



UNIVERSITY OF WISCONSIN SEA GRANT COLLEGE PROGRAM

2024-27 Strategic Plan



INTRODUCTION

Traditional and local knowledge, including Indigenous knowledge, are ways of knowing that are passed down through generations and emphasize interconnectedness between humans and their environment. Western resource management, brought by colonizers, can diverge from that approach. Throughout the generations, both ways of knowing the world have had an impact on the five Great Lakes that straddle the border between the United States and Canada.

Human habitation in the Great Lakes region began as glaciers retreated 10,000 years ago and left behind the world's largest freshwater system. In Wisconsin, the first known inhabitants were the Paleo-Indians. Throughout time, other Indigenous people made their homes in the state. Still others arrived through migration. For example, the Ojibwe, who came from the eastern Great Lakes and were directed by a prophecy to seek out the place where food grows on water—manoomin (wild rice) on Lake Superior. This type of grass is still revered within Indigenous communities. Contemporary tribal nations now number 12, a reflection of such migration, as well as the forcible removal of others.

As Europeans colonized—establishing the French fur trade on Lake Superior—a new blended culture emerged. The first European to visit Lake Michigan, historians say, was Jean Nicolet, who came ashore near what is now Green Bay, Wisconsin. Poles, Germans, Swiss, Finns and Norwegians were later arrivals from Northern Europe who also shaped the area before Wisconsin became a state. As we rocket forward in time, the 2020 Census shows Wisconsin as 80.4% White; 6.4% Black or African American; 3.0% Asian; 1.0% American Indian and Alaska Natives; 6.1% two or more races, with Hispanic or Latino ethnicity at 7.6%.

Just like their forebears in Wisconsin, these current groups have their own ways of thinking about and interacting with the creatures that swim, crawl, fly and walk in and near the inland seas. Residents and visitors also draw from and rely on the waters for subsistence, ceremony, recreation and commerce with the Great Lakes now supporting an \$82 billion regional economy.

As time has moved onward, Wisconsin Sea Grant through its science and service to coastal communities strives to offer relevant, respectful and effective research and initiatives to this tapestry of people and their unique experiences, abilities, orientations and identities. Related to this, program staff members are deeply mindful to focus on the traditionally marginalized and underserved. The program also carries out its work against a backdrop complicated by the increasingly insistent effects of climate change.

It's imperative, even urgent, that this strategic plan lay out goals, actions and desired outcomes for this vital freshwater ecosystem embracing traditional and local knowledge, including Indigenous knowledge as well as Western resource management. The ecosystem remains as much a treasure now as it was 10,000 years ago when mile-thick ice sheets melted away and left behind this nearly incomprehensible sweep of salt-free seas.

ABOUT SEA GRANT

For nearly 60 years, the National Sea Grant College Program has funded cutting-edge research at the nation's leading academic institutions, forming a network of 34 programs to serve American and American territorial communities along the coasts of the Atlantic and Pacific oceans and the Great Lakes. More than 3,000 university scientists, outreach specialists, educators and students participate in the program each year. It is a program of the National Oceanic and Atmospheric Administration, U.S. Department of Commerce, and also provides information, tools and services to ensure coastal communities are sustainable.

Established in 1968, the University of Wisconsin Sea Grant College Program is one of the oldest and most vibrant programs in both the national and Great Lakes Sea Grant networks and is well equipped to meet the research, outreach and education demands posed by a state, region, Tribal Nations and country reexamining and realigning priorities to address topics through a diversity, equity and inclusion lens, while meeting the challenges born of a changing climate.

That research has formed a legacy, one in which Wisconsin Sea Grant is a national leader on the topics of toxic contaminants, aquatic invasive species, data visualization for effective resiliency planning, coastal engineering, water quality, urban aquaculture and fisheries management. As an objective, non-advocate source of science-based information and thanks to outreach and communications professionals, the program reaches across Wisconsin and the Great Lakes basin, building bridges and fostering partnerships with businesses and industries, local communities, tribal nations and management agencies.

THE FOUNDATION OF WISCONSIN SEA GRANT

Statements of mission, vision, core values and cross-cutting principles shape the strategic direction of Wisconsin Sea Grant. Together, they provide a foundation for actions, communications, organization and culture.

Mission

Wisconsin Sea Grant's mission is to support and enhance the sustainable use, conservation and health of Great Lakes resources and the well-being of Great Lakes communities through research, education and outreach.

Vision

Wisconsin Sea Grant strives to achieve the vision of a future with diverse, thriving coastal communities and ecosystems that are supported by an engaged, environmentally literate public and informed decision-makers.

Core Values

The following core values of Wisconsin Sea Grant complement its mission and vision.

