

2018 - 2023

Strategic Plan

of the

University of

Minnesota Sea Grant

College Program

March 7, 2017

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2018 - 2023 Strategic Plan of the University of Minnesota Sea Grant College Program

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Preface

Consistent with the National Sea Grant College Program legislation ((Public Law No: 110-394) § 1123 C (1)) and on behalf of the Secretary of Commerce, the National Sea Grant Program Office develops a strategic plan every four years that establishes priorities for the National Sea Grant College Program. The priorities reflect local, regional and national needs and the strategic plans of the National Oceanic and Atmospheric Administration, Department of Commerce and of the Administration.

In 2016 and 2017, the National Sea Grant Program Office crafted its 2018-2021 strategic plan to guide the network of NOAA Sea Grant programs that operate throughout the coastal United States, Guam and Puerto Rico. Concurrently, state Sea Grant programs, including the University of Minnesota Sea Grant College Program, generated their own strategic plans. In 2020, the National Sea Grant Office provided guidance to state programs that extended the current planning period to 2023, and gave programs the option of rewriting their strategic plan, revising their plan, or keeping it as-is. After discussions with staff and our advisory board about programming priorities and evaluating how these priorities fit within our current plan, Minnesota Sea Grant opted to update our plan. State plans address state challenges while aligning with the National Sea Grant College Program Office's strategic plan and performance measures. State plans guide and inform state program requests for proposals (RFPs) and research, outreach and education activities. State plans are also a basis for evaluating program performance.

The federal government views Lake Superior and the other Laurentian Great Lakes as inland seas and consequently has supported Minnesota Sea Grant since 1975. For every two dollars NOAA allocates to Minnesota Sea Grant, the state provides one dollar with the expectation that the program will include all of the state's aquatic resources. Lake Superior's 190 miles of coastline warrants a Sea Grant program in Minnesota, but Minnesota Sea Grant's influence extends to the more than 10,000 other lakes and the mighty Mississippi River, which begins its journey to the Gulf of Mexico from Lake Itasca in the heart of Minnesota's lake country.

Athelstan Spilhaus, former dean of the University of Minnesota's Institute of Technology, initiated the idea for Sea Grant in the early 1960s. Minnesota Sea Grant is proud of this legacy and continues to build on Spilhaus' pioneering vision through the effective and innovative education, research and outreach strengths of Minnesota's universities. As evidenced in this strategic planning document, Minnesota Sea Grant expects to capitalize on its blend of momentum and agility.

2018 - 2023 Strategic Planning Process

The University of Minnesota Sea Grant College Program (MNSG) developed its 2018-2021 strategic plan through an inclusive stakeholder process and in collaboration with the program's advisory committee/board (the advisory committee was renamed to advisory board in 2017) and assigned federal program officer. In 2020 we reevaluated the plan based on programming priorities and input from our advisory board. A timeline outlining the planning process is below.

2016

January 1: Program leader edited and sent MNSG needs assessment survey (2012) to MNSG staff for review.

January 26: Staff met to discuss and refine needs assessment survey to reflect 2016 goals.

February 9: MNSG needs assessment survey entered into survey software (Qualtrics) and sent to members of the MNSG advisory committee.

February 16: Advisory committee met with MNSG director and select MNSG staff to define strategic plan priorities.

February 20: Revised needs assessment survey sent to MNSG's statewide networks and stakeholders.

June 16: MNSG director and select staff met to discuss survey responses, priorities and communication with the National Sea Grant Office regarding strategic planning at both state and national levels.

June 27: MNSG director summarized the input received from advisory committee members and stakeholders and provided responses through a survey located on the Sea Grant Association database (Basecamp) to the National Sea Grant Office to inform the National Sea Grant Network planning process.

July 27: Sea Grant staff met to discuss strategic planning and visioning.

September 1: The National Sea Grant Office provided state programs a guidance document for developing 2018-2021 state program strategic plans and the first draft of National Sea Grant Network strategic plan was made available to state programs.

