



UNIVERSITY OF WISCONSIN SEA GRANT INSTITUTE



Request for Proposals

2022-24

PREPROPOSALS

An informational webinar for prospective investigators will be 3-4 p.m. CST on Friday, November 20, 2020*
In addition, an informational webinar for prospective investigators specifically interested in the joint call for proposals with Ohio and Minnesota will be 10-11 a.m. CST on Friday, November 20, 2020*

DUE DATE - Friday, January 15, 2021, 3 p.m. CST

SEE APPENDED GUIDELINES FOR PREPROPOSALS

FULL PROPOSALS

An informational webinar for prospective investigators will be from 3-4 p.m. CDT on Friday, March 19, 2021*

DUE DATE - Friday, April 30, 2021, 3 p.m. CDT

All Sea Grant project funds are awarded via a highly competitive process involving external peer reviews and the recommendations of external advisory panels.

Our next two-year grant period begins on FEBRUARY 1, 2022.

seagrants.wisc.edu/rfp

*Contact jennifer.hauxwell@aquatic.wisc.edu at least a day in advance for connection information for webinars.

To SUBSCRIBE to our RFP email list, send email to: rfp_aquatic+subscribe@g-groups.wisc.edu. You do not need to add a subject or message to the email but will need to respond to an automated reply to your request confirming that you would like to join.



2022-24 Request for Proposals

UNIVERSITY OF WISCONSIN SEA GRANT COLLEGE PROGRAM

OVERVIEW

The University of Wisconsin Sea Grant College Program is inviting research and education project proposals for the next two-year grant period that begins on February 1, 2022. Proposals must be led by an investigator who is a faculty member or person with principal investigator status at their institution in the University of Wisconsin System, or other Wisconsin college or university. The process involves two steps:

- 1) Prospective investigators submit a preproposal by **3 p.m. CST, Friday, January 15, 2021**. See appended [Guidelines for Preproposals](#).
- 2) Prospective investigators submit a full proposal by **3 p.m. CDT, Friday, April 30, 2021**.

To be eligible to submit a full proposal, applicants **MUST** submit a preproposal by the preproposal deadline.

All Sea Grant project funds are awarded via a highly competitive process involving external peer reviews and the recommendations of external technical and advisory panels.

HOW TO PROCEED

Please review the 1) [Program Description](#) (appended) for information about Wisconsin Sea Grant, including its mission, vision and values, and 2) [Research and Education Priorities](#) (appended) for a detailed description of research and education priorities listed below. For questions related to research proposals, please contact Jennifer Hauxwell (assistant director for research and student engagement, jennifer.hauxwell@aqu.wisc.edu, 608-263-4756). For questions related to education proposals, please contact Anne Moser (education coordinator, akmoser@aqu.wisc.edu, 608-262-3069). See more information at seagrant.wisc.edu/rfp.

Wisconsin Sea Grant solicits research proposals for up to \$100-120k/year¹ in the following areas:

Wisconsin Targeted Focus Areas, including:

- Justice, Equity, Diversity and Inclusion for Under-Represented Coastal Communities
- Emerging Contaminants

Wisconsin Base Focus Areas, including:

- Healthy Coastal Ecosystems

¹ All research proposals are for up to \$120k/year for Wisconsin researchers, except the Ohio-Wisconsin-Minnesota joint call at \$100k/year for Wisconsin researchers, \$100k/year for Ohio researchers and \$100k/year for Minnesota researchers.

- Sustainable Fisheries and Aquaculture
- Resilient Communities and Economies

Special Joint Call for Proposals with other state Sea Grant Programs, including:

- Ohio-Wisconsin-Minnesota Joint Call for Proposals with a focus on harmful and nuisance algal blooms

In addition, Wisconsin Sea Grant solicits education proposals for up to \$25k/year to address the following priority:

Environmental Literacy and Workforce Development (Non-research Education Projects)

We welcome original, innovative proposals on any targeted or base focus area or special call. We are especially interested in receiving proposals from new and/or underrepresented faculty and/or principal investigators. You are encouraged to visit the [Wisconsin Sea Grant website](#) and/or download a copy of our [2020-22 Directory of Projects and People](#) for an overview of the types of projects funded by our program.

Please note, we encourage proposals that:

- Support students in becoming strong scientists and provide opportunities to practice stakeholder engagement and actionable science.
- Engage stakeholders and end users throughout all phases of a research study, including the preproposal stage when defining the question to be addressed.
- Connect with our Sea Grant outreach and communications staff to increase relevance and exposure of the work to relevant audiences.
- Strive to promote the ideals of justice, equity, diversity and inclusion.

An informational webinar for prospective investigators will be 3-4 p.m. CST on Friday, November 20, 2020. In addition, an informational webinar for prospective investigators specifically interested in the joint call for proposals with Ohio and Minnesota will be 10-11 a.m. CST on Friday, November 20, 2020.

An informational webinar for prospective investigators interested in submitting full proposals will be provided on Friday, March 19, 2021, 3-4 p.m. CDT. Our staff will discuss the full proposal process and offer advice and options for incorporating outreach and education activities within research proposals.

For all webinars, contact jennifer.hauxwell@aquawisc.edu at least one day in advance for connection information. Recordings will be available at seagrant.wisc.edu/rfp.

Thank you for your interest. We look forward to learning more about your ideas for tackling our shared Great Lakes challenges!

James P. Hurley, Director

Guidelines for Preproposals

This information is intended for faculty members or persons having principal investigator status at their institution in the University of Wisconsin System or other Wisconsin colleges or universities. Investigators submitting to the Ohio-Wisconsin-Minnesota-Wisconsin joint competition should follow the guidelines listed near the [end of this document](#). Supporting information and resources are at seagrant.wisc.edu/rfp.

Investigators must submit preproposals via the UW Aquatic Sciences Center (administrative home of the University of Wisconsin Sea Grant College Program) online proposal submission system, [eDrop](https://edrop.aqua.wisc.edu/) (<https://edrop.aqua.wisc.edu/>), by 3 p.m. CST on Friday, January 15, 2021. Notification of preproposal status will be sent in late February 2021.