- **Actionable Science.** Combining targeted research valued by interested parties coupled with effective outreach and communication built on solid relationships with the right network and resulting conversations yields scientific information that is relevant and in a form that is understandable and actionable to guide decision-making.
- **Academically Grounded.** Drawing on the research, education, outreach and communications capacities of universities and delivers the science needed to address real-world coastal and aquatic issues.
- **Diversity, Equity, Inclusion, Justice and Accessibility.** Proactively engaging with the range of identities, cultures, communities and capacities present throughout Sea Grant areas of work, with respect and sensitivity to each person’s experiences, history and systemic challenges.
- **Non-advocacy.** Maintaining a commitment to objective research, programming and communication that avoids bias and advocacy in the development and delivery of information, tools and services.
- **Vision.** Advancing creative, innovative solutions that address emerging and chronic challenges through engagement, science and stewardship that look to the future.
- **Collaboration.** Seeking and sustaining partners with whom the program leverages each other’s strengths, and responsively, respectfully integrating diverse expertise and perspectives to reach shared goals.
- **Sustainability.** Advancing environmental stewardship and restoration practices and communicating the value of the services that the coastal, watershed and Great Lakes ecosystems provide to the nation.
- **Accountability.** Operating with integrity and transparency while maintaining quality and relevance in all functional areas, including program management.

Cross-cutting Principles

Wisconsin Sea Grant embraces the following cross-cutting principles of the Sea Grant network.

- **Cultivation of 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.
- **Enhancement of 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. Sea Grant 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 Sea Grant be successful in tackling problems facing coastal and Great Lakes communities.
- **Provision of trusted, science-based information** of value to all audiences interested in coastal and Great Lakes issues using an inclusive, collaborative and problem-oriented engagement process.
- **Serve as an academic, neutral party and assist interested parties** in making informed decisions about important, and sometimes controversial, issues in a factual and timely manner without advocating for specific positions or policies.

OUTLINE OF PROGRAM'S PLANNING PROCESS

The table below outlines Wisconsin Sea Grant's strategic planning process. The process used multiple forms of engagement, as it needed to address the changing conditions brought about by the coronavirus global pandemic that has altered service delivery and working conditions; an assessment of Sea Grant's approaches and actions in the areas of diversity, equity, inclusion, justice and accessibility; a changing climate as evidenced by more intense precipitation events and greater variability in Great Lakes water levels; and a shaken economic system, which is affecting the vitality of coastal communities and industries in Wisconsin and throughout the Great Lakes Basin.

| DATE | ACTIVITY |
|-----------------------|--|
| February 2022 | A half-day meeting of all Wisconsin Sea Grant staff facilitated by the University of Wisconsin–Madison Office of Strategic Consulting kicked off the strategic planning process. |
| April-May 2022 | Web-based survey conducted to measure the importance of Wisconsin Sea Grant research/outreach/education for specific coastal issues in Wisconsin, identify the most important and new/emerging issues to address in the next five years, and solicit feedback on how to better engage underserved communities and have a more positive impact on coastal communities and ecosystems. |
| May-June 2022 | Wisconsin Sea Grant staff held topic-centered conversations about priority and emerging coastal issues in Wisconsin with collaborators and interested parties across Wisconsin and reviewed strategic plans of partner agencies to identify synergies with Sea Grant focus areas and Wisconsin Sea Grant goals/strategies. |
| June-July 2022 | Meetings of Wisconsin Sea Grant staff facilitated by the UW–Madison Office of Strategic Consulting to provide input on Wisconsin Sea Grant mission, vision, core values, cross-cutting principles, focus area goals and strategies. Three half-day meetings, each following the same agenda, were facilitated by the UW–Madison Office of Strategic Consulting. The first meeting on the morning of June 9 was virtual and attended by four staff. The second meeting on the morning of June 23 was in Green Bay and attended by eight staff. The third meeting on the afternoon of July 6 was in Madison and attended by six staff. |
| June 2022 | The National Sea Grant Office released first draft of the National Strategic Plan on June 29. |
| July 2022 | First meeting with Wisconsin Sea Grant Advisory Council held on the morning of July 7 to: 1) review the strategic planning process and the draft of the 2024-27 National Strategic Plan, 2) review results of the web-based survey and 3) provide input on Wisconsin Sea Grant goals, strategies and research priorities. |

| DATE | ACTIVITY |
|----------------|---|
| August 2022 | Wisconsin Sea Grant submitted the initial draft of strategic plan to the National Sea Grant Office on August 8. |
| September 2022 | The National Sea Grant Office released final version of National Strategic Plan on September 30. |
| October 2022 | Second meeting with Wisconsin Sea Grant Advisory Council on the afternoon of October 13 to review the final draft of the strategic plan. |
| October 2022 | Wisconsin Sea Grant submitted final draft of strategic plan to the National Sea Grant Office by October 26. |
| November 2022 | Wisconsin Sea Grant released 2024-26 Request for Proposals. |
| January 2023 | Strategic plan elements were entered into the Planning, Implementation, and Evaluation Resources (PIER) system maintained by the National Sea Grant Office. |

STRATEGIC PLAN SURVEY

Wisconsin Sea Grant staff conducted a web-based survey from April to May 2022 to measure the importance of Wisconsin Sea Grant research, outreach and education for specific coastal issues. Program staff included open-ended questions to identify the most important issues to address in the next five years and emerging coastal issues that will impact Wisconsin and the Great Lakes. Finally, program staff solicited feedback on how to better engage underserved communities and have a more positive impact on coastal communities and ecosystems.