September 7: MNSG director and select staff met to discuss the guidance document and next steps.

September 13-16: MNSG director and select staff conducted a strategic planning exercise to distill the input from the advisory committee/board, staff and stakeholder survey responses about priorities for MNSG in the next five years.

October 8: Second draft of National Sea Grant Network strategic plan made available to state programs.

October 17-21: MNSG staff polled through a Qualtrics survey on specific projects MNSG expects to be pursuing during 2018-2022 and potential.

November 7: Draft MNSG 2018-2022 strategic plan sent to National Sea Grant Office.

November 10: MNSG hosts discussions on new programs with the MNSG advisory committee/board and MNSG staff.

December 1: MNSG's federal program officer offered feedback on the November 7 draft of MNSG's strategic plan.

December 23: The National Sea Grant Office presented the Revised DRAFT 2018-2021 Sea Grant College Program Strategic Plan. The Minnesota plan reflects the revisions.

2017

January 10: The National Sea Grant Office issued “guidance for submission of the Final 2018-2021 Sea Grant State Program Strategic Plans.”

January 17-20: MNSG staff met to discuss each focus area, to identify potential projects and determine which outcomes are achievable.

February 7: MNSG submitted the state program’s draft final strategic plan for 2018-2021 by the February 8 deadline.

February 21: MNSG’s federal program officer offered feedback on the February 7 draft of MNSG’s strategic plan.

March 1: MNSG conference call with MNSG’s federal program officer to finalize details regarding strategic plan.

March 7: Approved final plan.

2019

Fall: Guidance issued from National Sea Grant Office offering option to update strategic plans to include 2022-2023

2020

May: MNSG staff reviewed goals and outcomes from strategic plan and identified minor updates to MNSG’s 2018-2021 plan

June 16: MNSG Advisory board reviewed strategic plan and proposed updates, current activities, and prioritized programming areas. MNSG staff reviewed priorities to ensure they fit with the updated plan.

September: MNSG submitted the updated plan to the National Sea Grant Office

Vision and Mission

The University of Minnesota Sea Grant College Program's vision and mission statements encapsulate regionally important aspects of both NOAA's and the National Sea Grant College Program's statements. Last updated in 2008 by MNSG's staff and the program's advisory committee, MNSG's vision and mission statements continue to complement those of the National Sea Grant College Program and the University of Minnesota (see sidebars).

The Minnesota Sea Grant College Program envisions a future where its citizens use a science-based understanding of the environment to address issues concerning Lake Superior and Minnesota's aquatic resources and associated economies.

Minnesota Sea Grant's mission is to facilitate interaction among the public and scientists to enhance communities, the environment and economies along Lake Superior and Minnesota's inland waters by identifying information needs, fostering research and communicating results.

National Sea Grant College Program

Vision: Thriving coastal ecosystems and communities that are supported by an engaged public and informed decision-makers.

Mission: To enhance the practical use and conservation of coastal, marine and Great Lakes resources in order to create a sustainable economy and environment.

University of Minnesota

Vision: UMN will be preeminent in solving the grand challenges of our diverse and changing world.

Mission: Founded in the belief that all people are enriched by understanding, the University of Minnesota is dedicated to the advancement of learning and the search for truth; to the sharing of this knowledge through education for a diverse community; and to the application of this knowledge to benefit the people of the state, the nation and the world. The University's mission ... is threefold:

- **Research and Discovery.** To generate and preserve knowledge, understanding and creativity by conducting high-quality research, scholarship and artistic activity that benefits students, scholars and communities across the state, the nation and the world.
- **Teaching and Learning.** To share that knowledge, understanding and creativity by providing a broad range of educational programs in a strong and diverse community of learners and teachers, and prepare graduate, professional and undergraduate students, as well as nondegree seeking students interested in continuing education and lifelong learning, for active roles in a multiracial and multicultural world.
- **Outreach and Public Service.** To extend, apply and exchange knowledge between the University and society by applying scholarly expertise to community problems, by helping organizations and individuals respond to their changing environments and by making the knowledge and resources created and preserved at the University accessible to the citizens of the state, the nation and the world.

