

# Ohio Sea Grant Strategic Plan 2024-2027



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# Ohio Sea Grant College Program

## 2024-2027 Strategic Plan

### Introduction

For more than 40 years, Ohio Sea Grant has worked to protect the environment of Lake Erie and the Great Lakes. With a strong combination of research, education, and outreach efforts, as well as partnerships with academia, governmental agencies and the private sector, Ohio Sea Grant works with the Lake Erie community to solve the region's most important environmental and economic issues.

Ohio State University's Stone Laboratory, Ohio Sea Grant's education and outreach facility on Lake Erie, serves scientists from across the Great Lakes region, offering lab facilities, field work equipment, research vessels and housing for researchers studying Lake Erie. Together, Ohio Sea Grant and Stone Lab provide the science behind informed policy and management decisions on science education, the Lake Erie ecosystem, and its economic impact on the region.

### Ohio Sea Grant's Planning Process

Ohio Sea Grant constantly seeks input to inform its state/program strategic plan. The stakeholder feedback outlined below has not only informed our current strategic plan but helped us be nimble and responsive to a changing ecosystem. Our program team continues to actively engage with state agencies (Ohio Environmental Protection Agency (OEPA), Ohio Department of Natural Resources (ODNR), Ohio Department of Health (ODH), Ohio Department of Agriculture (ODA), Ohio Lake Erie Commission (OLEC), Old Woman Creek National Estuarine Research Reserve (NERR)) to inform RFPs (requests for proposals) and to guide extension/outreach efforts. This agency advisory board, our external advisory board, meets annually to identify priorities that should be listed within Ohio's biennial NOAA National Sea Grant request for proposal (RFP). Agency researcher also drive priorities listed within other RFP efforts managed by Ohio Sea Grant (e.g., Ohio Department of Higher Education Harmful Algal Bloom Research Initiative). This advisory board also informs outreach activities and products that should be developed by Ohio Sea Grant. Finally, this advisory board also connects Ohio Sea Grant staff with key partners and board/committee/task team opportunities.

Connections that inform our strategic planning at the federal and state level are often made by Director Winslow's role on (1) the International Joint Commission (IJC) Science Advisory Board's Research Coordinating Committee (US co-chair), (2) Great Lakes Water Quality Agreement Annex involvement (Annex IV: Objectives and Targets Task Team **and** Annex II Lake Wide Management Extended Subcommittee (3) Advisory Board of the Cleveland Water Alliance, (4) Agency Partner for Ohio Lake Erie Commission, (5) Co-Director of Lake Erie Millennium Network, (6) Committee member of Lake Erie Partnership Working Group, and (7) Council member (Ex-officio) Old Woman Creek National Estuarine Research Reserve Advisory Council.

Within The Ohio State University (OSU) , specifically the College of Food, Agriculture and Environmental Sciences' (CFAES) School of Environment and Natural Resources, Ohio Sea Grant (and it's Stone Lab Island Campus) engages via four different strategies to inform this strategic plan:

1. Office of Research and Graduate Education: Allows us to understand the research and questions being addressed by OSU faculty and to ensure that they are aware of the issues stakeholders are concerned about regarding Lake Erie and within the watershed.
2. Cooperative Extension/Land Grant “advisory team”: This relationship helps coordinate our Sea Grant Extension team with the university’s Land Grant educators. As with the research connection mentioned above, this relationship also ensures that both Sea Grant staff and Land Grant extension staff are aware of the issues stakeholders are concerned about in Lake Erie proper and within the watershed. Issues of concern and community needs are also shared regularly via OSU’s annual Extension Conference and quarterly via Extension Community Development in service meetings.
3. 4-H and outreach programming: This relationship allows for the sharing of best practices related to programming. Additionally, it ensures that both Land Grant and Sea Grant extension educators are disseminating the same messaging about issues facing Lake Erie and the watershed. Finally, it is another mechanism for us to identify stakeholder needs, especially those that reside within the Lake Erie Watershed.
4. CFAES’s School of Environment and Natural Resources via the school’s Director and a newly appointed Stone Lab Associate Director of Academic Programming & Research who functions as a faculty liaison: These two individuals align our strategic plan with:
  - a. Current research capabilities and future research questions
  - b. Academic programs offered across the university, including Stone Laboratory