The survey was distributed through Wisconsin Sea Grant email lists and posts on social media channels. A total of 219 responses were recorded in the survey software, yielding a range of 108 to 135 responses to individual survey questions. The majority of respondents (85%) were from Wisconsin. The most-represented employment sectors were education from the K-12 to university levels (31%) and government at the local, state or federal levels (29%). Another 12% of respondents said they were affiliated with a non-profit organization and 11% were from private industry/business. The remaining categories were a mix of self-employed or other (17%).

In general, interested parties saw value in all topics and focus areas addressed by Wisconsin Sea Grant. When asked to rate the importance of Sea Grant research, outreach and education across 36 topics within four focus areas on a scale from very important (5) to moderately important (2.5) to not important (0), interested parties found all topics at least moderately important. **Table 1** shows the highest-ranked topics with a composite score over four.

| TOPIC | FOCUS AREA | VERY IMPORTANT | MODERATELY IMPORTANT | NOT IMPORTANT | NO OPINION | SCORE | RANK |
|--------------------------------------|------------|----------------|----------------------|---------------|------------|-------|------|
| Water Quality | HCE | 117 | 9 | 1 | 3 | 4.78 | 1 |
| Watershed Management and Restoration | HCE | 110 | 16 | 2 | 2 | 4.61 | 2 |
| Habitat Restoration and Conservation | HCE | 109 | 18 | 2 | 2 | 4.57 | 3 |
| Great Lakes Food Webs | SFA | 109 | 19 | 2 | 4 | 4.56 | 4 |
| Fisheries | SFA | 104 | 21 | 1 | 5 | 4.54 | 5 |
| Coastal Management | RCE | 106 | 22 | 2 | 3 | 4.50 | 6 |
| Aquatic Invasive Species | HCE | 104 | 23 | 2 | 2 | 4.48 | 7 |
| Contaminants | HCE | 104 | 21 | 3 | 2 | 4.47 | 8 |
| Climate Mitigation/ Adaptation | RCE | 110 | 17 | 6 | 1 | 4.45 | 9 |
| Nature-based Shorelines | RCE | 101 | 31 | 0 | 1 | 4.41 | 10 |
| Ecosystem Services | HCE | 93 | 29 | 0 | 7 | 4.41 | 11 |
| Excess Nutrients and Eutrophication | HCE | 99 | 26 | 3 | 3 | 4.38 | 12 |
| Harmful Algal Blooms | HCE | 90 | 35 | 1 | 4 | 4.27 | 13 |
| Training the Next Generation | ELWD | 96 | 33 | 3 | 2 | 4.26 | 14 |
| Green Stormwater Infrastructure | HCE | 88 | 36 | 2 | 5 | 4.21 | 15 |
| Coastal Hazards Resilience | RCE | 85 | 44 | 3 | 1 | 4.05 | 16 |
| Great Lakes Literacy | ELWD | 79 | 38 | 4 | 4 | 4.05 | 17 |

Table 1. Highest-ranked topics by perception of the importance of Sea Grant research, outreach and education.



Survey Comments

Survey respondents also offered 314 comments in response to five open-ended questions. A sample of these comments organized by question follows:

1. Wisconsin Sea Grant’s mission promotes the sustainable use of Great Lakes resources through research, education and outreach. Given this mission, what is the most important issue that should be addressed by Wisconsin Sea Grant in the next five years?

- | *Water quality and ecosystem protection in the Great Lakes.*
- | *Climate change effects and mitigation.*
- | *Invasive species and their impact on native and economically important food and sport fish.*
- | *Coastal habitat protection and restoration.*
- | *Lake Michigan shoreline issues and how best to mitigate damage caused by high water level and storms. Support and education about eco-friendly mitigations for shoreline erosion on public and private properties.*
- | *More focus on connecting with undergraduate and high school students, especially from diverse groups. This opens the pipeline for future researchers, provides education on Great Lakes issues from a younger age, and is directly outreach. Too many Sea Grant projects are Madison-based and primarily involve graduate students.*
- | *Wisconsin Sea Grant does not focus enough on basic science. Thus, fundamental facts about the Great Lakes are currently unknown. Are novel pathogens invading? Is the zooplankton community changing? A lot of baseline information is missing.*
- | *Decolonization through infrastructures that acknowledge the rights of Indigenous communities in the state: recognizing the fact that every policy decision about water bodies either entrenches colonization or acts to free Indigenous communities and the waters of Wisconsin of the colonial legacies of the state. Keeping that in mind in every research project would be excellent.*