Core Values

The University of Minnesota Sea Grant College Program embraces the core values and guiding principles of the National Sea Grant College Program, the University of Minnesota and the University of Minnesota Duluth. These are:

National Sea Grant College Program:

- Visionary – Advance solutions that address emerging challenges (science and stewardship) and encourage creativity, initiative and innovation.
- Collaborative – Seek partnerships that leverage our strengths. Be responsive and accessible, respect partners, maintain scientific neutrality, integrate diverse expertise and provide the science and knowledge needed to inform stakeholders.
- Dedicated to Sustainability – Communicate the importance of good stewardship and the value of the services that the coastal, ocean, and Great Lakes’ ecosystems provide to the Nation.
- Accountable – Operate with integrity and transparency; maintain quality and relevance in administration, management and oversight.

University of Minnesota:

- Embodies the values of academic freedom, responsibility, integrity and cooperation.
- Provides an atmosphere of mutual respect, free from racism, sexism and other forms of prejudice and intolerance.
- Assists individuals, institutions and communities in responding to a continuously changing world.
- Is conscious of and responsive to the needs of the many communities it is committed to serving.
- Creates and supports partnerships within the University, with other educational systems and institutions and with communities to achieve common goals.
- Inspires, sets high expectations for and empowers the individuals within its community.

University of Minnesota Duluth:

- Learning – Educates students through an integrative learning-centered environment that fosters a lifelong pursuit of wisdom.
- Discovery – Discovers, creates and shares knowledge.
- Engagement – Actively collaborates with each other and the larger community to identify and achieve common goals.
- Inclusiveness – Respects and embraces the diversity of individuals, perspectives and ideas and strives for social justice.
- Sustainability – Balances current environmental, economic and social needs with those of future generations.
- Integrity – Adheres to the highest ethical standards and takes responsibility for our ideas and actions.
- Excellence – Achieves excellence through creativity, continuous improvement and innovation.

Cross-Cutting Principles

The University of Minnesota Sea Grant College Program will pursue outcomes, performance measures and metrics documented in this plan and prepare for a future that extends beyond this plan as guided by the aforementioned core values and the National Sea Grant College Program's two cross-cutting principles, which are:

- Cultivate partnerships by integrating the expertise and capabilities of partners from the international, federal, tribal, and state communities and from academia, nongovernmental organizations, and industry.
- Enhance diversity and inclusion by seeking and welcoming diverse perspectives in order to enhance cultural understanding and enable the network to pursue its vision and mission effectively and efficiently.

MNSG seeks to be recognized as the go-to state organization for scientific synthesis, robust solutions and new approaches. This ambition includes leadership in developing new technologies for environmental research and creating collaborations to solve systemic problems. MNSG also seeks to be known for brokering consensus across organizations and disciplines to produce integrated solutions. While fostering collaborative and integrative solutions to water-related issues of local, regional, national and international importance, MNSG takes pride in its ability to reach diverse and inclusive audiences throughout Minnesota, the U.S. and the world.

Focus Areas and Goals

The University of Minnesota Sea Grant College Program intends to support the focus areas and goals of the National Sea Grant College Program, defined in its 2018-2021 strategic plan as follows:

Healthy Coastal Ecosystems (HCE)

- GOAL 1: Habitat, ecosystems and the services they provide are protected, enhanced and/or restored.
- GOAL 2: Land, water and living resources are managed by applying sound science, tools and services to sustain ecosystems.

Sustainable Fisheries and Aquaculture (SFA)

- GOAL 1: Fisheries, aquaculture and other coastal and freshwater natural resources supply food, jobs and economic and cultural benefits.
- GOAL 2: Natural resources are sustained to support fishing communities and industries, including commercial, recreational and subsistence fisheries and aquaculture.