While under this strategic plan we will be working with our newly appointed Stone Lab Associate Director of Academic Programming and Research to develop a strategic plan specific to Stone Lab. This will include speaking with the advisory boards that have informed this strategic plan and by convening a new board constituted of faculty and researchers from numerous Ohio institutions and sister Great Lakes research facilities. In addition, we will survey stakeholders not represented on our existing advisory boards. This new effort will clearly inform this strategic plan and future efforts of both OSU’s Stone Lab and Ohio Sea Grant.

Ohio Sea Grant staff are active members of numerous boards and committees (highlighted below), providing ample opportunities to not only partner on projects but to also identify and understand the needs of stakeholders.

- International partners engaged: Great Lakes Fishery Commission: Lake Erie Percid Management Advisory Group
- National partners engaged:
  - NOAA Marine Debris Program
  - Ottawa National Wildlife Refuge
  - The Nature Conservancy (TNC)
  - U.S. Geological Survey
  - U.S. Army Corps of Engineers
  - Old Woman Creek National Estuarine Research Reserve
- Regional, state, and local partners engaged:
  - U.S. EPA’s Areas of Concern Remedial Act Plans Team
  - Boating Association of Ohio
  - Lake Erie Charter Boat Association

- Lake Erie Marine Trades Association
- Lake Erie Nature and Science Center
- Ohio Aquatic Invasive Species Committee
- Ohio Coastal Management Program
- City of Cleveland Office of Sustainability:
- Cleveland-Cuyahoga **and** Toledo Port Authorities
- City of Cleveland Climate Action Advisory Council
- Chagrin River Watershed Partners
- Numerous Ohio cities for Business Retention and Expansion Programing
- Cleveland Metroparks
- Cleveland Museum of Natural History
- Multiple County Soil and Water Conservation Districts: Partner on green infrastructure projects at marinas
- Lake Erie Islands Nature and Wildlife Center: Develop curriculum lessons, offer public summer programming (Wild Tuesdays)
- Northeast Ohio Regional Sewer District: Partner on Cuyahoga River AOC (Area of Concern) Advisory Committee
- Cleveland Water Alliance
- Lake Erie Foundation
- Great Lakes Commission HABS collaborative

Each extension educator has an external advisory committee. Each educator has selected their committee members to best represent their programmatic areas, which has resulted in a variety of backgrounds and viewpoints for Ohio Sea Grant, e.g., anglers; educators; private sector businesses; non-governmental organizations; and local, state, and national government agencies. Some of these committees have bylaws and a regular schedule of meetings while others are more loosely structured and meet on an as-needed basis. These stakeholder relationships not only drive research and outreach efforts but have also highlighted our program's need to reevaluate our effectiveness in getting our programing and products to underrepresented and marginalized communities. The issues we work on, the programs we create and manage, and products we develop are needed and appropriate, but we need to ensure that they are reaching the appropriate audiences.

Stone Laboratory gets support from board members of the Friends of Stone Lab (FOSL). Members have knowledge relevant to the mission of Stone Laboratory and Ohio Sea Grant and foster connections between the program and Lake Erie stakeholders. The FOSL board is asked to promote visibility of the program, fundraise, build new partnerships, and recommend general program direction.

## **Vision**

Ohio Sea Grant envisions diverse, thriving coastal communities and ecosystems that are supported by an engaged, environmentally literate public and informed decision-makers.