2. Please share new and emerging coastal issues that you see impacting Wisconsin and the Great Lakes over the next five years.

| *Microcontaminants and their impacts.*

| *Accessible and resilient shorelines.*

| *I think we will start seeing some real effects from all of the hard armoring (especially poorly designed structures) over the next few years as water recedes. Globally, loss of beach areas is seen as a top issue. I think the Great Lakes will start feeling that as well.*

| *Ongoing issues of nonnative species and increasing contaminants/pollutants will be ongoing challenges in the next five years. For a 25-year vision, climate change impacts will be more important.*

| *I fear that residents will not recognize the incredible resource here and will be apathetic if issues come up around water sharing from states outside of the Great Lakes Compact. We take our water for granted too much. Water should never be politicized.*

| *It seems like there has been a long swing from using the Great Lakes as a food production resource to development of an economic-driven recreational fishing (development of local economies based on sport fishing, tourism, tournament fishing etc.) and this is based on focus on species selection. This may be good for some, but we are slowly weaning ourselves off sustainable fisheries for the masses.*

| *Changing populations in rural areas & increasing wealth gap among Wisconsinites and consequences of this for engagement and adapting to changing cultural norms and needs.*

| *Beautiful clear crystal-blue waters with a dying commercial fishery.*

| *Engaging with cruise-based tourism to interpret and share knowledge about the Great Lakes.*

| *Invading novel pathogens (these could lead to pandemics); Evolution of species in the Great Lakes. Can they evolve to adapt to climate change?*

| *More impacts and an expansion of existing impacts to water quality and life due to climate change. We have to figure out what of the old harms can be fixed, or at least, reduced to less dangerous levels while looking forward to reduce new harmful impacts or prepare for them in a way that makes them manageable.*

3. What is one way that Wisconsin Sea Grant can better engage underserved communities?

| *Internships that target underserved communities, as part of larger grants but also as stand-alone opportunities, e.g. small grants (\$20,000-\$30,000) that would support underserved students and provide modest mentoring support.*

| *Find the leaders and be their allies. Learn where people are at this moment in time, how the past impacts their vision of the future, and how we can all work together to make that future as good for everyone as possible.*

Promote hands-on demonstrations of water-related activities. Address the importance of maintaining water quality and the degree that communities depend upon availability of water.

Examine the quality and value of ecosystem services that are most likely consumed by underserved communities. For example, pier and shore fishing quality is much more important for low-income populations than is private and charter boat fishing.

Special grant opportunities where there is less competition with well-funded R1 groups, focus on the developing programs that enhance education in K-12 fostering more individuals into water related higher education topics, provide mechanisms that enhance undergraduate student opportunities during the academic year.

Citizen science related programs to help with monitoring. This could help K-12 education and others to get involved giving them stake in the game.

Community development support for resilience measures (e.g. wetland/shoreland protection; outreach to residents in areas identified as vulnerable); work with local communities for education on fisheries protection, contamination; work with organizations to engage high school youth with college credit opportunities in the aquatic/biological/conservation sciences.

I live in Milwaukee, and we have children that live only a few miles from Lake Michigan who have never seen it. Trips and lessons should be incorporated into the classroom.

4. Please share one story or thought about how Wisconsin Sea Grant has made a positive impact on the sustainable use of Great Lakes resources.

Leader in the national development of recirculating aquaculture industry.

Sea Grant has served to alert and educate the publics about the social, economic and ecological significance and value of Great Lake ecosystems.

Sea Grant research has been the best source of information about fisheries change, fish species interactions and contaminants in fish.

I think the funding and support Sea Grant provides students encourages them to pursue a job in a water-related career.

Quality educational resources shared through social media, especially the “Introduced” podcast, are all great efforts to reach people and raise awareness of the issues.

In a former lab I worked in, the Sea Grant funds helped to train a diversity of undergraduates. I see this as some of the most important elements these grants help with in our region. More focus on the people, because they can tell our research stories.

Through programming for children at public libraries.

Your articles and publications tend to be more down to earth and original - not just the lockstep assertions developed by taxpayer-funded grants but controlled by government bureaucrats and government funded educators.

They are supporting the AmeriCorps programs in the Racine/Kenosha area and engaging members in Clean Boats/Clean Waters projects to stop the spread of AIS from the Great Lakes to inland lakes.

Sea Grant has done a significant amount of work in the area of marketing and consumption of seafood in Wisconsin.

5. What is one way Wisconsin Sea Grant can improve to have more positive impacts on coastal communities and ecosystems?

Increase the number of smaller grants (\$10-50K) opportunities to non-research colleges and universities within the Great Lakes watershed so that faculty at those institutions can compete for summer funding to include their students in small-scale, local projects, and research relevant to Sea Grant's mission.