Resilient Communities and Economies (RCE)

- GOAL 1: Coastal communities use their knowledge of changing conditions and risks to become resilient to extreme events, economic disruptions and other threats to community well-being.
- GOAL 2: Water resources are sustained and protected to meet existing and emerging needs of the communities, economies and ecosystems that depend on them.

Environmental Literacy and Workforce Development (ELWD)

- GOAL 1: An environmentally literate public that is informed by lifelong formal and informal opportunities and reflects the range of diversity of the nation's coastal communities.
- GOAL 2: A diverse and skilled workforce that is engaged in and enabled to address critical local, regional and national needs.

Desired Outcomes

Within each focus area and under each goal, the National Sea Grant College Program's strategic plan references specific objectives and outcomes. Reflecting these national objectives and outcomes as well as the aforementioned cross-cutting principles, MNSG will pursue state-specific outcomes for work conducted between 2018 and 2023, which are summarized in the bullets below and detailed in the table on page 11.

Healthy Coastal Ecosystems

GOAL 1 provides a target; as MNSG develops and shares decision-support tools, technologies and approaches to protect and restore ecosystems, it will make tangible progress toward sustaining the habitat, biodiversity and abundance of freshwater resources in Minnesota, the Great Lakes and beyond. To do this, MNSG will:

- Enhance scientific understanding of ecosystems and use of decision-support tools to improve conservation and management.
- Achieve greater public awareness of ecosystems and their services, thereby improving decision making.
- Facilitate the restoration of depleted aquatic resources, habitats and ecosystem functions.
- Improve collaborative decision making among diverse stakeholders, thereby enhancing stewardship.

GOAL 2 asks for applied science-based solutions to sustain ecosystems that support coastal communities and economies. To that end, MNSG expects to support a management framework that integrates observations, monitoring, research and modeling toward solving Minnesota's coastal challenges. The program will identify and promote case studies and strategies to enhance resilient ecosystems in the context of changing conditions. Additionally, the framework will

improve science-based products and services for informed decision-making. To achieve this, MNSG will:

- Make science, data, tools, case studies and training accessible so that people can readily and effectively incorporate science into decision-making processes and understand adaptive management concepts.
- Help resource managers achieve greater certainty and effectiveness in their decisions by offering reliable and accessible science, information and tools.
- Engage citizens in monitoring and research efforts (e.g., citizen science), to improve collective knowledge and understanding of coastal ecosystems.

Sustainable Fisheries and Aquaculture

GOAL 1 states that Sea Grant will work to see that fisheries, aquaculture, and marine and freshwater resources provide economic, environmental and cultural value to the people of the United States. MNSG seeks to help develop a trained workforce and enhance technology transfer in domestic aquaculture and fisheries industries. The MNSG program will work to support harvesting and processing techniques that lead to safe, sustainable and high-quality food. To do this, MNSG will:

- Partner with organizations to enable the aquaculture and fisheries industries to adapt and acquire innovative technologies.
- Work with aquaculture and fisheries industries to ensure that they have access to strategies for procuring safe seafood and sustaining economic, community and conservation balance.

GOAL 2 points the Sea Grant Network toward sustaining marine and freshwater resources to support fishing communities and industries including aquaculture, sport fishing, commercial fishing and subsistence fishing. To ensure sound science, services and tools are available and accessible for fishing and aquaculture communities in Minnesota, MNSG will:

- Help natural resource managers, commercial fishers, anglers and the aquaculture industry employ efficient and responsible tools and techniques to sustainably use living aquatic resources and adapt to future needs.
- Provide information to industries, anglers and consumers about safe practices for handling and preparing seafood, freshwater fish and other aquatic products.
- Help consumers to understand the health benefits of seafood and freshwater fish and how to purchase safe and sustainable products.
- Work with natural resource managers, communities, and landowners to support fish habitat improvement efforts, including fish passage.