## **Mission**

The mission of the Ohio Sea Grant College Program is to increase the public's understanding of Lake Erie issues and to improve development and conservation of Lake Erie's resources. Although the bulk of our efforts are focused on Lake Erie and its watershed, our historic efforts and partnerships have allowed us to expand our initiatives into many of Ohio's freshwater resources (e.g., Ohio River Basin, State Parks, and state wetlands). Within this mission, the program has several overarching goals:

- Promote sustainable economic development on the Lake Erie coast and within the watershed by applying scientific knowledge to solve resource concerns;
- Develop critical knowledge and technology to help coastal industries in Ohio as they work to enhance revenue while protecting ecosystem function;
- Identify, protect, and conserve valuable coastal habitats and strive to improve environmental conditions in Lake Erie and Great Lakes ecosystems;
- Enable Lake Erie communities to successfully adapt to a variable climate, and stochastic social and economic conditions;
- Improve the quality of aquatic education in Ohio to foster a more informed citizenry with a higher quality of life.

## Ohio Sea Grant's Core Values

Ohio Sea Grant's core values are essential and enduring tenets that influence the organization and support its mission. The core values support a culture of integrity and scientific neutrality enabling Ohio Sea Grant to serve as a trusted broker of information.

- *Vision* – Advancing creative, innovative solutions that address emerging and chronic challenges through engagement, science, and stewardship.
- *Collaboration* – Seeking and sustaining partners with whom we leverage each other's strengths, and responsively, respectfully integrating diverse expertise and perspectives to reach shared goals.
- *Sustainability* – Advancing environmental stewardship practices and communicating the value of the services that the Lake Erie ecosystem provides to the nation.
- *Accountability* – Operating with integrity and transparency while maintaining quality and relevance in all functional areas, including program management.
- *Diversity, Equity, Inclusion, Justice, and Accessibility* – Proactively engaging with the range of identities, cultures, communities, and capacities present throughout our areas of work, with respect and sensitivity to each person's experiences, history, and systemic challenges.

## Commitment to Diversity, Equity, Inclusion, Justice and Accessibility

Ohio Sea Grant and Stone Laboratory staff combine research, education, and outreach, in collaboration with Great Lakes communities, to make and inform decisions regarding Lake Erie and the region's most important environmental and economic issues with impartiality.

We are committed to fostering culturally and intellectually diverse experiences which value people and local knowledge to reach new audiences, increase participation, and broaden our impact so all members of our community reach their full potential.

## Cross-Cutting Principles

These concepts provide a common foundation for the following Focus Areas and the work Ohio Sea Grant conducts. Recognizing these Cross-Cutting Principles enhances Ohio Sea Grant's ability to meet future national needs. While implementing the 2024-2027 Ohio Sea Grant Strategic Plan, Ohio Sea Grant will:

- Cultivate and sustain partnerships by integrating the expertise and capabilities of partners from international, federal, tribal, state, and local communities as well as from academia,

- nongovernmental organizations, and industry.
- Enhance diversity, equity, inclusion, justice, and accessibility by seeking and integrating diverse perspectives to advance cultural understanding and enable the network to pursue its vision and mission with, and for, all audiences. We will actively create mechanisms to allow all people to participate in network activities. Bringing a range of perspectives, values, and tools together to find solutions that are more innovative, creative, inclusive, and responsive will help us be successful in tackling problems facing Lake Erie communities.

## Focus Area Overview

For more than 40 years, Ohio Sea Grant has worked to help restore and rejuvenate Lake Erie and its regional economy. As highlighted previously, through a unique combination of research, education and outreach efforts, Ohio Sea Grant has become a program of action, working with stakeholders and various partners (e.g., agencies, NGOs, academics, etc.) to solve the lake's most pressing environmental issues.

It is the integration of research, education and outreach that allows Ohio Sea Grant to investigate issues and problems and share the solutions with those likely to shape our future. Research alone seldom solves problems, but when it is translated and delivered through innovative tools and training, new opportunities arise. Through its affiliation with the Ohio State University, Ohio Sea Grant's access to leading scientists and educators enables the program to share research findings with decision makers, citizens, business owners, and future leaders.

To best evaluate the successes of the Ohio Sea Grant College Program, below are our four focus areas and goals, actions, and desired outcomes within each.

