Overview of Opportunity
Michigan Sea Grant is soliciting pre-proposals for Integrated Assessment projects for up to two years at up to $75,000 per year. Pre-proposals are due at 5 pm (eastern) on Friday, February 18, 2011. Investigators invited to submit a full proposal will be notified no later than March 11 with full proposals due at 5 pm (eastern) on Friday, April 22, 2011.

Michigan Sea Grant supports research teams that follow an Integrated Assessment approach. The purpose is to develop information, tools and partnerships that will help decision makers better address a particularly challenging environmental issue.

Integrated Assessment Approach
The Integrated Assessment process brings together citizens, industry representatives, scientists, and policy makers to define and evaluate policy or management options related to particularly difficult – or wicked – environmental problems. Wicked problems are encountered where “facts are uncertain, values in conflict, stakes are high, decisions are urgent, and an extended peer community is required for the resolution of the relevant issues” (Gough et al. 1998).

Integrated Assessments summarize scientific knowledge to build consensus and guide decision making. These projects are assessments because they involve expert review and analysis of existing data and information, rather than additional experimentation. Projects integrate the needs of decision makers, the perspective of stakeholders and expertise from several disciplines, typically physical, biological and social sciences.

Each Integrated Assessment (IA) will follow a unique trajectory depending on the type and scope of the focal issue; however, most IA projects include the following elements.

1. Define and refine the policy-relevant question around which the assessment is to be performed. This often begins with identification of an issue by managers or policy makers that has defied typical and routine action. The focal IA question will need to be refined with stakeholder input.

2. Clarify the history, cause and consequences of the issue. Projects should help clarify aspects of the issue that are uncertain and are impeding action. A description of current conditions and historical trends can enhance understanding and provide a foundation for further analyses. To address the issue effectively, decision makers will need to better understand the probable causes and the environmental, social, and economic consequences of the issue.

3. Identify and evaluate potential options. Projects should identify potential options addressing the issue, including policies, management actions or new initiatives, that are politically, socially, and economically feasible. Integrated Assessments help stakeholders compare and evaluate a suite of options, rather than recommending a single approach.

4. Develop tools and information that can guide decision making and help implement potential options. If appropriate, researchers should provide an assessment of certainty levels associated with their findings to help policy makers interpret analyses or identify future research needs.

A key to the success of the IA approach is an inclusive stakeholder process that both enables the technical teams to learn from those most affected by the issue and provides useful and accessible information for the stakeholders to learn more about the issue(s) affecting them. It is important that the stakeholder group include all view points and is viewed by all participants as being convened/facilitated by a neutral party. If the issue is so contentious that it is impossible to provide a neutral assessment team, the team must be able to demonstrate that all sides of the issue are represented so that the process itself will be seen as fair.
Additional material on IA, including a guide to Integrated Assessment and example projects can be found at: 
http://www.miseagrant.umich.edu/research/integrated-assessment.html

**Eligibility Information**
Principal Investigators (PIs) will be eligible researchers at a university in Michigan. However, project teams are not limited to university researchers. Only those PIs who have submitted a pre-proposal are eligible to submit full proposals.

**Non-federal Match**
All proposals require a 50 percent non-federal match. At the pre-proposal stage PIs do not need to document from where they will receive the project match. Match must be documented at the full proposal stage. Those proposals that identify additional project support that provides real resources to the project will be more competitive.

**Application Submission Information**
Pre-proposals are due to Michigan Sea Grant on Friday, February at 18 p.m. (eastern); pre-proposals not received by the deadline will not be considered. PIs must submit their pre-proposal online at 
www.miseagrant.umich.edu/research/rfp where the pre-proposal can be uploaded as a PDF document.

