north and south of Cape Cod to fill gaps in knowledge necessary for sustainably managing fisheries. Employing acoustic telemetry, genetic kinship approaches, and environmental data, they will garner a better understanding of how and why black sea bass are migrating north.



Photo by David Kimbro / Northeastern University

Keeping Clams Clean: Tracking microbial contamination of clam flats

Fried clam shacks are iconic to Massachusetts' working waterfronts, and the soft-shell clam is amongst the state's top 10 fisheries – valued in 2019 at \$6.5 million. Plum Island Sound's typical harvest of soft-shell clams was more than halved in 2023, when an unusually wet year caused repeated shellfish bed closures due to bacterial contamination. Fishers want more information on sources of microbial contamination to help mitigate conditional closures. Researchers, led by Jennifer Bowen (Northeastern University) and Wayne Castonguay (Mass. Division of Marine Fisheries), answer their call by investigating the source and turnover time of contamination using molecular techniques, community science-led sampling, public databases, and machine learning. They will work to create a more efficient and information-rich way of monitoring shellfish sanitation.



Photo by Darryl Hentz © Woods Hole Oceanographic Institution

Tide Together: Expanding water level monitoring for Cape Cod's coastal resilience

Flooding is the costliest natural disaster in the United States. Coastal floods have become more frequent in recent years, largely due to sea level rise, the global rates of which have doubled over the last three decades. Massachusetts is working to adapt. While existing technology monitors coastal water levels at a handful of locations, there is not enough data on the ever-changing seas for people to prepare for increasing flooding. Enabled by funding from NOAA's Disaster Preparedness Program, WHOI researchers Christopher Piecuch and Levi Gorrell are developing a network of low-cost, ultrasonic water-level sensors to deploy across Cape Cod to provide the necessary data to guide decision-making for more informed, resilient communities.

Other Sea Grant-Funded Initiatives

WHOI Sea Grant participates in collaborative projects funded through the National Sea Grant Office. Highlights include:

- American Lobster Initiative:** The ALI addresses emerging needs in the lobster industry through research, collaboration, and outreach to build resilience. WHOI Sea Grant provides communications and outreach support to share ALI research with the communities, fishermen, and policymakers who need it most. Partners: Northeast Sea Grant programs led by Maine Sea Grant
- Drawing Connections between Human Activity and Watershed Health:** Working with educators and students, WHOI Sea Grant draws connections between watersheds and mismanaged waste in the environment, highlighting actions that can be taken to prevent pollution from entering the ecosystem and/or mitigate the impacts of pollution already in the ecosystem.
- Supporting Growth and Resilience of Massachusetts Aquaculture Through Integrated Research and Extension:** WHOI Sea Grant is leading a coordinated portfolio of activities to strengthen the growth and resilience of Massachusetts aquaculture. Project priorities include shellfish health, seafood safety, water quality, seaweed production, aquaculture economics, workforce training, and communications to provide science-based information and practical tools for growers, resource managers, and coastal communities. Partner: Massachusetts Division of Marine Fisheries

Photo by Matt Chavette