Be visible and tell the stories, especially the positive stories. People need hope.

You need to do a much better job engaging the communities, especially the business community. We need all of us on board to advance this Herculean project.

Focus on the sources of pollution rather than the cleanup afterwards.

Enhance outreach efforts to improve public understanding of how science needs to be behind the management and sustainability of coastal communities.

Increased visibility at community events...markets, fairs, etc. Increased engagement with schools.

Expand interdisciplinary collaborations to involve more kinds of minds and problem solve from a holistic angle.

Invest in projects with scopes that will deal with projected climate issues in 50+ years.

Convene the smaller public and private universities that are on or near the Great Lakes in Wisconsin to periodically hear research summaries and set shared goals/objectives across the institutions. Support the effort of UW-Green Bay to establish a NERR.

Continue to grow support for teachers who wish to incorporate Great Lakes literacy in their classrooms!

Provide additional outreach to elected officials, news reporters and community leaders that have influence on decisions.

EQUITY ASSESSMENT AND STRATEGY

Beginning in summer 2021, the University of Wisconsin Aquatic Sciences Center, administrative home of Wisconsin Sea Grant, teamed with EQT by Design on an assessment, strategy and roadmap development process that was centered on the following question:

How can we work together to build and sustain an equity-centered organization that reflects Sea Grant and Water Resources missions and addresses the needs and priorities of the people of Wisconsin and the Great Lakes?

The year-long process included a series of grounding workshops, scans of the internal team and external partners of our organization, a visioning process coupled with an examination of barriers that may block actions to meet the vision and development of a strategy roadmap to a more equity-centered organization. The equity assessment process was completed in October 2022 and will guide Wisconsin Sea Grant actions covered in this strategic plan.

The following five areas represent the ideals and practices that ASC will strive to embody as a result of its work to build and sustain an equity-centered organization.

1. Hiring + Retention

Intentional, equity-centered recruiting, hiring and retention practices that support team diversity and wellness.

2. Infrastructure

Organizational values, priorities and systems that explicitly name, elevate and sustainably support equity.

3. Culture

Compassionate, supportive organizational culture centered around transparency, relationship-building, inclusion and innovation.

4. External Partnerships

Authentic, mutually beneficial partnerships and relationship-building opportunities with diverse stakeholders.

5. Outreach + Programs

Co-created outreach and programmatic strategies supporting sustainable policy and systems change within marginalized communities.

The strategy roadmap includes three phases, as follows:

▪ Phase 1: Building Our Foundation

Improving capacity to engage in equity and justice work by intentionally centering organizational infrastructure, trust- and relationship-building and conflict transformation.

▪ Phase 2: Deepening Our Work

A focus on deepening individual and collective equity-centered learning opportunities, and further examining internal systems, protocols and practices.

▪ Phase 3: Expanding Our Reach

Transition the internal support for equity and justice work to external audiences through an examination of programs, community outreach and external partnerships, as well as external communications around the organization's efforts.



STRATEGIC IMPLEMENTATION

Wisconsin Sea Grant's 2024-27 Strategic Plan is structured in accordance with the National Sea Grant College Program's Strategic Plan for the same time period, which capitalizes on Sea Grant's unique capacities and strengths, and allows for flexibility and creativity on the part of state Sea Grant programs.

In order to achieve positive, measurable outcomes, the program connects researchers with the Wisconsin Sea Grant outreach and communications staff to make available and deliver research-derived information and findings to resource managers, policy- and decision-makers and public stewards—a clear demonstration of actionable science. With regard to the principle of enhancing diversity and inclusion, the program has accelerated its implementation through targeted outreach and research, revised recruiting and educational opportunities.

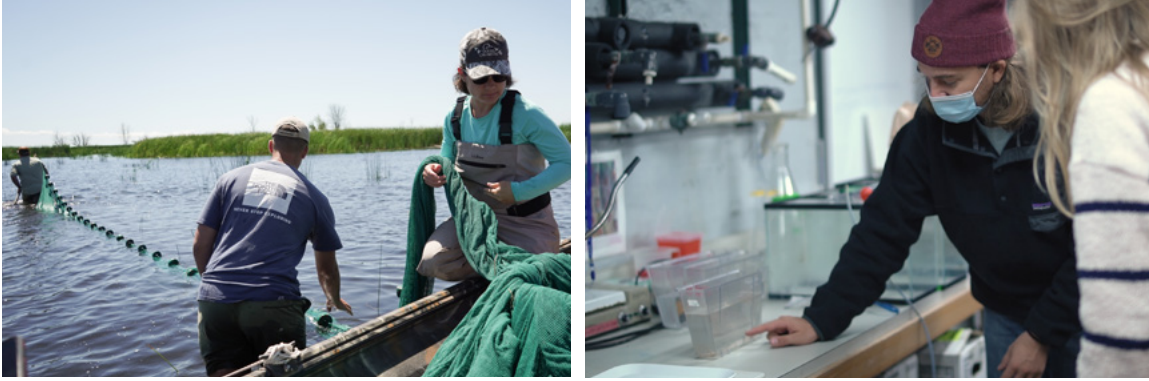
Built on this foundation, the Wisconsin Sea Grant strategic planning approach was a bottom-up process in which program priorities underwent review. As noted above, the plan was informed by a web-based survey, along with facilitated discussions with involved parties, and it benefitted from the advice of the Wisconsin Sea Grant Advisory Council. Evaluation and accountability are central to any program's credibility and success. To that end, there is an appendix that includes 2024-27 performance measures and metrics that Wisconsin Sea Grant intends to support