**Pre-proposal Requirements:**

1) **Title Page**
   1. Project Title:
   2. Principal Investigator:
   3. Title / Position(s):
   4. Institution:
   5. Postal Mailing Address:
   6. E-Mail Address:
   7. Telephone Number(s):
   8. Co-Investigators and Institution:

2) **Pre-proposal Narrative** *(The narrative is limited to 4 pages, 12 pt font, 1-inch margins)*

**Problem/Issue Statement:** 1-2 paragraphs if you are proposing a topic not listed below. Otherwise, you can simply use the language provided below under 2011 Integrated Assessment Topics.

**Background:** Provide a brief description of the IA you are addressing, demonstrating awareness of the main issues and identifying potential stakeholders.
- Origin of the issue
- Why the issue is a complicated, wicked problem
- Who is or should be involved
- Briefly state project objectives as they would appear in a full proposal.
Geographic Focus: Identify the geographic scope of your project. Explain why your geographic scope is appropriate for best evaluating the focal issue.

Characterize the Solution Space: What are the potential options that could be considered, such as management actions, education/outreach programs, legislation, regulations, or other initiatives.

DRAFT IA Question: At this point, researchers can draw upon information provided under 2011 Integrated Assessment Topics, or the background they developed in defining their own topic area and develop a draft question using this pattern: What are the causes, consequences and correctives of <<natural resource problem>> in/at << geographic location >>?

Project Approach
You need not explain analytic methods in detail. Rather, provide an overview of how you intend to develop an Integrated Assessment so that reviewers can determine the appropriateness of the approach for achieving the stated objectives.

Project Team and Collaborators
Identify the project team and individual responsibilities in a table (see below). Beneath the project team, provide the names and affiliations of all persons and institutions that you intend to recruit as collaborators. Note that it is not necessary at this time to contact and/or secure a commitment from these individuals/organizations.

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<tr>
<th>Name</th>
<th>Organization/Institution</th>
<th>Role: Team Member, Collaborator or Other</th>
<th>Responsibilities</th>
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Data and Data Sets
Funds from Michigan Sea Grant should primarily support analysis and communication of existing data, rather than the collection of new field data. Stakeholder surveys, focus groups, observations and interviews are permitted if used to support the goals of the Integrated Assessment process. Please identify any existing data sets that you plan to use, their owners and how you intend to access the data. You may also indicate your knowledge of closely related projects, briefly identifying those projects and their principal investigators.

Estimated Budget

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Total amount requested would include all direct and indirect costs, including fringe benefits, student assistantships, etc; however, at this stage, we do not require a detailed budget. Contact your Research/Sponsored Programs Office for fringe benefit and indirect cost rates. Non-federal matching funds are 50% of requested amount, at least $1 non-federal for every $2 federal requested.
3) Bio-sketches of Project Team Members
Please submit a two page bio-sketch of all project team members. (Does not count toward your page limit.) Include relevant project experience, and publications (up to 5).

Integrated Assessment Topics
The IA topics described here were developed in partnership with federal, state and local government agencies and Sea Grant outreach specialists. These partners should not be engaged during the pre-proposal development process, but they will be available to provide input to teams developing full proposals.

NOTE: All questions related to this RFP, whether technical or content-related, should be submitted to Lynn Vaccaro (lvaccaro@umich.edu) by close of business on January 21. Answers will be posted on the Michigan Sea Grant RFP webpage on January 28.

Developing an Alternate Integrated Assessment Topic
Research teams can propose an Integrated Assessment for a topic not described in this RFP, but they should provide the following additional information:
- Explain why the issue is a wicked problem, how it relates Michigan Sea Grant’s strategic plan, and why it is of interest to resource management agencies at the local, state, regional or federal level.
- Demonstrate that the topic is amenable to analysis based on existing data and information.
- Secure a letter of support from an agency sponsor who has the authority to make or influence management decisions relative to the problem identified. The sponsor does not need to provide funding for the project, but they should be willing to work with the process for two or more years beginning in summer 2012.