### Focus Area 1: Environmental Literacy and Workforce Development

**Goal 1.1: A diverse, environmentally literate public participates in lifelong formal, nonformal and free-choice learning opportunities.**

*ACTION 1.1.1: Create and implement educational resources and opportunities that are diverse, equitable, inclusive, just, and accessible for formal, nonformal and free-choice learners to explore multiple ways of learning and knowing and to develop their curiosity and learning abilities throughout their lives.*

DESIRED OUTCOME:

- Individuals consider themselves environmentally literate lifelong learners who utilize knowledge to support, build and restore healthy natural and human communities.

*ACTION 1.1.2: Develop, provide and assess research, curricula, tools and other resources for teachers, students, and lifelong learners to support personal choice, participatory decision-making, and community planning processes*

DESIRED OUTCOMES:

- Teachers, students, and lifelong learners have current information and innovative tools that meet or exceed relevant standards and practices.
- People know and can act on issues that impact their lives, communities, and environments.
- Community members use their knowledge to remove barriers and act for personal and social

resilience and adaptation to changing economic, environmental, and social conditions.

*ACTION 1.1.3: Strengthen the ability of individuals, organizations, and communities to acquire, synthesize and use knowledge in an environmentally literate way.*

DESIRED OUTCOMES:

- Individuals, organizations, and communities create innovative opportunities, businesses and communities that respect diverse ways of knowing and learning, address systemic problems in equitable and just ways, and integrate traditional and novel cultures.
- Lake Erie communities are sustainable, healthy, diverse centers of tradition, innovation, and prosperity.

**Goal 1.2: A diverse, skilled, and environmentally literate workforce that is engaged and able to build prosperous lives and livelihoods in a changing world while addressing critical local, regional, and national needs through traditional and innovative careers.**

*ACTION 1.2.1: Identify and remove barriers to accessing training and learning opportunities so that the nation's diverse population is connected to and prepared for the range of career paths that support the needs of Lake Erie communities.*

DESIRED OUTCOME:

- All members of a community are enabled to explore and pursue the variety of occupations that are essential to sustain Lake Erie communities, economies, and ecosystems.

*ACTION 1.2.2: Increase opportunities for students at all levels (P-12, undergraduate, graduate, post-graduate and technical and vocational) to gain knowledge and experience addressing issues that are important to Lake Erie and its respective watershed.*

DESIRED OUTCOMES:

- Ohio Sea Grant student opportunities provide increased literacy, experience and preparedness in critical disciplines, skills, and issues.
- Students from all backgrounds and with diverse needs are thoughtfully and intentionally supported in and have access to formal and experiential learning, training, and research experiences.

*ACTION 1.2.3: Prepare a responsive and diverse workforce to advance and benefit from sectors that support the needs of coastal communities and ecosystems and to adapt and thrive in changing conditions.*

DESIRED OUTCOME:

- Employment in the Great Lakes and watershed communities expands and diversifies. The existing and future workforce is able to adapt and thrive in changing environmental, social, and economic conditions.

## **Focus Area 2: Healthy Coastal Ecosystems**

**Goal 2.1: Lake Erie and Great Lakes habitats, ecosystems, and the services they provide are protected,**



**enhanced and/or restored.**

*ACTION 2.1.1: Co-develop, improve, and share knowledge, decision-support tools, technologies, and approaches to protect and restore ecosystems.*

DESIRED OUTCOMES:

- Communities have greater awareness and understanding of ecosystem functions and the services they provide.
- Lake Erie ecosystem science and conservation needs are identified and prioritized through diverse stakeholder participation.
- Evidence-based science, traditional and local knowledge and innovative solutions inform and improve the management and conservation of coastal habitats.
- Lake Erie biodiversity, habitats and ecosystem functions and services are restored and sustained.
- Collaborative and inclusive planning and decision-making leads to enhanced stewardship and community benefits, especially for the most vulnerable.