FOCUS AREAS

Wisconsin Sea Grant's focus areas enable the program to harness and apply its energy and resources to imminent and emerging Great Lakes needs. By addressing the following focus areas, Wisconsin Sea Grant researches and attends to the lakes' ecosystems, strives for sustainable fisheries and aquaculture operations, aims to prepare communities to address risks and build resilience, fosters a diverse and engaged workforce and sparks environmental literacy.

These focus areas of the Sea Grant network are enriched by and responsive to the needs of interested parties, which ensures that local-level input identifies and develops methods to address what is most relevant to Wisconsin and the Great Lakes.

Focus areas provide an order to the wide expanse of Wisconsin Sea Grant's topical interests and initiatives. Further, they are interrelated and a single activity may reflect and advance the goals, actions and desired outcomes of more than one of these priorities. The areas are: Healthy Coastal Ecosystems, Sustainable Fisheries and Aquaculture, Resilient Communities and Economies, and Environmental Literacy and Workforce Development.



Healthy Coastal Ecosystems

GOAL: Coastal and Great Lakes habitats, ecosystems and the services they provide are protected, enhanced and/or restored.

Ecosystem Protection and Restoration

- Support research, outreach and communications to understand the environmental and socioeconomic effects of challenges facing Great Lakes ecosystems, including physical processes, climate change and changes to biodiversity and ecosystem structure.
- Help residents, resource managers, businesses, industries and the agricultural sector understand the effects of human activities and environmental changes on coastal resources.
- Develop new or improved approaches for reducing or preventing harmful algal blooms.
- Support research, outreach and communications to understand the important role that tributaries, coastal wetlands and nearshore habitat play for fisheries and other aquatic life.
- Co-develop, improve and share knowledge, decision-support tools, technologies and approaches to protect, enhance and restore ecosystems.

Aquatic Invasive Species

- Conduct research, outreach and communications that lead to a better understanding and prioritization of invasion pathways into the Great Lakes.
- Develop innovative and effective communication approaches to reach interested parties with aquatic invasive species prevention messages.
- Develop tools and approaches that better understand and improve aquatic invasive species prevention actions.
- Conduct research, outreach and communications about the ecological impacts of invasive species on food webs and important species.

Emerging Contaminants

- Support research, outreach and communications to understand the environmental and socioeconomic effects of current and emerging contaminants on Great Lakes ecosystems and human health including, but not limited to, per- and polyfluoroalkyl substances (PFAS), microplastics, pesticides and herbicides.

Marine Debris

- Support research, outreach and communications that address knowledge gaps and inform action related to the prevention and removal of marine debris impacting the Great Lakes.

GOAL: Land, water, air and living resources are managed by applying science, tools and services to sustain resilient coastal and Great Lakes ecosystems.

Ecosystem Management

- Support a science- and management-driven framework that integrates research, observations, monitoring and modeling and that includes community engagement and traditional and local knowledge to provide a scientific basis for informed decision-making.
- Identify and advance successful strategies that enhance resilient ecosystems and watersheds in the context of changing conditions, including environmental variability and climate change.
- Utilize integrated assessment methods that bridge natural sciences, social sciences, economics and policy studies to support more holistic management and restoration of Great Lakes resources, including freshwater estuaries and urban harbors.
- Utilize ecosystem-based science and management to address the interconnections between land use and nutrient input from watersheds and impacts on receiving waters, with an emphasis on restoration of the Green Bay ecosystem.



Sustainable Fisheries and Aquaculture

GOAL: Wisconsin fisheries and aquaculture supply food, jobs and economic and cultural benefits.

Harvest and Processing Techniques

- Promote and support harvesting, culturing and processing techniques that lead to safe, sustainable, high-quality food as well as economic, social and ecosystem benefits.

- Collaborate in identifying Great Lakes regional aquaculture opportunities and best-management practices along with sustainable production systems such as recirculating aquaculture systems (RAS).
- Support research, outreach and communications to develop and improve economically viable and environmentally sustainable aquaponic operations.
- Support research to develop and improve commercially viable and environmentally sustainable aquaculture practices and techniques, including nutritional value of feeds, broodstock selection, water supply and quality, husbandry, and disease and pathogen prevention and diagnosis.
- Support value-added product development and processing to maximize value from wild-caught and farm-raised seafood.