Resilient Communities and Economies

GOAL 1 expects that Sea Grant will work to ensure that vulnerable and at-risk coastal communities are aware of changing conditions and have information to improve their resilience, economies and community well-being. To achieve this end, Sea Grant will encourage the use of comprehensive planning and adaptive management strategies to enhance community resilience to

natural hazards and changing conditions. The national Sea Grant Network expects to document an increased public awareness of changing conditions and the impacts through the accomplishments of state Sea Grant programs. Likewise, the National Sea Grant College Program expects to increase the resilience of coastal communities through diversification, growth and strengthening of coastal economic sectors and social wellbeing, identity and values. To achieve these ends in Minnesota, MNSG will:

- Create opportunities for diverse community groups to access information and participate in adaptive management planning and strategies to improve community resiliency and sustainability.
- Develop training programs to improve public understanding of changing conditions and hazards, the implications of these dangers to their communities and adaptive management strategies to minimize threats and risks.

GOAL 2 points the Sea Grant Network toward sustaining and protecting water resources to meet emerging needs of the communities, economies and ecosystems that depend on them by developing and sharing best management practices. To do this, MNSG will:

- Work with Minnesota communities to help them understand watershed functions and services and address the emerging water resource needs of residents and industries.
- Help communities use science, tools and technology to identify and adopt mitigation measures to protect and sustain water resources.

Environmental Literacy and Workforce Development

GOAL 1 strives to create an environmentally literate public. Sea Grant seeks to ensure the public is informed and can engage in community planning processes with respect to adaptive management in changing conditions. This endeavor requires that Sea Grant create effective environmental literacy opportunities for students of all ages. It also requires that Sea Grant increase environmental literacy communication to diverse populations, including information on how ecosystem changes affect communities' economic, social and cultural values, as well as implications for conservation and management. To achieve this, MNSG will:

- Ensure coastal communities are knowledgeable and equipped with the best available science and technology to contribute to adaptive management planning processes.
- Work with educators and students so that they are aware of opportunities to engage in science, technology, engineering and math (STEM) programs and can employ their knowledge to support sustainable practices.
- Providing informal science education opportunities so that lifelong learners feel adept at making choices and decisions informed by science.

GOAL 2 asks state Sea Grant programs to work to create a diverse and skilled workforce able to participate in and benefit from the nation's marine and freshwater resource sectors (including industry, research government, etc.) and to adapt to and thrive in changing conditions. Part of this success will be realized by a growing awareness of water-oriented occupations and career pathways for the nation's diverse population. To pursue this goal, MNSG will:

- Provide opportunities for graduate and undergraduate students (especially from under-represented groups) to access learning, training and research experiences in the science and management of coastal resources
- Engage diverse audiences within coastal communities, and provide them with opportunities to share cultural knowledge, examine their effects on the environment and make science-based and science-informed decisions.
- Provide teacher professional development opportunities to enhance the use of Great Lakes science in the classroom

MNSG plans to accomplish the outcomes on this table during 2018 - 2023. Bolded outcomes are those that MNSG is currently most equipped to pursue. Non-bolded outcomes are those requiring newer initiatives. Yellow indicates the national focus areas that this outcome addresses. An “X” indicates a potential focus area for this outcome.