**Goal 2.2: Land, water, and living resources are managed by applying science, tools, and services to sustain resilient Lake Erie ecosystems.**

*ACTION 2.2.1: Support a science- and management-driven framework that integrates research, observations, monitoring and modeling and that includes stakeholder engagement and traditional and local knowledge to provide a scientific basis for informed decision-making.*

DESIRED OUTCOMES:

- Inclusive collaborations with diverse stakeholders and partners support planning, research, and innovative solutions to address Lake Erie resource management needs, especially for vulnerable communities.
- Community science initiatives are utilized and contribute to improving our knowledge with respect to stewardship of ecosystems and their contributions to Lake Erie communities and economies.
- Lake Erie communities and resource managers have access to and use science, data, tools, and training to be effective in planning and decision-making processes.
- Resource managers understand the risks, options, tradeoffs and impacts of their decisions.

*ACTION 2.2.2: Identify and advance successful strategies that enhance resilient ecosystems and watersheds in the context of changing conditions, including environmental variability and climate change.*

DESIRED OUTCOMES:

- Communities share, access, understand and use information regarding projected changes and related impacts within ecosystems.
- Communities can apply knowledge from case studies, training, and tools to improve their ability to plan, prepare and adapt to environmental variability and climate change.

### **Focus Area 3: Sustainable Fisheries and Aquaculture**

**Goal 3.1: Domestic fisheries, aquaculture and other freshwater natural resources supply food, jobs, and economic and cultural benefits.**

*ACTION 3.1.1: Promote and support fisheries and aquaculture techniques that lead to safe, sustainable, high-quality food as well as economic, social and ecosystem benefits.*

DESIRED OUTCOMES:

- Lake Erie and Ohio residents and U.S. seafood consumers understand the benefits of domestically produced seafood, both wild and farmed, for individual and environmental health.
- Ohio's resource industries employ technologies and reinforce strategies to ensure safe and sustainable seafood and products.
- Ohio's resource industries employ strategies that balance economic, community, cultural, and conservation goals.

*ACTION 3.1.2: Support development of a trained and diverse workforce and enhance technology transfer in a manner that recognizes a variety of methodologies and approaches, including those based on traditional and local knowledge.*

DESIRED OUTCOMES:

- Increased understanding and technological solutions aid management and production.
- Stakeholder engagement and partnerships enable the industry to adapt and acquire innovative technologies.

**Goal 3.2: Natural resources are sustainably managed to support fishing communities and industries, including commercial, recreational, subsistence fisheries and aquaculture.**

*ACTION 3.2.1: Ensure the best available science, services and tools are available to and trusted by resource managers, the fishing and aquaculture communities and consumers.*

DESIRED OUTCOMES:

- Commercial and recreational fishers and aquaculturists are knowledgeable about efficient, sustainable, and responsible tools, techniques, and uses of freshwater resources.
- Resource managers and fishing and aquaculture communities have access to and share diverse knowledge and tools to increase their capability to adapt to changing resource management needs, including those driven by climate change.
- Consumers understand the health and sustainability benefits of domestically produced seafood and use that knowledge to inform their seafood purchasing decisions.

## **Focus Area 4: Resilient Communities and Economies**

**Goal 4.1: Lake Erie communities have the capability and resources to prepare for and adapt to extreme and chronic weather and coastal hazards, climate change, economic disruptions and other threats to community health and well-being.**

*ACTION 4.1.1: Improve and expand exchanges of knowledge to better identify the diverse needs of communities and to increase the public's understanding of changing conditions and related impacts.*

DESIRED OUTCOMES:

- Scientific understanding, including traditional and local knowledge, provides foundational information, and all community members understand the impacts of changing conditions and coastal hazards and have the capability to prepare, respond and adapt.
- Community leaders improve their understanding of changing conditions and coastal hazards and their capability to implement mitigation and adaptive strategies.

*ACTION 4.1.2: Work with communities to advance collaborative comprehensive planning, actionable science, and adaptive management strategies.*

DESIRED OUTCOME:

- Inclusive collaborations with diverse stakeholders and partners support mitigation and adaptation efforts built on knowledge from and responsive to the needs of all, especially the most vulnerable.