Evaluation criteria

Preproposals will be reviewed by panels of experts with input by Sea Grant staff and the Wisconsin Sea Grant Advisory Council. [Preproposals resulting from the joint call with other state Sea Grant programs will also be reviewed by their staff and advisors.]

Research review panel(s) will address the following questions when determining whether to encourage a full research proposal:

- What is the importance of the proposed project for Wisconsin and is it relevant to the priorities listed in the RFP?
- What is the scientific merit of the proposed project?
- What are the qualifications of the investigators?
- What are the likely outcomes or impacts (environmental, educational, social, economic, etc.) that could result from the proposed project? Are stakeholders and populations served by the project engaged in the process and potential outcomes associated with the proposed work?
- Does the budget estimate seem adequate, or too high/too low? Does the project seem to be a good value?
- [For proposals resulting from the joint call with other state programs, the panel will also consider the regional importance of the work, and how well the proposal is integrated, given researchers from different state programs.]

The education review panel will address the following questions when determining whether to encourage a full education proposal:

- Rationale and Methods: Is this a sound education project? Are the objectives and methods appropriate? Are the investigators qualified to execute the project/study?
- Meeting Wisconsin Sea Grant's Education Priorities: How well does the preproposal address at least one of the nine education priorities (numbers 42-50) identified in the Request for Proposals?
- Impact: Will this project make a significant impact on its target audiences? Are target audiences well defined? Is its scope appropriate? Have the investigators identified critical partnerships, especially ones that engage leaders of diverse community groups?
- Budget/Value: Does the budget estimate seem adequate or too high/too low? Does the project seem to be a good value?

Instructions for submitting a preproposal

Detailed instructions for submitting a preproposal are outlined below.

Applicants should contact Tom Xiong at tomxiong@aquawisc.edu with any difficulties associated with the proposal submission process using eDrop.

STEP 1

Go to seagrant.wisc.edu/rfp and download the Preproposal Description template and the CV template. These forms are needed for you to complete your preproposal.

STEP 2

Provide the required information in the Preproposal Description template, omitting the bracketed text. Once completed, save the document - you will use the information to copy and paste into various eDrop fields described in Step 6.

STEP 3

Provide the required information in the CV template by deleting the text within brackets and replacing it with investigator information. Rename file(s) using investigator name(s) in the following format: "Lastname_CV.doc" and convert to PDF(s) using the format "Lastname_CV.pdf". You are required to do this for the lead principal investigator listed on the preproposal and are encouraged to do this for all investigators. CVs for multiple investigators will result in separate PDF files. You will upload CV file(s) as described in Step 7.

STEP 4

Navigate to [eDrop \(https://edrop.aquawisc.edu/\)](https://edrop.aquawisc.edu/) and log in or register for a new account. Instructions on the site will assist you in entering your proposal package. Note to new users – the registration process involves a two-step verification, requiring you enter both an email address (step one) and phone number (step two) to receive two different verification codes that you must enter in order to complete the registration.

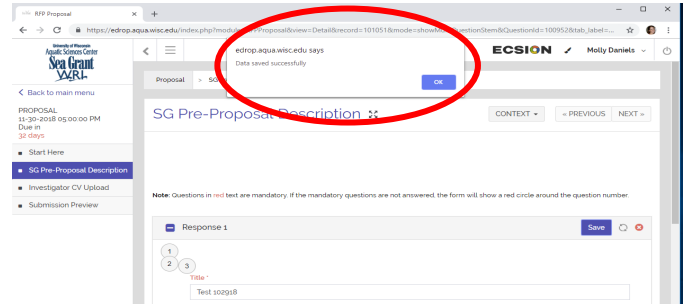
STEP 5

Once you are logged in, click on "Add Proposal" under Request for Proposals (Sea Grant 2022-24 Preproposal). Enter a title and click "Create New." If you are returning to edit your preproposal, simply click on the title you gave your submission. Click on "NEXT" in the top right to proceed to the next section.

STEP 6

Complete the SG Preproposal Description form in eDrop using the Preproposal Description template you saved in Step 2 by copying and pasting sections from your document into the corresponding form fields.

You do not need to upload your entire preproposal package in a single session; however, you must **click the “SAVE” button to avoid losing anything you enter AND as you navigate between pages in eDrop. Do not click the “NEXT” button until you have successfully saved your information. We encourage you to frequently SAVE your updates. If you exceed word limits, then SAVES will not be successful, and you can lose data. A successful SAVE is indicated by the prompt depicted here.**



Your account will remain active through the submission deadline, and you may edit each section until the submission deadline.

You will copy and paste information from your word processing file into form fields (text boxes) labeled:

Title

[Use uppercase only for the first word in the title and for proper nouns.]

Principal Investigator - Name, Affiliation (Department and Organization), Percent Effort Committed to Project, and Email Address

[For joint calls with other state programs, please provide a lead investigator for each state.]

Co-Principal Investigator(s) - Name(s), Affiliation(s) (Department and Organization), Percent Effort Committed to Project, and Email Address(es)

Associate Investigator(s) - Name(s), Affiliation(s) (Department and Organization), and Email Address(es)

Begin Date

[Projects will normally begin on February 1, 2020. It may be possible to begin a project on February 1, 2021.]

End Date

[Maximum project duration is two years.]

Name of Campus Administering Project

[For joint calls with other state programs, please provide the name of the campus in each state administering the project.]

Focus Area

[These areas are presented as a drop-down list in eDrop. Select one Wisconsin Targeted or Base Focus Area or Special Joint Call or Non-research Education Project from the dropdown menu.]

Specific Program Priority

[Include the priority or priorities as listed under “Priority research (or education) areas” within the appropriate Wisconsin Base Focus Areas or Non-research Education Projects. This should be left blank for Targeted or Special Joint Calls included in the RFP.]

Statement of Problem or Opportunity to be Addressed

[350-word limit.]

Overall Project Goal, Objectives and/or Hypotheses to be Tested

[350-word limit. For joint calls with other state programs, clearly indicate the portion of the project that is associated with each state investigative team.]