1) Challenges to delisting Areas of Concern
In 1987, the U.S. and Canadian governments defined 43 geographic areas within the Great Lakes as Areas of Concern (AOC) because severe water quality issues were impairing human, fish and wildlife uses of the area. On-going remediation efforts and recent programs, including the Great Lakes Restoration Initiative, are preparing several AOCs to be delisted. Although this milestone merits celebration, the process of delisting raises a variety of questions. Each AOC has a long-standing Public Advisory Council, which currently has access to state and federal funding programs and close relationships with agency professionals. It is not clear how delisting will be perceived by surrounding communities; property values, access to funding, environmental regulations, and the nature of public involvement and stewardship may change. Have environmental risks been adequately remediated, regulated and communicated to the public? In some cases, remediation may be complete, but the expected recovery of fish and wildlife will be delayed. It is expected that by 2012, several AOCs will be in the process of delisting, including the White Lake, River Raisin, Manistique River, Deer Lake, and St. Mary’s River. In subsequent years, EPA and the state of Michigan hope several other AOCs will be ready for delisting, including Muskegon Lake, Menominee River, and the St. Clair River. An assessment in this topic area would examine one or multiple AOCs to identify, evaluate and characterize the perceived and real socio-economic, political and management opportunities and challenges associated with delisting, with the goal of developing policy options that could inform Michigan’s AOC delisting strategy and the work of individual Public Advisory Councils.
2) Muck and algal blooms in Saginaw Bay
Saginaw Bay has experienced periodic toxic and nuisance algae blooms for over forty years. Phytoplankton containing cyanobacteria have influenced drinking water quality, and during some years decaying organic matter and benthic algae accumulate on beaches forming an unpleasant “muck” that impacts recreation and property values. Fecal indicator bacteria have been found in the muck, but causes and public health risks are uncertain. A number of natural and anthropogenic factors are believed to influence the severity and type of algae problems in the bay, including nutrient inputs, zebra and quagga mussel populations, lake levels, water circulation patterns and weather conditions. Recent research efforts have examined how different factors interact and influence water quality; however, translating these interactions into management strategies to address conditions in the bay is still a challenge. A number of questions impede management efforts such as: Which factors can be most efficiently and effectively managed? How should specific management actions be selected and located to have the most impact? Will control efforts improve both muck and hazardous algal blooms? A variety of environmental data sources and models are available, including results from the Saginaw Bay Multiple Stressors Project (www.glerl.noaa.gov/res/projects/multi_stressors), High Impact Targeting tools (http://35.9.116.206/hit2/about.htm), monitoring at water intake pipes, and other buoy and satellite data (e.g., http://glos.us/). An Integrated Assessment in this area will summarize the state of knowledge on causes and consequences of algae problems, identify and evaluate socio-economically and politically feasible management actions to address them, and develop tools to guide management decisions.

3) Michigan’s underdeveloped aquaculture industry
By most accounts, Michigan seems well-suited for a vibrant aquaculture industry – it has abundant freshwater, affordable real estate, a need for new economic opportunities, and valuable expertise in fisheries, agriculture and food processing. Globally, aquaculture has grown tremendously in recent decades and now meets nearly half the world’s seafood demand, and projections indicate future demand for high quality protein will cause this trend to continue. However, aquaculture production in Michigan has been slow to develop. Historically, aquaculture has been plagued by concerns about water pollution, fish diseases and unintended species introductions. A range of social and economic issues also challenge aquaculturists, including access to financing, marketing, connections with processors and distributors, current lack of political support, and market competition. A variety of aquaculture systems, products and business models are being used throughout the region with limited coordination and communication. An Integrated Assessment would address the causes and consequences of the current poorly developed aquaculture industry in Michigan and identify a range of policy and management actions that would support a ecologically safe, efficient and vibrant aquaculture industry in the state.

