Minnesota Sea Grant

Request for Preliminary Proposals for Research Spanning 2016 to 2018

The University of Minnesota Sea Grant College Program is soliciting preliminary proposals for projects to begin after February 1, 2016. Projects will be funded for up to two years. U.S. residents who are not federal employees are eligible to apply.

**Deadlines**

**Preproposal due by 5:00 p.m., January 30, 2015**

Submit a 2-page preproposal by email to both vbrady@umn.edu and seagr@d.umn.edu.

Expect confirmation that the preproposal was received by the end of the next business day (if you do not receive confirmation, contact us). Preproposals will be evaluated and recommendations provided to principal investigators by Feb. 16, 2015. On Thursday Jan. 8 at 2 p.m. we will host informational meetings and Q&A sessions at UMD and UMTC geared toward first-time applicants; please watch our webpage for details.

**Full proposal due by 5:00 p.m., March 27, 2015**

Preparation guidelines and forms for full proposals will be posted to the Minnesota Sea Grant website www.seagrant.umn.edu/projects/rfp AFTER the preproposal submission deadline has passed to avoid confusion.

**Preproposal due by 5 p.m., Jan. 30, 2015**

**Full Proposal due by 5 p.m., March 27, 2015**

Projects will be funded for up to two years and include one or all of the following:

- research costs (typically $40,000 - $55,000/year for direct costs)
- a research assistant (~$50,000; covers salary, fringe benefits and tuition, 50% appointment, 12 months/year)
- research vessel rental fees (e.g., LLO’s *Blue Heron*)

The total value of funded projects can be over $100,000 per year.

**2016 - 2018 Research Priorities**

Research priorities for this request match our national and state strategic plans. We are particularly interested in receiving proposals on social and economic research on human community services and benefits from Minnesota’s aquatic resources, and on the sustainability of coastal ecosystems. A goal of Minnesota Sea Grant is to address resource management issues with multidisciplinary, integrated solutions based on science, and with respect to economic, societal, and political concerns.

For more information, contact Valerie Brady, Minnesota Sea Grant Research Coordinator: 218-726-8714 or e-mail vbrady@umn.edu.
Minnesota Sea Grant Focus Areas

The topics and goals below are from our new four-year strategic plan. Specific objectives and desired outcomes are listed in the plan and may inspire additional research ideas. Researchers are encouraged to review focus area outcomes starting on page 13 of the plan and to contact Sea Grant staff for feedback on research ideas. In the tables below we included “of specific interest” subjects suggested by our Advisory Committee and staff, but proposals are not limited to these subjects.

Healthy Coastal Ecosystems

Objective: To create, generate, and disseminate scientific information supporting ecosystem-based approaches to managing the coastal environment in Minnesota.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Goal</th>
<th>Of Specific Interest</th>
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<tbody>
<tr>
<td>Ecosystem Services</td>
<td>Ecosystem services are improved by enhanced health, diversity and abundance of fish, wildlife and plants.</td>
<td>Uncertainties that impede progress toward achieving sustainable ecosystems and the goods and services they provide to people.</td>
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<tr>
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<td>How sediment in the St. Louis River Estuary affects wild rice beds, shipping and dredging, plant and fish habitats, and Lake Superior water quality.</td>
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<td>Effects of aquatic invasive species on ecosystem services and biophysical processes in Lake Superior and its tributaries.</td>
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<tr>
<td>Management</td>
<td>Ecosystem-based approaches are used to manage land, water, and living resources.</td>
<td>Studies of wild rice: how groundwater might maintain stands in high-sulfate areas; seed viability in sediment and influencing factors.</td>
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<td>A social and ecological assessment of the effectiveness of efforts to prevent the spread of AIS.</td>
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<tr>
<td>Sustainability</td>
<td>Habitats and their ecosystems are protected, enhanced or restored.</td>
<td>The social and economic value of restored land and water, and the way that value can be leveraged.</td>
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<td>A cost-analysis of restoring an aquatic ecosystem versus protecting/conserving/not-degrading it.</td>
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<td>Rehabilitating mined areas, mining wastes, and mining wastewater in a cost-effective, environmentally sensitive manner.</td>
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<tr>
<td>Information Gaps</td>
<td>Identify gaps in knowledge and provide data to improve our ability to target restoration efforts and to predict success of proposed restorations.</td>
<td>As ecosystems such as the St. Louis River Estuary are restored, how can working coastal communities prevent a return to degraded conditions?</td>
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<td>Identify and assess emerging threats to the biotic integrity of Lake Superior.</td>
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Outreach Contacts: Cindy Hagley 218-726-8713 chagley@umn.edu
                        Doug Jensen    218-726-8712 djensen1@umn.edu
Objective: To assist in generating a sustainable supply of safe foods and other products from aquatic environs (both wild and domestic) for commercial harvest, aquaculture, and recreational fisheries.