Approach

[350-word limit. For joint calls with other state programs, clearly indicate the portion of the project that is associated with each state investigative team.]

Potential Impacts

[350-word limit. What are the likely outcomes or impacts (environmental, educational, social, economic, etc.) that could result from the proposed project? Identify potential users of project results (e.g., specific businesses, industries, coastal communities, underrepresented communities, state and federal government agencies, etc.) and how they have been involved in defining the question and proposed approach. Are stakeholders and populations served by the project engaged in the process and potential outcomes associated with the proposed work?]

Approximate Year 1 Budget Request

[Projects will normally begin on February 1, 2022 or 2023. Though funding is on a year-by-year basis, project preproposals should be written to cover the entire period of time necessary to fulfill the proposed objectives. Projects may have durations of one year to a maximum of two years.]

Approximate Year 2 Budget Request

Budget Justification

[Submitted budgets are to include lump sums as well as an estimated breakdown of costs across these categories: a) salaries; b) fringe benefits; c). equipment; d) supplies; e) field travel; f) publications; g) other costs to include printing, mailing and workshops, contracts/subawards and shiptime; and h) indirect costs. Contracts and subawards must be managed at the institution of the primary principal investigator. Sea Grant does not cover costs associated with conference travel. For joint proposals with Ohio-Wisconsin-Minnesota Sea Grant programs, please clearly indicate the portion of the budget associated with Wisconsin investigators and the portion associated with investigators from other states.

Research proposal budgets for funding by UW Sea Grant are limited to:

- Targeted and base Wisconsin focus areas - \$120,000/year
- Joint Ohio-Wisconsin-Minnesota - \$100,000/year for Wisconsin portion, \$100,000/year for Minnesota portion, \$100,000/year for Ohio portion (with match requirement for Minnesota and Ohio investigators – see details in RFP)

Education (non-research) proposals are limited to \$25,000/year.]

When you are satisfied with the information you have entered in the eDrop Preproposal Description form, click the “SAVE” button and click “Mark as complete.”

STEP 7

Navigate to the investigator CV upload page. Upload the PDF version(s) of your CV template(s). Be sure to click the “SAVE” button after you upload the PDF files and click “Mark as complete.”

STEP 8

When ready to submit, click on the “**SUBMIT**” button in the “Submission Preview” tab. Until you have clicked on the “SUBMIT” button you can log back in to eDrop and make changes to your preproposal. Note: Your preproposal is not officially submitted until you click on the “SUBMIT” button in the “Submission Preview” tab.

Program Description

INTRODUCTION

The physical properties of the Great Lakes parallel the enormity of responsibility Wisconsin Sea Grant undertakes with its efforts to foster conservation and health of the Great Lakes ecosystems and sustainable use of the lakes' resources through science and outreach as outlined in this 2018-23 strategic plan. Large; both are large.

Just as the lakes are impressive — 6 quadrillion gallons of water, 95% of the nation's supply of surface fresh water, according to the Great Lakes Information Network — so too is the task of ensuring that top-level actionable science is employed to safeguard and enhance the world's largest freshwater system, which supports a \$62 billion economy.

The lakes are a dominant part of the history and culture of this country and remain vital to the region's nearly 35 million binational and diverse people who call the 10,900-mile coastline home, as well as using them as the epicenter of their recreational pursuits and benefactor of their livelihood, including subsistence living for 35 federally recognized tribes living in the Midwest region. In fact, the region supports more than 1.5 million jobs in the shipping, mining, manufacturing, fishing, tourism and agricultural sectors — all driven by the bounty of inland seas. All of this takes place within a tapestry of diverse cultural and economic backgrounds, orientations, genders and races — Wisconsin Sea Grant strives to prove responsive and relevant to that diversity.

The essence of Wisconsin Sea Grant is vested in the concept of actionable science: science that 1) is conducted with the highest standards for quality and integrity, 2) is valued by and, is in fact, dependent upon a strong relationship with stakeholders, 3) is coupled with effective outreach, education and communication and 4) results in information or decision-support frameworks that can inform likely outcomes of various challenges or potential decisions.

ABOUT SEA GRANT

For more than 50 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. More than 375 Sea Grant outreach and education specialists share that research with businesses, educators, policymakers, diverse communities and their citizens to enhance the practical use and conservation of Great Lakes, ocean and coastal resources to create a sustainable economy and environment. More than 3,000 university scientists, outreach specialists, educators and students participate in the program each year.

Administered by the National Sea Grant Office of the National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce, Sea Grant's university-based programs are fundamental to the development of tomorrow's aquatic resources scientists and managers. Sea Grant thus provides integrated research, outreach and education programs that provide tangible benefits for ocean, coastal and Great Lakes environments and the communities they support.

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 and nation transitioning to a new era of sustainability and job creation, all while meeting the challenges born of a changing climate. Wisconsin has a strong K-12 public education system, as well as a wealth of institutions of higher learning — 33 public and private four-year colleges and 29 two- year colleges, including two tribal colleges. Included in that group is the University of Wisconsin-Madison, one of the top 10 research schools in the country. The school also holds, as a critical tenet, the Wisconsin Idea. The Wisconsin Idea is a public-service concept that the boundaries of the university extend to the boundaries of the state and beyond. This principle is also the heart of Wisconsin Sea Grant's efforts. Wisconsin Sea Grant, along with its complementary Wisconsin Water Resources Institute, is further well positioned to leverage the educational resources in the state through partnerships and collaborations, and research support.

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, aquaculture and fisheries management. As an objective, non-advocate source of science-based information, 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.

SEA GRANT MISSION, VISION AND VALUES – FROM DISCOVERY TO APPLICATION

Wisconsin Sea Grant undertakes all endeavors in pursuit of its mission to *promote the sustainable use of Great Lakes resources through research, education and outreach*. That is done to fulfill a vision of *thriving coastal ecosystems and communities* and drawing on the core values of *service, science-based discovery to application, and research and outreach that are academically grounded, collaborative, educational and visionary, while seeking and welcoming diverse perspectives*.