Fisheries and Aquaculture Workforce

- 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.
- Identify and better understand the barriers to expansion of the aquaculture industry in Wisconsin and implement innovative partnerships to address scientific, business, economic, policy and legal challenges.
- Identify new sources of workforce for aquaculture and commercial fisheries, as well as develop training frameworks to build that pool.

Consumer Science/Perceptions

- Support research that leads to a better understanding of the benefits and risks of consuming Wisconsin-produced and Great Lakes region fish, as well as how aquaculture can address food safety and security issues during times of national and global health and food supply chain concerns.
- Support research, outreach and communications that encourage the application of behavioral and consumer sciences toward consumer perception and preferences, food safety, labeling and certifications, seafood demand studies and promotion of local seafood.

New Aquaculture Species/Markets

- Investigate emerging species and new technologies suitable for aquaculture in Wisconsin.
- Support development of urban aquaculture in new markets and provide knowledge resources to existing operations.

GOAL: Natural resources are sustainably managed to support coastal communities and working waterfronts, including commercial, recreational, subsistence fisheries and aquaculture.

Fisheries and Food Webs

- Support research, outreach and communications to better understand Great Lakes fisheries, including status and trends, measurement and modeling techniques, future scenarios, and socioeconomic costs and benefits under different management approaches and environmental conditions.
- Support research, outreach and communications to advance an environmentally sustainable and robust recreational, commercial and subsistence Great Lakes fishery.
- Better understand threats to Great Lakes fisheries, including, but not limited to, food web changes, invasive species, nutrient enrichment, contaminants, genetics and climate change as well as effective responses to build resilience, facilitate and accept change.
- Support research to improve understanding of the impacts of food web change, climate and other stressors on early life history and interaction of valuable sport and commercial species and develop management actions to mitigate impacts.



Resilient Communities and Economies

GOAL: Great Lakes coastal 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.

Coastal Processes

- Support research, outreach and communications that will lead to a better understanding of how the sediment supply from coastal bluffs influences beach and nearshore sediment transport in order to guide sound shore protection and bluff stabilization choices and build more resilient coastal communities and economies.

Ports, Harbors and Marinas

- Promote research, outreach and communications for sustainable and resilient ports, harbors and marinas.
- Encourage adoption of best-management practices by marinas and boaters that keep Wisconsin’s waterways clean and safe.

Nature-Based Shorelines

- Support research, outreach and communications on nature-based shore protection along Great Lakes coasts, including suitability, performance, habitat benefits and design guidance for the various practices that are applicable to the Great Lakes.

Climate Change

- Support research, outreach and communications to better understand the impacts that a changing climate will have on the Great Lakes.
- Support research that evaluates the impacts of increased climate variability and change on coastal communities and work with management and regulatory agencies, tribal nations and vulnerable and at-risk communities to reduce vulnerability to fluctuating water levels and storms.

Coastal Planning

- Work with coastal communities to advance collaborative planning, including incorporation of natural hazards resilience and climate adaptation principles into community plans.

Maritime History and Culture

- Support research, outreach and communications that document and preserve cultural and historical resources in coastal and marine areas.

Coastal Economy

- Work with communities to explore and support diversification, strengthening, sustainability and social equity within coastal economic sectors and the blue economy.
- Support research to document the socioeconomic contributions of water-dependent industries.

Sustainable Tourism and Recreation

- Support research, outreach and communications to understand the value of and opportunities for subsistence, tourism, commerce and recreation activities in coastal communities.
- Build collaborative and diverse networks to promote sustainable tourism and outdoor recreation.

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

Water Quality, Quantity and Availability

- Support research, outreach and communications to assess and share the impacts of human activities on Great Lakes water quality and supply, as well as coastal and nearshore habitats.
- Support environmental and socioeconomic research to protect the supply and quality of fresh water.

Water Resource Management

- Collaborate with diverse partners and interested parties, especially the most vulnerable, to advance plans and management practices for protecting and managing water resources.
- Support research, outreach and communications to promote the development and implementation of green stormwater infrastructure practices.



Environmental Literacy and Workforce Development

GOAL: A diverse, environmentally literate public participates in lifelong formal and nonformal learning opportunities aligned to the Great Lakes literacy principles.

Environmental Literacy

- Provide financial support for Great Lakes education projects that incorporate innovative practices or technologies and multicultural perspectives developed through engagement with leaders of diverse community partners.
- Develop Pre-K-12 resources that address the Great Lakes literacy principles and support state, tribal and national educational standards.
- Support professional learning opportunities that engage and train educators about Great Lakes literacy principles.
- Promote place-based learning as a way to engage communities in local stewardship and commitment to preserving and protecting the environment.
- Promote the intersection of the arts, humanities, sciences and traditional and local knowledge to inspire an environmentally literate society.