*ACTION 4.1.3: Work with communities to explore and support diversification, strengthening, sustainability and social equity within coastal economic sectors and the blue economy.*

DESIRED OUTCOMES:

- Lake Erie communities have access to and share knowledge, tools, services, and technologies to adapt and grow resilient economies.
- Leaders in Lake Erie economic sectors understand how they can become more resilient through diversification including expanded renewable, regenerative, and clean practices.

**Goal 4.2: Water resources are enhanced, sustained, and protected to meet existing and emerging needs of the communities and economies that depend on them.**

*ACTION 4.2.1: Use engagement and information exchange to advance the understanding of how actions impact water quality, quantity, and availability.*

DESIRED OUTCOME:

- Community members understand watershed and coastal functions and the ecosystem services they provide, understand how their actions will impact water resources, and are able to make informed decisions.

*ACTION 4.1.2: Collaborate with diverse partners and stakeholders, especially the most vulnerable, to advance plans and management practices for protecting and managing water resources.*

DESIRED OUTCOMES:

- Communities work with knowledge networks to share and access science, data, tools, and services to anticipate changes in water resources, to protect and sustain water resources, and to make informed decisions.
- Communities have diverse, sustainable economies and industries that support existing and emerging water resource needs.

## Appendix A: Definitions

**Accessibility:** The quality of being reachable or easily obtainable **Action:** A tactic or means used to achieve desired outcomes

**Adaptive management:** A systematic approach for improving resource management by monitoring and learning from management outcomes. An adaptive management approach provides a framework for making informed decisions in the face of critical uncertainties and a formal process for reducing uncertainties so that management can improve over time

**Blue economy:** The use of coastal and Great Lakes resources for the production of goods and services

**Coastal communities:** Lake Erie communities that represent a variety of interests (e.g., individuals, government, business, education, industry, research, non-governmental organizations, etc.) served by the Ohio Sea Grant College Program

**Community science:** Place-based research, outreach and education strategy providing inclusive, and equitable opportunities for diverse participants and partners to advance science and inform decision-making

**Comprehensive planning:** A formal planning process resulting in an official document adopted by a local government setting forth goals, policies, and guidelines for current and future development within its jurisdiction

**Core values:** Values that guide behavior and actions of the National Sea Grant College Program

**Cross-cutting Principles:** Fundamental propositions embraced by the National Sea Grant College Program that will strengthen the organization as it implements its strategic plan

**Diversity:** The full representation of and collaboration between people with different identities, knowledge sets, experiences, and perspectives

**Ecosystem:** A dynamic and complex association of plant, animal and human communities and associated non-living physical components interacting as a functional unit

**Environmental literacy:** The possession of knowledge and understanding of a wide range of environmental concepts, problems, and issues; cognitive and affective dispositions toward the environment; cognitive skills and abilities; and appropriate behavioral strategies to make sound and effective decisions regarding the environment. It includes informed decision making both individually and collectively and a willingness to act on those decisions in personal and civic life to improve the well-being of other individuals, societies, and the global environment

**Equity:** The allocation and accessibility of resources for fair distribution of services, benefits, and burdens

**Free choice learning:** Self-motivated learning that takes place all the time, outside of the classroom, regardless of age. The learner decides what, where, and how they want to learn over their lifetime

**Focus Areas:** Areas of emphasis that are shaped to address Ohio's most urgent needs in Lake Erie and Ohio's watersheds

**Formal education:** Classroom-based learning provided by trained teachers

**Goal:** An aspirational concept that inspires a level of success in a focus area and broadly describes a desired future state

**Inclusion:** The creation of an open and welcoming environment that recognizes and affirms the value and dignity of all people

**Justice:** The systematic removal of barriers that result in equitable opportunities and outcomes for every individual in a diverse society