These concepts of mission, vision and values complement those of the National Sea Grant College Program. That program supports a future in which people live along the coasts in harmony with and in understanding of the environment and natural resources that attract and sustain them. This is a vision of a coastal America using natural resources in ways that capture the environmental, economic, social and recreational benefits they offer while preserving their quality and abundance for future generations. This vision reinforces what is articulated in NOAA's Next Generation Strategic Plan: "NOAA's mission of science, service, and stewardship is directed to a vision of the future where societies and their ecosystems are healthy and resilient in the face of sudden or prolonged change."

Both the National and Wisconsin Sea Grant College programs advance NOAA's mission "to understand and predict changes in Earth's environment and conserve and manage coastal and marine resources to meet our nation's economic, social and environmental needs."

These organizations support the integration of research with constituent engagement. They have been pioneers in the translation of research — from discovery to application — and going forward will continue to ensure objective, science-based information is disseminated to diverse audiences in ways that encourage actionable science.

STRATEGIC IMPLEMENTATION

Wisconsin Sea Grant's 2018-23 Strategic Plan is structured in accordance with the National Sea Grant College Program's 2018-21 Strategic Plan, which capitalizes on Sea Grant's unique capacities and strengths, and allows for flexibility and creativity on the part of state Sea Grant programs. Wisconsin Sea Grant embraces the challenges and opportunities inherent in identifying goals and outcomes and deploying strategies within four focus areas critical to a viable Wisconsin future — Healthy Coastal Ecosystems, Sustainable Fisheries and Aquaculture, Resilient Communities and Economies, and Environmental Literacy and Workforce Development.

In accordance with the National Sea Grant College Program, Wisconsin Sea Grant further commits to three principles in pursuit of coastal and freshwater conservation and use. These principles are:

- Cultivating partnerships
- Enhancing diversity and inclusion
- Expanding organizational excellence through trust and transparency

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, 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 richly informed by surveyed stakeholder input, along with numerous facilitated discussions with involved parties, and it benefitted from the advice of two statewide advisory bodies. The plan was updated in 2020 in response to public health guidelines to prevent the spread of COVID-19. This strategic plan is also, importantly, primed for review and any possible realignment so as to guarantee a precisely calibrated response to evolving Wisconsin needs and priorities. This strategic plan, along with any potential tailored and modified plans going forward, will employ rigorous and thoughtful strategies in pursuit of mission, vision and core values as outlined in the pages to follow. Evaluation and accountability are central to any program's credibility and success. To that end, there are two appendices to this plan that include Wisconsin Sea Grant 2018-23-performance measures and milestones.

Research and Education Priorities

On the following pages, we describe the Wisconsin targeted and base research focus areas and education priorities as well as our special joint calls for research proposals with other state Sea Grant programs.

Wisconsin Sea Grant strongly encourages proposals that:

- Support students in becoming strong scientists and provide opportunities to practice stakeholder engagement and actionable science.
- Engage stakeholders and end users throughout all phases of a research study, including the preproposal stage when defining the question to be addressed.
- Connect with our Sea Grant outreach and communications staff to increase relevance and exposure of the work to relevant audiences.
- Strive to promote the ideals of justice, equity, diversity and inclusion. For example, Wisconsin Sea Grant encourages applicants to recruit and engage with students and fellows from underrepresented racial and ethnic groups, individuals with disabilities and individuals from economically or educationally disadvantaged backgrounds that have inhibited their ability to pursue a career in STEM and encourages applicants to clearly identify how this research will have broader societal impacts on the coastal community including stakeholders from underrepresented or underserved communities.

Wisconsin Sea Grant solicits research proposals for up to \$100-120k/year² in the following areas:

Wisconsin Targeted Focus Areas, including:

- Justice, Equity, Diversity and Inclusion for Underrepresented Coastal Communities
- Emerging Contaminants

Wisconsin Base Focus Areas, including:

- Healthy Coastal Ecosystems
- Sustainable Fisheries and Aquaculture
- Resilient Communities and Economies

Special Joint Call for Proposal with other state Sea Grant Programs, including:

- Ohio-Wisconsin-Minnesota Joint Call for Proposals with a focus on harmful and nuisance algal blooms

In addition, Wisconsin Sea Grant solicits education proposals for up to \$25k/year to address the following priority:

Environmental Literacy and Workforce Development (Non-research Education Projects)

² All research proposals are for up to \$120k/year for Wisconsin researchers, except the Ohio-Wisconsin-Minnesota joint call at \$100k/year for Wisconsin researchers, \$100k/year for Ohio researchers, and \$100k/year for Minnesota researchers.

Wisconsin Targeted Focus Areas

Wisconsin Sea Grant solicits proposals that address the following targeted focus areas for up to \$120k/year.

Priority research areas include:

1) Justice, Equity, Diversity and Inclusion for Underrepresented Coastal Communities

In order for Wisconsin Sea Grant to meet its vision of having thriving coastal ecosystems and communities, it is imperative to engage and address the specific needs of underserved and underrepresented groups. According to Sea Grant, “Underserved communities are those that have experienced low levels of access to our programming, while underrepresented communities refer to persons for whom representation in our programs is smaller than that of the general population.” Furthermore, it is important to recognize the barriers that prevent marginalized communities from safely and equitably accessing, enjoying and benefiting from Great Lakes coastal communities, resources and projects. **In accordance with its key principle of “enhancing diversity and inclusion,” Wisconsin Sea Grant seeks proposals that aim to advance issues around environmental justice for the state’s underserved and underrepresented coastal communities.**

According to the U.S. Environmental Protection Agency, “[e]nvironmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin or income, with respect to the development, implementation, and enforcement of environmental laws, regulations and policies” and “...will be achieved when everyone enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn and work.”³

Ensuring that new research projects not only acknowledge but also directly address and mitigate the ways in which environmental issues may disproportionately affect communities of color (e.g., African American/Black, Hispanic/Latinx, Native American/First Nations) and/or economically disadvantaged communities is essential. Furthermore, individuals from these communities must be meaningfully engaged in the projects that are intended to serve them.

