

Joint Request for Proposals: Michigan, Illinois-Indiana and Wisconsin Sea Grant

Understanding and Communicating Coastal Hydrodynamics and Nearshore Sediment Transport Processes on Lake Michigan to Promote Resilient Coastal Communities

Property owners, communities, and coastal resource managers face significant challenges related to the management of the Lake Michigan shoreline. Concern is growing about the condition and integrity of Lake Michigan beaches and other coastal areas given recent extreme fluctuations in water levels and changing sediment supplies and movement. Decisions about shore protection are typically made by individual property owners who stay within the constraints of local and regional regulations, but may not give significant consideration to larger-scale ecological systems and hydrodynamic processes. Nonetheless, management decisions about shore protection and beach nourishment not only affect physico-chemical and ecological processes, but also have clear impacts on social and economic values across multiple scales.

While sediment budgets have been completed for a limited number of specific sites along the Lake Michigan shoreline, coastal sediment inventories are not readily available at broader scales. In addition, key knowledge and information gaps for the Lake Michigan coast include identifying locations and characteristics of coastal sediment resources, expanding and improving sediment budgets, and identifying approaches that would allow for more holistic management of Lake Michigan coastal sediments.

To address these gaps, specific needs include 1) inventories of coastal sediment budgets and hydrodynamic models of sediment transport, 2) identification of areas with high erosion potential, 3) identification of the primary sediment traps or diversions alongshore, and 4) assessment of the cumulative impacts of small-scale shore protection structures on the sustainability of beaches along the Great Lakes. There is also a need to 5) present information about coastal processes in a manner that can more effectively guide decision-making towards the aim of resilient communities and economies. In particular, it is crucial to encourage property owners and local officials to adopt shoreline management practices that can lead to an overall more resilient Lake Michigan coast. Integrating research about coastal processes with social science and policy or planning studies will promote an interdisciplinary approach that could be more effective in guiding decision-making about coastal resilience.

The Lake Michigan Sea Grant programs, including Wisconsin Sea Grant, Michigan Sea Grant, and Illinois-Indiana Sea Grant, seek integrated proposals to better understand coastal hydrodynamics and nearshore sediment transport processes on Lake Michigan, to help effectively communicate this information to promote sustainable shore protection, and to increase the integrity of beaches and stabilize bluffs. The result would be more resilient coastal communities and economies.

Research is to be conducted in the 2020–22 biennium. Up to \$100,000 per year for two years will be available for funding each of the Michigan, Wisconsin, and Illinois-Indiana portions of a joint research project (i.e., up to \$300,000 per year total). Michigan and Illinois- or Indiana-based partners must demonstrate a 50 percent match (1 non-federal dollar for every 2 dollars requested). Match is not required for Wisconsin partners. By partnering, the three Lake Michigan 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. Preproposals must demonstrate plans for collaboration between researchers from two (2) or three (3) of the state programs. The amount of funding available to the research team depends on the number and nature of collaborating partners; e.g., a researcher from Michigan and a researcher from Wisconsin could submit a proposal together for up to \$400,000; researchers from Michigan, Wisconsin, and Illinois could submit a proposal together for up to \$600,000.

Preference will be given to proposals that include collaborators from all three state programs and/or describe multidisciplinary approaches to the issue. This funding could support a variety of methods including, but not limited to, modeling efforts, GIS or remote sensing, field surveys, laboratory studies, social science assessment of attitudes and perceptions related to behavior change or adoption of new policies, or economic analyses. In addition, we are interested in supporting projects that use and test new technologies to assess and map sediment transport and deposition over time and space and refine methods for future assessments of coastal sediment dynamics in the Great Lakes and other systems. Given our desire for multidisciplinary approaches to this issue, the Lake Michigan Sea Grant programs are interested in promoting conversation between researchers. If you have interest in this topic and/or skills that would be relevant to a research team but you are not sure who to connect with in other states, contact Carolyn Foley (info below). She can provide a Google doc link that is a resource to connect researchers who may be interested in partnering. Listing your information in this Google doc is not a requirement for submission to this RFP. It simply serves to help researchers find relevant partners.

The intent of this call for proposals is to ultimately provide stakeholders with information and choices to promote sustainable shore protection and bluff stabilization. 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 they will engage. For example, proposals could identify at least one Lake Michigan coastal community in each state as the intended audience; proposals could consider web-based communication to reach out to the whole basin. Applicants are encouraged to think creatively about the most appropriate engagement method for their work.

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

- What is the importance of the proposed project for the region and is it relevant to the priorities listed above?
- 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 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 a good value?
- How well integrated is the project, given researchers from different state programs?

Investigators from different state programs should prepare one preproposal document to submit to Wisconsin Sea Grant using the submission guidelines here seagrant.wisc.edu/rfp (pages 4-7 in the “2020-22 Request for Proposals (PDF) including detailed 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 11, 2019, 3 p.m. CST (4 p.m. EST).** Applicants will receive feedback on their preproposals by the end of February 2019. Full proposal guidance will also be provided at this time. The deadline for full proposals is Friday, April 26, 2019, 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.

For more information:

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Illinois-Indiana Sea Grant: Carolyn Foley (cfoley@purdue.edu, 765-494-3601)