**Knowledge network:** Formal or nonformal social networks that enable the transfer of traditional and local knowledge

**Lifelong learner:** Any person who learns through all or much of their life using both formal and informal learning opportunities in order to foster the continuous development and improvement of the knowledge and skills needed for employment and personal fulfillment

**Lifelong learning:** All learning activities, formal and informal, undertaken throughout life, with the aim of enhancing knowledge, skills, and competencies from a personal, civic, social, or employment-related perspective

**Mission:** Communicates the purpose of the organization

**National Sea Grant College Program:** Includes the National Sea Grant Office, 34 Sea Grant programs, and the National Sea Grant Advisory Board

**Nonformal education:** Learning that happens outside the classroom, in after-school programs, community-based organizations, museums, libraries, or at home

**Outcome:** An intended result or consequence

**Performance Measures and Metrics:** Indicators used to gauge program performance

**Resilience:** The ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events and changing conditions (e.g., severe weather, climate change, economic disruptions, demographic shifts, ecosystem changes)

**Restoration:** Activity to assist the recovery of something that has been damaged or destroyed  
**Sustainable:** Able to be maintained

Traditional and local knowledge: Ways of knowing that are passed down through generations (often through oral tradition) and/or reflects the observations and experiences of people living in a region and that often emphasizes interconnectedness between humans and their environment

Vision: A description of a future state that explains the basis for developing a strategic plan

Vulnerable: Indicating a higher risk for negative impacts as a result of the barriers to social, economic, political, and environmental resource.

## **Appendix B: 2024 – 2027 Ohio Sea Grant Performance Measures and Metrics**

### **Healthy Coastal Ecosystems**

Number of resource managers who use ecosystem-based approaches in the management of land, water, and living resources as a result of Sea Grant activities

Number of acres of coastal habitat protected, enhanced, or restored as a result of Sea Grant activities

### **Sustainable Fisheries and Aquaculture**

Number of fishers, seafood processors, aquaculture industry personnel or seafood consumers who modify their practices using knowledge gained in fisheries sustainability and seafood safety as a result of Sea Grant activities

### **Resilient Communities and Economies**

Number of communities that adopt/ implement sustainable economic and environmental development practices and policies as a result of Sea Grant activities

Annual number of communities that adopt/implement hazard resilience practices to prepare for and respond to/ minimize coastal hazardous events

### **Environmental Literacy and Workforce Development**

Number of Sea Grant products that are used to advance environmental literacy and workforce development

Number of people (youth and adults) engaged in Sea Grant-supported nonformal education programs

Number of Sea Grant supported graduates who become employed in a job related to their degree within two years of graduation

### **Cross Cutting**

Number of Sea Grant supported graduates who become employed in a job related to their degree within two years of graduation

Economic and societal impacts and benefits derived from Sea Grant activities market and non-market; jobs and businesses created or sustained; patents)

### **Cross Cutting Output Metrics**

Sea Grant Staffing: Number of individuals and full-time equivalents (FTEs) devoted to Sea Grant

Core Funding Proposals: Number and Origination of Core Funding Pre- and Full- Proposals

Number of Volunteer Hours

Number of Postsecondary Students and Degrees Financially-Supported by Sea Grant in Higher Education Programs (Undergraduate, Graduate)

Number of P-12 Students who participated in Sea Grant-supported formal education programs

Number of P-12 Students Reached Through Sea Grant-Trained Educators

Number of educators who participated in Sea Grant-supported professional development programs

Number of Sea Grant-Sponsored/ Organized Events

Number of Attendees at Sea Grant Sponsored/ Organized Events

Number of Public or Professional Presentations

Number of Attendees at Public or Professional Presentations

Number of Marinas Certified as “Clean Marina” by the Clean Marina Program as a result of Sea Grant Activities

Number of individuals certified or recertified in Hazard Analysis Critical Control Point (HACCP) as a result of Sea Grant activities

Number of peer-reviewed publications produced by Sea Grant

Visitor Attendance: Number of people that visit museums, aquariums, and other informal education institutions hosting NOAA-supported exhibits or programs (NEW; Pilot)