Potential project topics include, but are not limited to public access to coastal resources, water safety, water quality, emergency preparedness, food security in the context of fisheries and aquaculture, workforce development, disparate impacts from climate change such as flooding, etc. Preference will be given to proposals that can also help inform Wisconsin Sea Grant’s outreach and education activities around issues of justice, diversity, equity and inclusion.

2) Emerging Contaminants

The scientific and regulatory communities are continually recognizing and adapting to environmental and health impacts of technologies, products and processes. As new technologies and products are developed for commercial and consumer use, analysis for understanding and managing the human health and environmental impacts must also evolve.

³ <https://www.epa.gov/environmentaljustice>

A wide range of products utilize per- and polyfluoroalkyl substances (PFAS), which have only recently been identified as substances with potential adverse human effects. Products containing PFAS include water-repellent or temperature-resistant textiles and cookware, fire-fighting foams and paper products. PFAS, a complex family of over 3,000 synthesized fluorinated organic chemicals, have been produced for half a century; while only in the last few years has the scientific community begun to discover their effects. Manufacturers have developed many alternatives to commonly used PFAS, but it is yet unknown whether these alternatives are more or less hazardous than the “long-chain predecessors.” The U.S. EPA, which was first alerted to PFAS in drinking water in 2001, and its collaborators have been identifying PFAS contamination sites in addition to establishing safe levels of PFAS in drinking water. However, more research is needed identifying sites and establishing safe levels. Both PFAS and their alternatives have already been found in several Wisconsin waterways, yet little is known about other potential areas such as private wells, smaller water districts and other sources of drinking water. In particular, Wisconsin Sea Grant is interested in Great Lakes-connected proposals that improve knowledge related to sampling, detection, analysis and cycling in the environment.

Microplastics are also flagged as prolific environmental pollutants. Products containing microplastics include personal care products, paints, detergents and textiles, and routine washing of synthetic fabrics introduces microfibers to local waterways. Larger types of debris like plastic bags, containers and plastic-containing trash break down into microplastics. Plastics can be found in waterways ranging from nano to micro to macro sizes. Research and collaboration are needed to explore exposure and risks for biota and people, fate and transport in the environment, and to characterize effects of microplastics in organisms and systems to understand the environmental and socioeconomic impacts. In addition, there is a need for standardizing national/multi-national microplastics sampling protocols to allow for comparisons temporally and spatially and to identify areas of concern.

Wisconsin Sea Grant seeks proposals developing or improving methodologies, standards of procedures, models or management plans, inventorying sources, transport, fate and distribution of emerging contaminants in the Great Lakes ecosystems, conducting intensive analyses in Areas of Concern or Species of Concern, examining the interactions with fish populations and impacts on food webs, exploring human health impacts, and supporting and improving testing capacity within the state.

Wisconsin Base Focus Areas

Wisconsin Sea Grant solicits research proposals that address the following base focus areas and their associated research priorities for up to \$120k/year.

1) Focus Area: Healthy Coastal Ecosystems

Wisconsin has more than 800 miles of shoreline adjoining the vast ecosystems of Lake Michigan and Lake Superior, including coastal, nearshore and deep-water environments. In Wisconsin, healthy coastal ecosystems, sustained by their surrounding watersheds, are the foundation of life along the coast.

Ecosystem health and associated ecosystem services⁴ can directly and indirectly affect both human health and socioeconomics at both individual and community scales. Maintaining the health of coastal ecosystems is a challenge because of the diversity of stressors involved as well as the temporal and spatial scales at which systems can be affected. Responsible management of these systems requires a comprehensive way of thinking and acting, often termed ecosystem-based management⁵. Ecosystem-based approaches require coordination among federal, state and local jurisdictions and the active engagement of the people who live, work and play along the coasts. They also require understanding of the characteristics of species, landscapes and their interactions within each ecosystem.

In general, increasingly rapid coastal development, a changing climate, greater demands on fisheries resources and other human activities have led to water-quality degradation, increased demands on water supplies, changes to fisheries stocks, wetlands loss, proliferation of aquatic invasive species and a host of other environmental, health and socioeconomic impacts. It is essential for decision-makers and Great Lakes coastal residents to understand the interconnectedness and interactions of these systems in order to maintain vital habitats and inform restoration efforts within ecosystems and watersheds. Additionally, the impacts and loss of ecosystem services from degraded ecosystems are more likely to be felt by marginalized communities.

The legacy of striving for healthy coastal ecosystems is a strong one for Wisconsin Sea Grant. A keystone effort was two decades of comprehensive, multidisciplinary research focused on Green Bay, Lake Michigan, making it one of the most rigorously studied estuarine systems of its size in the world. That baseline data has informed, for example, the U.S. Environmental Protection Agency's landmark national Green Bay PCB Mass Balance Study that for the first time developed an input-output model of all sources, movement and fates of a chemical contaminant in an aquatic system. That work was completed more than 20 years ago, and Wisconsin Sea Grant continues in a leadership role for the promotion of a healthy ecosystem within Green Bay and other Wisconsin Great Lakes sites.

⁴ Ecosystem services include provisioning (food and water), regulating (flood and disease control), cultural (spiritual, recreational and cultural benefits) and supporting (nutrient cycling).

⁵ Ecosystem-based management is an integrated approach to management that considers the entire ecosystem, including humans, and drives decisions at the ecosystem level to protect the resilience and ensure the health of the ocean, our coasts and the Great Lakes. It requires managing ecosystems as a whole instead of separately managing individual components or uses. This includes the application of technology to coastal resource management through synthesis, integration, training and the development of new management tools.