GOAL: A diverse, skilled and environmentally literate workforce that is engaged and able to build prosperous lives and livelihoods in a changing world through traditional and innovative careers.

Workforce Development

- Identify, promote and expose students, working professionals and the unemployed to Great Lakes-related career pathways to build a diverse and skilled Wisconsin workforce.
- Develop and carry out programs that help people discover, create and grow within careers that support the current and future needs of coastal communities and ecosystems and to adapt and thrive in changing conditions.
- Support a graduate student and post-graduate fellows program to provide emerging professionals with opportunities to practice community engagement and actionable science and to connect them with the full range of Sea Grant activities and Great Lakes-related employment opportunities.
- Increase opportunities for students at all levels (Pre-K-12, undergraduate, graduate, technical and vocational) to gain knowledge and experience addressing issues that are important to the Great Lakes and its watersheds.

APPENDIX A**National Performance Measures and Metrics From the National Sea Grant College Program 2024-27 Strategic Plan Supported by Wisconsin Sea Grant**

| 2024-2027 NATIONAL PERFORMANCE MEASURE AND METRICS | | TYPE |
|---|--|---|
| 1 | 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. | Healthy Coastal Ecosystems (HCE) |
| 2 | Number of acres of coastal habitat protected, enhanced or restored as a result of Sea Grant activities. | Healthy Coastal Ecosystems (HCE) |
| 3 | 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. | Sustainable Fisheries and Aquaculture (SFA) |
| 4 | Number of communities that adopt/implement sustainable economic and environmental development practices and policies as a result of Sea Grant activities. | Resilient Communities and Economies (RCE) |
| 5 | Annual number of communities that adopt/implement hazard resilience practices to prepare for and respond to/minimize coastal hazardous events. | Resilient Communities and Economies (RCE) |
| 6 | Number of Sea Grant products that are used to advance environmental literacy and workforce development. | Environmental Literacy and Workforce Development (ELWD) |
| 7 | Number of people (youth and adults) engaged in Sea Grant-supported informal education programs. | Environmental Literacy and Workforce Development (ELWD) |
| 8 | Number of Sea Grant-supported graduates who become employed in a job related to their degree within two years of graduation. | Environmental Literacy and Workforce Development (ELWD) |
| 9 | Number of Sea Grant tools, technologies and information services that are used by our partners/customers to improve ecosystem-based management. | Cross-Cutting Measure |
| 10 | Economic and societal impacts and benefits derived from Sea Grant activities (market and non-market; jobs and businesses created or sustained; patents/licenses). | Cross-Cutting Measure |
| 11 | Sea Grant staffing: Number of individuals and full-time equivalents (FTEs) devoted to Sea Grant. | Cross-Cutting Metric |
| 12 | Core funding proposals: Number and origination of core funding pre- and full-proposals. | Cross-Cutting Metric |

| 2024-2027 NATIONAL PERFORMANCE MEASURE AND METRICS | | TYPE |
|--|---|----------------------|
| 13 | Number of volunteer hours. | Cross-Cutting Metric |
| 14 | Number of postsecondary students and degrees financially supported by Sea Grant in higher education programs (undergraduate, graduate). | Cross-Cutting Metric |
| 15 | Number of P-12 students who participated in Sea Grant-supported formal education programs. | Cross-Cutting Metric |
| 16 | Number of P-12 students reached through Sea Grant-trained educators. | Cross-Cutting Metric |
| 17 | Number of educators who participated in Sea Grant-supported professional development programs. | Cross-Cutting Metric |
| 18 | Number of Sea Grant-sponsored/organized events. | Cross-Cutting Metric |
| 19 | Number of attendees at Sea Grant-sponsored/organized events. | Cross-Cutting Metric |
| 20 | Number of public or professional presentations. | Cross-Cutting Metric |
| 21 | Number of attendees at public or professional presentation. | Cross-Cutting Metric |
| 22 | Number of marinas certified as "clean marina" by the clean marina program as a result of Sea Grant activities. | Cross-Cutting Metric |
| 23 | Number of individuals certified or recertified in Hazard Analysis Critical Control Point (HACCP) as a result of Sea Grant activities. [Metric not supported by Wisconsin Sea Grant. Program does not conduct HAACP training.] | Cross-Cutting Metric |
| 24 | Number of peer-reviewed publications produced by Sea Grant. | Cross-Cutting Metric |
| 25 | Visitor attendance: Number of people that visit museums, aquariums, and other informal education institutions hosting NOAA-supported exhibits or programs (NEW; Pilot). [Metric not supported by Wisconsin Sea Grant. Program does not oversee these types of institutions.] | Cross-Cutting Metric |
| 26 | Environmental actions: Number of people participating in environmental actions through NOAA education programs (NEW; Pilot). | Cross-Cutting Metric |



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