### Sustainable Harvests
- **Topic Goal Of Specific Interest**
  - **A safe, secure, and sustainable supply of seafood to meet public demand.**
    - Updated and localized economic estimates of Lake Superior and St. Louis River Estuary fisheries values.
    - Lake Sturgeon behavior and movement studies.
    - Evaluate/model the sustainability of the Lake Superior Cisco fishery including their home ranges.
    - Evaluate the risk to wild fish populations, farm raised fish, and human health from emerging fish viruses.
    - Determine the economic viability of harvesting Siscowet Lake Trout for fish oil and meal.

### Safe Consumption
- **Informed consumers who understand the health benefits of seafood consumption and how to evaluate the safety and sustainability of the seafood they buy.**
- Identify the Minnesotans who are consuming the most native fish from Lake Superior and the St. Louis River and determine if there is a pattern to the consumption rates. Relate this to human health via contaminant exposure, and evaluate the importance of fish as a protein source for various human populations.

### Environmental Stressors
- **Improve understanding of how climate change will alter fish species composition and productivity in Lake Superior and inland waters.**
- Reasons why Lake Superior fish have become leaner than they were in the past and what this implies for deepwater species behavior and ecology.
- Improved invasive species barriers and control (e.g., Sea Lamprey, carps, gobies, etc.).

### Aquaculture
- **Economically viable and environmentally safe aquaculture contributes food and fish for stocking, baitfish, and ornamental fish.**
- Research to help develop innovative and environmentally safe and sustainable baitfish aquaculture systems for Minnesota.
- Research on how wild bait can be made invasive-free and/or farmed bait certified as invasive/pathogen free.
- Technology to improve economic viability of food fish aquaculture.
## Resilient Communities and Economies

### Outreach Contacts:

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone</th>
<th>Email</th>
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</thead>
<tbody>
<tr>
<td>Dale Bergeron</td>
<td>218-726-7672</td>
<td><a href="mailto:dbergero@umn.edu">dbergero@umn.edu</a></td>
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<td>John Bilotta</td>
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<td>Hilarie Sorensen</td>
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<td>Jesse Schomberg</td>
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### Objective:

To foster sustainable, resilient, and thriving coastal communities that successfully balance economic development and environmental protection while preparing for threats and hazards.

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<tbody>
<tr>
<td>Sustainable Economies</td>
<td>Development of vibrant, resilient, and sustainable coastal economies.</td>
<td>Indicators of human and ecological well-being in an ecosystem-services framework lead to an annual report template.</td>
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<td>The environmental, economic, and social costs and benefits surrounding open-lake disposal of dredge material.</td>
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<td>Ensuring that dredge material is safe and suitable for mineland reclamation.</td>
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<tr>
<td>Planning and Management</td>
<td>Communities use comprehensive planning to make informed strategic decisions that move systems toward resiliency from extreme events as well as long-term trends.</td>
<td>Forecasts of Great Lakes water levels under various climate-change scenarios.</td>
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<td>Metrics to evaluate the effectiveness of the new Lake Superior Regulation Plan (water levels) in responding to climate conditions and protecting and preserving coastal ecosystems.</td>
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<td>Economic impacts of climate change on communities: impacts on existing coastal industries, options for resiliency, and new economic opportunities.</td>
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<tr>
<td>Sustainable Communities</td>
<td>Improvements in coastal water resources sustain human health and ecosystem services.</td>
<td>Microplastics: relative risk compared to other environmental problems in Lake Superior and the Great Lakes; the rate contaminants sorb to microplastics; food web implications and issues.</td>
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<td>Document and quantify the social and economic benefits resulting from the improvement in St. Louis River and estuary water quality since the 1970’s.</td>
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<tr>
<td>Hazards Preparedness</td>
<td>Resilient coastal communities manage and adapt to the impacts of hazards and climate change.</td>
<td>Environmental, economic, and social implications of crude oil transport on/near the Great Lakes.</td>
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<td>Hazard preparedness for oil spills associated with the movement of crude oil along the coast or by ship.</td>
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<td>Risk analysis of road salt and sand (de-icing products); sociological aspects of drivers’ attitudes and behaviors relative to winter driving.</td>
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Developing a Preproposal

Financial Request

Research project awards typically range from $40,000 to $55,000 in direct costs per year. Additionally we will pay for the cost of a graduate student (~$50,000, which includes salary, fringe benefits and tuition) and for research vessel rental fees. Proposals requesting larger or smaller amounts will be considered. Evidence of matching funds up to 30% of the research project direct costs is requested (contact us if this will cause extreme hardship). Do not include the costs of the graduate student or ship time when calculating the value needed for match.

Preproposal Specifications

Length: two pages or less; “Title” through “Number of graduate students requested” should fit within about 0.5 page, leaving 1.5 pages for “Objectives” through “Collaborations.”