Priority research areas include:

1. Connecting natural sciences, social sciences and policy studies to support more holistic watershed management and restoration.
2. Understanding the environmental and socioeconomic effects of current and emerging challenges on Great Lakes ecosystem and human health, including, but not limited to, contaminants, aquatic invasive species, harmful algal blooms, bacterial outbreaks, physical processes, climate change, and changes to biodiversity and ecosystem structure. Specifically, work that better understands and prioritizes invasion pathways into the Great Lakes
3. Improving Great Lakes ecosystem health through innovations in measurement, predictive modeling and potential treatment or management approaches.
4. Developing tools and approaches for preserving and restoring Great Lakes ecosystems that can also be used for outreach to stakeholders.
5. Improving and enhancing stakeholder access to and understanding of socioeconomic and environmental data, models and policy information in Wisconsin and the Great Lakes region that support ecosystem-based planning, decision-making and management approaches.
6. Developing dynamic and interoperable information systems to support adaptive management of Great Lakes ecosystems.
7. Helping residents, resource managers, businesses, industries and the agricultural sector understand the effects of human activities and environmental changes on coastal resources.
8. Helping managers incorporate public input in natural resource decision-making processes. Specifically, gather information on how contaminants, aquatic invasive species, harmful algal blooms, bacterial outbreaks, physical processes, climate change, and changes to biodiversity and ecosystem structure are impacting diverse and marginalized communities.
9. Understanding aquatic invasive species ecology, socioeconomic impacts and management approaches. Specifically:
 - a. Innovative aquatic invasive species prevention methods
 - b. Tools and approaches that optimize invasive species prevention methods
 - c. Tools and approaches that better understand and can improve invasive species prevention actions by boaters in the absence of a watercraft inspector
10. Promoting and disseminating accessible outreach and education programs and events online to prevent the spread of COVID-19.

2) Focus Area: Sustainable Fisheries and Aquaculture ⁶

The nation has witnessed the decline of many of its major fisheries while seafood consumption has increased and continues to be encouraged because of health benefits. To address the disparity between seafood demand and domestic harvests, the U.S. imports 90% of what is consumed, leading to a seafood trade deficit of more than \$16 billion per year. With global wild fisheries harvests at a plateau of around 185 million tons, further increases in seafood production will have to come from aquaculture. Currently, more than 50% of seafood consumed globally is now produced from aquaculture. Since 2013, global seafood production has surpassed global beef production. Although there are no projected increases in wild-

⁶ We use a working definition of "seafood sustainability" that is based on the NOAA Fishwatch concept. Sustainability involves "meeting today's needs without compromising the ability of future generations to meet their needs. In terms of seafood, this means catching or farming seafood responsibly, with consideration for the long-term health of the environment and the livelihoods of the people who depend upon the environment."

capture fisheries, global aquaculture is predicted to increase by 33% over the next decade. These projections create opportunities for an expanded Great Lakes basin aquaculture industry and for innovative marketing strategies for the wild fisheries industry.

The overall economic impact of the commercial, recreational and for-hire fisheries and aquaculture industries in the Great Lakes region is \$7 billion annually. In Wisconsin, 1.4 million fishing licenses are issued each year, and anglers and the fishing industry deliver \$2.75 billion in economic impact and 30,000 jobs annually. There are 70 commercial fishers in Wisconsin who rely on fewer than 10 species and have a combined harvest of \$5 million annually.

Wisconsin's aquaculture industry contributes \$21 million in annual economic activity and more than 400 jobs to the state. There is definitely room for growth in food fish aquaculture — additional opportunities exist for job creation and meeting the demand for finfish. The Midwest consumes more than 1 billion pounds of seafood products per year but less than 4% comes from aquaculture operations in the region. There is also room for growth in diversifying the aquaculture industry. Currently, women and minorities make up a small portion of aquaculture professionals.

Wisconsin Sea Grant continues to play a leadership role in developing innovative technologies for all sectors of the seafood industry. In particular, the program has fostered the growth of peri-urban and urban aquaculture through research and outreach in the region's metropolitan areas. It has also capitalized on educating consumers interested in the buy-local movement. Wisconsin Sea Grant's partnership with NOAA, state and tribal fisheries managers, seafood processors, fishing associations, the aquaculture industry and consumer groups will ensure safe, secure and sustainable supplies of domestic seafood, decreasing a reliance on seafood imports now and into the future.

Priority research areas include:

11. Better understanding our 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.
12. Advancing an environmentally sustainable and robust recreational, commercial and subsistence Great Lakes fishery.
13. Understanding threats to Great Lakes fisheries, including, but not limited to, nutrient enrichment, invasive species, food web changes, contaminants, genetics and climate change as well as effective responses.
14. Understanding the impacts of food web change, climate and other stressors on early life history of valuable sport and commercial species and develop management actions to mitigate impacts.
15. Identifying and better understanding the barriers to expansion of the aquaculture industry in Wisconsin and implementing innovative partnerships to address scientific, business, economic, policy and legal challenges.
16. Identify and better understand the barriers to women and Black, Indigenous and people of color in joining the aquaculture profession.
17. Collaborating in identifying Great Lakes regional aquaculture opportunities and best-management practices along with sustainable production systems such as recirculating aquaculture systems (RAS).
18. Better understanding of the benefits and risks of consuming Wisconsin-produced 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.

19. Encouraging 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.
20. Developing and improving economically viable and environmentally sustainable aquaponic operations.
21. Developing and improving commercially viable and environmentally sustainable aquaculture practices and techniques (with emphasis on Atlantic salmon and walleye), including nutritional value of feeds, RAS-specific feeds, broodstock selection, water supply and quality, husbandry, and disease and pathogen prevention and diagnosis.
22. Developing environmentally and economically sustainable aquaculture through workforce development and trainings, K-12 education and technical assistance, including in underserved communities.
23. Supporting development of peri-urban and urban aquaculture in new markets and provide knowledge resources to existing operations.
24. Investigating emerging species and new technologies suitable for aquaculture in Wisconsin.
25. Promoting and disseminating accessible outreach and education programs and events online to prevent the spread of COVID-19.