4) Risks associated with climate change
The impacts of climate change are already being felt in the Great Lakes region – including changes in ice cover, seasonal precipitation patterns, air and lake temperatures, and the severity of storms. The Midwest has experienced two record-breaking floods in the past 15 years. Heavy downpours are now twice as frequent as they were a century ago, putting added pressure on stormwater infrastructure and increasing concerns about flooding, erosion, polluted run-off, sedimentation of streams and harbors, and bacterial contamination. Many communities are hesitant to adjust their planning because predictions about the future climate seem uncertain
and impacts seem far off. An Integrated Assessment in this issue area will help coastal communities understand how current climate knowledge can inform their planning in a realistic way, in light of this knowledge evaluate their vulnerabilities, and assess potential strategies for increasing resiliency against anticipated climate change impacts. Research teams are encouraged to focus on the Grand Traverse Bay area where decision makers are interested in participating in an assessment. Existing watershed plans are available on the MDNRE website: http://alturl.com/n6two

5) Challenges to the full utilization of Michigan’s coastal navigation system
Michigan’s ports, waterfront infrastructure and water-based navigation system are facing a number of human induced and natural challenges, including highly variable lake levels, harbor and channel sedimentation, inadequate operation and maintenance resources, and challenges to connectivity among state, federal and local levels and between commercial and recreational interests. Many different groups use Michigan’s system of harbors including commercial vessels, cruise boats, recreational boaters, and commercial fishermen and sport anglers, but with limited resources and uncertainty in system operation and maintenance, individual communities may not fully leverage their port infrastructure. Harbor maintenance involves federal (Army Corp of Engineers), state (Department of Transportation for commercial harbors, and Department of Natural Resources for recreational harbors) and local agencies (harbor commissions). An Integrated Assessment in this area would identify the causes and consequences of the currently disjointed, interjurisdictional system by identifying a suite of policy options to encourage the development of a systems approach to managing this important asset for the safety and economic development of Michigan’s coastal communities.

6) Challenges to a sustainable Great Lakes fishery
Coordinated management of Great Lakes fisheries is challenging because environmental conditions are highly variable, scientific understanding of lake ecology is incomplete, and the desires of the fishing community can vary and be hard to gauge. Despite improvements in water quality and regulated harvest of fish, lake ecology continues to change unpredictably - salmon spawning runs in tributaries of Lake Michigan have varied widely over the past few years, Diporeia, alewife and Chinook salmon have declined dramatically in Lake Huron, and the threat of new invasive species looms large. There is growing interest in restoring native fish, like cisco, and investing in habitat improvements as ways of enhancing ecosystem resiliency. In this milieu, fishery managers must make decisions about stocking and harvest regulations and consider long-term options for promoting sustainability. A number of factors are hard to account for, including variation in natural reproduction, costs, return on investment and ecological impacts of stocking and management options. Changes to the current strategy require careful deliberation about the technical challenges and the real and perceived effects on the fishing experience or opportunity. Healthy fisheries are important to the state’s economy and high-quality outdoor recreation opportunities will help attract people and businesses to Michigan. An Integrated Assessment in this area would summarize the range of socio-economic, physical, biological and other relevant inputs that could impact state decisions about fisheries in order to develop stocking and/or management strategies that optimize efficiency, effectiveness, angler satisfaction and long-term sustainability of the Great Lakes fishery.
Pre-proposal Selection Criteria

Pre-proposals will be screened with the following criteria in mind:

a) Understanding of context and underlying issues: Does the pre-proposal identify underlying issues; does the pre-proposal provide the right context for the underlying issues?

b) Project approach: Does the pre-proposal address all the elements of an Integrated Assessment? If it does not, are exceptions/gaps acknowledged and explained? Is the explanation credible?

c) Preliminary identification of relevant data sources: Does the pre-proposal identify how data will be accessed? Does the pre-proposal reflect an effort to contact others working in this area/issue and identify team members or collaborators who bring data or access to data to the team?

d) Competency of the proposing team: Does the team have members identified who can carry out each element of the assessment? Have team members carried out similar work in the past? Here they do not necessarily have to have integrated assessment experience specifically, but some indication that they are able to assess status and trends and identify causes and consequences of the issue.