EXPECTED OUTCOMES SPECIFIC TO MINNESOTA SEA GRANT	HCE	SFA	RCE	ELWD
MNSG provides research and outreach about the ways trends and extremes in weather are affecting the Great Lakes, particularly Lake Superior, offering regionally specific mitigation and adaptation actions.				
MNSG provides research and outreach that contributes to weather- and climate-resilient communities that understand how cumulative and inter-related changes in climate affect human and ecological health.				
MNSG increases public awareness and appreciation of healthy watersheds with clean water, and their role in social and economic well-being.				
MNSG helps citizens improve their scientific literacy through communications about, and participation in, research and monitoring of ecosystem health.				
MNSG increases awareness about preventing the spread of invasive species that leads to responsible behavior of people and industries.		X		
MNSG provides research that improves management and addresses the impact of invasive species on the environment, recreation and economics.		X	X	
MNSG makes contributions to solving ballast water management challenges in the Great Lakes that improve maritime industry operations and environmental sustainability.				
MNSG creates partnerships, research and outreach that lead to decision-making and policies that help to solve coastal and aquatic challenges using science-based information and data, including data on the value of ecosystem services.		X		
MNSG improves community connections to aquatic resources in remediation and restoration projects, including those in the St. Louis Estuary Area of Concern delisting effort.				
MNSG provides research on microplastics and other contaminants in the Great Lakes and their role in ecosystems that inform mitigation strategies.		X		
MNSG provides research and outreach that contributes to the health of fish stocks.				
MNSG provides research and outreach that supports food security by using our coastal and aquatic resources for local food production.				
MNSG provides research and outreach that supports preemptive risk identification regarding coastal challenges in Minnesota.				
MNSG provides research and outreach that delivers environmentally sound disaster preparedness and readiness tools to coastal communities, including flood resilience tools.				
MNSG provides research and outreach that improves the resilience of harbor and stormwater infrastructure.				
MNSG provides research and outreach that contributes to understanding the changing Great Lakes and coastal freshwater supply, quality and quantity.				
MNSG offers outreach that improves aquatic science literacy on the ecological and economic vitality of coastal zones.				
MNSG creates curricula integrating appropriate standards (e.g., state, Next Generation Science Standards) that focuses on personal responsibility, creating a more scientifically literate society.				
MNSG provides under-represented populations with opportunities for job training and career-building in Great Lakes science.				
Improving the vitality of coastal communities and appreciation of aquatic resources, MNSG documents and extends traditional ecological knowledge from audiences in Minnesota, including Native Americans, Hmong, and commercial and charter fishing families.			X	

Performance Measures and Metrics

Minnesota Sea Grant will track and document the performance measures and metrics cited below, which are identical to those found within the National Sea Grant College Program's 2018-2021 strategic plan. A spreadsheet of specific targets accompanies this strategic plan of the University of Minnesota Sea Grant College Program. In addition to documenting the program's annual impacts and accomplishments, MNSG will report these measures and metrics through the National Sea Grant College Program's Planning, Implementation, and Evaluation Resources (PIER) database. Definitions for these measures and metrics are available on the National Sea Grant College Program's website:

seagrant.noaa.gov/NetworkResources/EvaluationandReporting.aspx.

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 fishermen, seafood processing or aquaculture industry personnel 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 engaged in Sea Grant-supported informal 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 Measures

- Number of Sea Grant tools, technologies and information services that are used by partners/customers to improve ecosystem-based management.
- Economic and societal impacts derived from Sea Grant activities (market and non-market; jobs and businesses created or sustained).

Cross-Cutting Output Metrics

- Number of marinas certified as a clean marina by the Clean Marina Program as a result of Sea Grant Activities
- Number of individuals certified in Hazard Analysis Critical Control Point (HACCP) due to Sea Grant efforts (a systematic preventive approach to seafood safety)
- Number of peer-reviewed publications produced by Sea Grant staff and Sea Grant-supported scientists.
- Sea Grant staffing in administration, communication, extension, education, and research
- Number of postsecondary students and degrees financially supported by Sea Grant in higher education programs (undergraduate, graduate)
- Number of P-12 students reached through Sea Grant-trained educators or directly through Sea Grant education programs
- Number of P-12 educators who participated in Sea Grant education programs
- Volunteer hours
- Number of Sea Grant-sponsored/organized events
- Attendees at Sea Grant-sponsored/organized events
- Number of public or professional presentations
- Number of attendees at public or professional presentations



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