3) Focus Area: Resilient Communities and Economies ⁷

Coastal communities provide crucial economic, subsistence, social and recreational opportunities for millions of people within the Great Lakes basin. A 2020 study completed by the University of Michigan reported that more than 1.3 million jobs, generating \$82 billion in wages are tied to the inland seas. The job breakdown is 823,725 in manufacturing; 240,864 in tourism; 153,060 in transportation; 133,352 in agriculture, fishing and food production; 26,326 in science and engineering; 10,803 in utilities; and 5,416 in mining. In Wisconsin, nearly 200,000 jobs can be linked to the Great Lakes. To accommodate more people and activity while balancing demands on coastal resources, Wisconsin must develop innovative policies, institutional capacities and management approaches to increase community resilience.

Wisconsin Sea Grant will continue to support cutting-edge research in the areas of marine-related energy sources, climate change, coastal processes, energy efficiency, preparedness, hazards mitigation, stormwater management and tourism. In Wisconsin, Sea Grant will engage diverse and shifting coastal populations, including underserved communities, in applying the best-available scientific knowledge to address increased resource demands and vulnerability. It is essential to recognize the barriers that prevent marginalized communities from accessing Great Lakes coastal ecosystems and work towards equitable coastal decision-making. Ultimately, Wisconsin Sea Grant will bring its unique research and engagement capabilities to support the development of resilient coastal communities – both human and natural – that sustain diverse and vibrant economies, effectively respond to and mitigate natural and technological hazards. and function within the limits of their ecosystems.

Priority research areas include:

26. Better understanding 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.

⁷ Resilience is determined by the degree to which a community is capable of organizing itself to increase its capacity for learning from past economic, natural or technological disasters.

27. Promoting the development and implementation of green infrastructure practices.
28. Developing and applying innovative geodesign methods to promote resilient coastal communities and understand the consequences of alternative development scenarios.
29. Working with management and regulatory agencies, tribal entities and vulnerable and at-risk communities to reduce vulnerability to fluctuating water levels, storm impacts and a changing climate.
30. Understanding the value of and opportunities for subsistence, tourism, and commercial and recreation-related activities in coastal communities.
31. Building collaborative and diverse networks to promote sustainable tourism and outdoor recreation.
32. Documenting and preserving cultural and historical resources in coastal and marine areas, including those within or adjacent to the proposed national marine sanctuary.
33. Developing or enhancing community planning and visualization tools that demonstrate the benefits, risks and impacts of land use on the coastal environment.
34. Evaluating the impacts of increased climate variability and change on coastal communities.
35. Assessing and sharing the impacts of human activities on Great Lakes water quality and supply, as well as coastal and nearshore habitats.
36. Protecting the supply and quality of fresh water using environmental and socioeconomic research approaches.
37. Documenting the socioeconomic contributions of water-dependent industries.
38. Promoting research and outreach for sustainable and resilient ports, harbors and marinas, including beneficial use of dredged materials and science-based decision-making related to the timing of dredging to minimize impacts on critical fish spawning habitat.
39. Supporting research and outreach 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.
40. Working with organism in trade industries to identify non-invasive alternatives to commonly sought NR40-prohibited species.
41. Promoting and disseminating accessible outreach and education programs and events online to prevent the spread of COVID-19.

Environmental Literacy and Workforce Development

An environmentally literate person is someone who has a fundamental understanding of the systems of the natural world and the relationships and interactions between the living and non-living environment, and the ability to understand and use scientific evidence to make informed decisions regarding environmental issues. Moreover, a Great Lakes-literate person understands the essential principles and fundamental concepts about the characteristics, functioning and value of the Great Lakes; can communicate accurately about the Great Lakes' influence on systems and people in and beyond their watershed; and is able to make informed and responsible decisions regarding Great Lakes and watershed resources. Wisconsin Sea Grant advances these literacy principles (as described within the Great Lakes Literacy Principles document - see <https://www.cgll.org/for-educators/great-lakes-literacy-principles/>) in formal and informal learning environments throughout the state to produce a diverse and skilled workforce that is engaged and able to address critical Great Lakes needs.

Geographically, Wisconsin is situated in the nation's heartland with its shifting economy — from traditional manufacturing sectors to a diversified economy — opening doors to new career fields. Technology and jobs resulting from the freshwater resources of the state provide a solid platform for potential economic and personal professional growth, whether in blue-collar or white-collar professions.

Wisconsin's education and workforce development efforts build on the rich educational tradition in the state — historically strong high school graduation rates and top-ranked K-12 schools, as well as a vibrant network of higher learning and vocational-technical institutions serving communities from across the state. However, it is essential to also acknowledge educational opportunities do not reach all marginalized groups in Wisconsin and that educational disparities exist. Wisconsin Sea Grant recognizes it cannot independently solve the issue of inequity in education, so the goal is to infuse work with multicultural perspectives and approaches.

Standardized test results are one tool to measure knowledge. Wisconsin leads the nation with the widest academic disparities between Black and white students when measured by standardized test results. It is important to recognize that standardized test results are not the sole or the predominant mechanism for assessing environmental literacy. Furthermore, the notion of academic disparities is problematic in that it presumes one type of knowing — knowledge of abstract items, from words to equations, which typically form the basis of standardized tests — is more important than other forms of knowing. Wisconsin Sea Grant continues to reflect on mechanisms to incorporate diverse cultural heritages, traditional ecological knowledge and scientific research into environmental literacy and workforce development work. The questions Ibram X. Kendi (2016) asks provide guideposts for the program's environmental literacy and workforce development initiatives:

- “What if we measured literacy by how knowledgeable individuals are about their own environment;
- What if we measured intellect by an individual's desire to know?
- What if we measured intellect by how open an individual's mind is to self-critique and new ideas?
- What if our educational system focused on opening minds?”

Wisconsin Sea Grant, and its many partners, understand it has a unique opportunity to incorporate multicultural perspectives and approaches into educational and workforce development programming. The goal is to provide equitable environmental literacy education and workforce development opportunities to the diverse communities that call Wisconsin home.

Wisconsin Sea Grant solicits non-research education proposals for up to \$25,000 per year to address one or more of the following education priorities. As a reference, NOAA's Designing Education Projects ([http://www.noaa.gov/sites/default/files/atoms/files/DEP Manual_2ndEdt_Final.pdf](http://www.noaa.gov/sites/default/files/atoms/files/DEP_Manual_2ndEdt_Final.pdf)) provides a useful framework based on needs assessment and project planning, implementation and evaluation.