File type: MS Word (preferred) or PDF

Font: easy-to-read font (e.g., Times New Roman, Calibri, etc.), no smaller than 11 point

Margins: left margin 1-1/2 inches, all other margins at 1 inch

Filename: should follow the format: lastname_preproposal_2016.doc

The preproposal should contain the following sections, in this order:

• Title

• Lead investigator’s name, affiliation, address, phone number, and email address

• Names and affiliations of co-investigators

• Duration in months: Projects can start anytime between 1 Feb. and 1 June 2016, and must be 24 months or less in duration.

• Estimated total direct cost of research

• Estimated total indirect costs: Needed ONLY for work outside of the U of M system; contact Peter Thibault with questions: 218-726-6605, thiba025@d.umn.edu

• Estimated ship costs: When using the R/V Blue Heron: $4,625/24-hr day; $2,318 for a single 10-hr day. Ship costs are low because they are being matched 50% by the Large Lakes Observatory for MNSG grantees.

• Number of graduate students requested: We typically fund 1 student at 50% effort over 12 months for each of the 2 years. For our planning purposes, please provide us with the estimated hourly cost of your graduate student request, not including tuition or fringe.

• Objectives and hypotheses

• Approach

• Rationale

• Expected results

• Outreach: Identify the audience who will need to know and use your research results; identify methods to reach this audience; identify the Sea Grant extension educator you will work with to develop your outreach plan for your full proposal. This component should have monetary support in your budget.

• Economic benefits: Briefly describe how your proposed research could provide economic benefits now or in the future for communities or user groups in Minnesota.

• Collaborations: List likely collaborators, such as other universities, state or tribal agencies, industries, etc. Cooperative research is viewed favorably.
The Review Process

Minnesota Sea Grant has a four-part review procedure for research proposals.

1) Preproposals are reviewed for consistency with our RFP and mission. If not consistent, researchers will be informed that chances of securing funding with a full proposal are low, but they may still submit a full proposal. All those submitting preproposals are eligible to submit full proposals.

2) After a researcher submits a full proposal, three peer-reviewers from outside Minnesota (sometimes from outside the U.S.) will review it for scientific merit. Every effort is made to match proposals with reviewers of the appropriate expertise.

3) Reviews and proposals are read by a Minnesota Sea Grant Technical Review Panel. Panel members are ad hoc and from outside Minnesota (sometimes they are from outside the Great Lakes area). Panel members will rank the proposals according to scientific merit and consistency with Minnesota Sea Grant’s mission.

4) Proposals ranked as scientifically sound by the Technical Review Panel are forwarded to our Advisory Committee. They review the information with respect to relevancy to our program and clientele. Our committee membership reflects our constituencies. Sea Grant staff members will also review and rank proposals. Funding decisions incorporate reviews and rankings and are made by the director. Selected PIs can expect to hear from us in September 2015.

Minnesota Sea Grant in Context — Our Strategic Planning Framework

As part of the National Oceanic and Atmospheric Administration (NOAA) and NOAA Sea Grant, Minnesota Sea Grant’s overall structure and direction derives from the intent of the Sea Grant founding legislation calling for education, training, and research in all fields of marine study. The Minnesota Sea Grant Strategic Plan forms the basis for this RFP and was developed within the framework of NOAA’s and NOAA Sea Grant’s strategic plans, and with input from our Advisory Committee, staff, and partners.

Minnesota Sea Grant’s vision and mission statements are as follows:

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.
The Minnesota Sea Grant Approach

Lake Superior plays a leading role in defining solutions to the coastal problems of the 21st Century. As the cleanest, clearest, coldest, and least urbanized of the Great Lakes, Lake Superior is both unique and a reference for the Great Lakes region. Nevertheless, Lake Superior faces many of the same problems that affect other Great Lakes, inland lakes, and marine coastal areas, such as pressure from unplanned development, contaminants, excess nutrients and sediments, invasive species, diminishing economic viability for small coastal communities, declining water quality in estuarine areas, pressure on fishery resources, and coastal hazards. Lake Superior can be a testing ground for our scientific understanding of interdisciplinary problems, and can be a model for applying science to policy and management decisions.

Minnesota Sea Grant, the only Sea Grant program focused primarily on Lake Superior, seeks to maintain and enhance its coastal environment and coastal economy through high-quality research, education, and outreach. We support research that will lead to tools and technology for responsible management and policy decisions regarding Lake Superior and inland aquatic economies and resources. Although decisions about which research topics are most critical to pursue are driven by Great Lakes needs and concerns, the usefulness and relevancy of Minnesota Sea Grant research, education, and outreach typically go beyond the Great Lakes watershed. We encourage you to identify potential broader applications of your research and potential outreach that might arise from the results. We encourage research scientists from universities and colleges to partner with federal, state, and tribal agencies, the public and industry to understand the complex nature of the multidisciplinary problems facing us and to help develop innovative solutions.

Outreach Contact Information

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