Priority education areas include:

42. Ensuring multicultural perspectives and approaches to Great Lakes education and workforce development by engaging with leaders of diverse community partners.
43. Developing pre-K-12 resources that address the Great Lakes literacy principles and support state and national educational standards.
44. Providing financial support for education projects that incorporate multicultural perspectives and approaches, innovative technologies or practices that enhance Great Lakes education.
45. Supporting a graduate student and post-graduate fellows program to provide emerging professionals with opportunities to practice stakeholder engagement and actionable science and to connect them with the full range of Sea Grant activities and Great Lakes-related employment opportunities.
46. Supporting research projects that engage and train graduate and undergraduate students and lifelong learners about Great Lakes and marine resources.
47. Promoting the intersection of the arts, sciences and humanities to inspire a science-informed society.
48. Promoting place-based learning as a way to engage communities in local stewardship and commitment to preserving and protecting the environment.
49. Identifying, promoting and exposing students, working professionals and the unemployed to Great Lakes-related career pathways to build a diverse and skilled Wisconsin workforce.
50. Promoting and disseminating accessible outreach and education programs and events online to prevent the spread of COVID-19.

Special Joint Request for Proposals Ohio, Minnesota and Wisconsin Sea Grant Programs

Factors Contributing to and Nutrient Source Identification of Harmful and Nuisance Algal Blooms

Harmful algal blooms have been problematic in Lake Erie and portions of Lake Michigan for decades. Recently algal blooms have emerged as a concern in Lake Superior as well. Algal blooms can reduce tourism income and overall quality of life near the shore, and algal toxins can disrupt water supplies and cause skin rashes, gastrointestinal symptoms, and liver and nervous system damage. **Ohio, Minnesota and Wisconsin Sea Grant programs are teaming up to launch a joint solicitation for research to advance our understanding of factors leading to the genesis of harmful and nuisance algae blooms, including nutrient source identification using innovative tools.**

Research is to be conducted in the 2022–24 biennium. Up to \$100,000 per year for two years will be available for funding each of the Ohio, Minnesota and Wisconsin portions of a joint research project (this is to include the cost of graduate students) for a grant total of up to \$300,000 per year. Ohio-based partners must demonstrate a 50 percent match (1 non-federal dollar for every 2 dollars requested). Minnesota-based partners must demonstrate a 30 percent match and should contact Minnesota Sea Grant for budget calculation assistance prior to submission. Match is not required for Wisconsin partners. By partnering, these three Great Lakes Sea Grant programs can support broader-scale projects to tackle challenges at a regional scale. In addition, generating collaborations across state lines can enrich the expertise of our in-state research teams. Each preproposal should describe a single project with researchers participating and collaborating from each of the three states.

Preference will be given to proposals that leverage research strengths across the states to employ multidisciplinary or complementary approaches. Given our wish to support collaborative research teams, the Sea Grant programs are interested in promoting conversations among researchers. If you have interest in this topic and/or skills that would be relevant to a research team, but you are not sure how to connect with researchers in other states, contact Jennifer Hauxwell (info below) to add your name and receive a link to a Google doc listing researchers who may be interested in partnering. Listing your information in this Google doc is not a requirement for submission to this RFP and simply serves to help researchers find relevant partners in other states.

The ultimate intent of this call for proposals is to provide stakeholders with information and choices to reduce the frequency and intensity of harmful and nuisance algal blooms. Given this, the potential for applied impact of the proposed work will be evaluated at the preproposal stage. Preproposals should clearly identify both the expected communication method as well as at least one stakeholder group with whom researchers will engage. For example, preproposals could identify at least one Great Lakes coastal community or management agency in each state as the intended audience or could propose web-based communication to reach the whole basin. Applicants are encouraged to think creatively about the most appropriate engagement method for their work and to discuss outreach ideas with Sea Grant extension educators in their respective Sea Grant programs.

A research review panel, assembled and attended by representatives of all three state programs, will address the following questions when determining whether to encourage a full proposal:

- How well does the proposed project advance our understanding of factors leading to the genesis of harmful and nuisance algae blooms, including nutrient source identification using innovative tools?
- What is the importance of the proposed project for the region and to what extent is the proposed project relevant to all of lakes Erie, Michigan and Superior?
- What is the scientific merit of the proposed project?
- What are the qualifications of the investigators?
- What are the likely outcomes or impacts (environmental, educational, social, economic, etc.) that could result from the proposed project?
- How deeply are stakeholders engaged in the process and potential outcomes associated with the proposed work?
- Does the budget estimate seem adequate, or too high/too low? Does the project seem to be a good value?
- How well integrated is the project, given researchers from different state programs?

Investigators from the three state programs should prepare **one preproposal document** to submit to Wisconsin Sea Grant as described [in the Guidelines for Preproposals](#). In this preproposal document, clearly indicate the portion of the project and budget that is associated with each state investigative team. **The deadline for preproposals is Friday, January 15, 2021, 3 p.m. CST (4 p.m. EST).** Applicants will receive feedback on their preproposals by the end of February 2021. Full proposal guidance will also be provided at this time. The deadline for full proposals is Friday, April 30, 2021, 3 p.m. CDT (4 p.m. EDT). To be eligible to submit a full proposal, applicants **MUST** submit a preproposal by the preproposal deadline.

An informational webinar for prospective investigators specifically interested in the joint call for proposals with Ohio and Minnesota Sea Grant programs will be 10-11 a.m. CST on Friday, November 20, 2020 – contact jennifer.hauxwell@aquawisc.edu at least a day in advance for connection information.

For more information:

- Wisconsin Sea Grant: Jennifer Hauxwell (jennifer.hauxwell@aquawisc.edu)
- Ohio Sea Grant: Kristen DeVanna Fussell (fussell.10@osu.edu)
- Minnesota Sea Grant: Valerie Brady (vbrady@d.umn.edu)