

Overview of Opportunity

Michigan Sea Grant is soliciting pre-proposals for Integrated Assessment projects. The program will consider proposals of up to three years' duration (February 2009 through January 2012) for grant requests up to \$140,000. Pre-proposals are due Friday, April 4, 2008 at 5 p.m. Investigators invited to full proposal will be notified in April with full proposals due at 5 pm on Friday, May 23.

Integrated assessment is a formal approach to synthesizing and delivering relevant, independent scientific input to decision makers through a comprehensive analysis of existing natural and social scientific information in the context of a policy or management question. From a solid science base, it brings together citizens, industry representatives, scientists, and policy makers to define and evaluate policy and/or management options on particularly difficult – wicked – environmental problems. The kinds of problems/questions best suited to integrated assessment are those that have both arguable issue definitions (i.e. no clear-cut cause) and arguable solutions, and they are typically at the center of most environmental sustainability conflicts.

Integrated Assessment Approach - Typical steps in an IA include:

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. Thus, even this first step involves collaboration among policy makers, scientists, and other stakeholders. For researchers proposing a topic that is not included in the examples below, a key emphasis of your proposal will be defining this question in ways that are both clearly policy relevant and amenable to analysis. For researchers selecting a topic from below ([2008 Integrated Assessment Topics](#)), the emphasis in your proposal will be on refining the policy-relevant question because the general topic has already been selected.
2. **Document the status and trends** of environmental, social, and economic conditions related to the issue. This relatively value-independent description of current conditions and, to the extent possible, historical trends provides the backdrop upon which further analysis is performed. These efforts often focus on synthesis of existing data and information.
3. **Describe the environmental, social, and economic causes and consequences** of those trends. This often includes simulation, statistical, and other explanatory models and analyses, as well as expert judgment and synthesis of existing information. These descriptions are fact-based although subject to analysis and interpretation, requiring more specialized expertise, collaboration among experts, and peer review.
4. **Provide forecasts of likely future environmental, social, and economic conditions** under a range of policy and/or management actions. Ecological and economic forecasts play a strong role in this component. These forecasts can come from quantitative and predictive models, be based on trend analysis tools, or derived from qualitative normative scenario analysis. These are subject to considerable scientific evaluation and interpretation and thus, in addition to peer review of results, it is important to engage all stakeholders in developing these scenarios to increase the IA's legitimacy and the affected decision-making community's acceptance of results.
5. **Provide technical guidance** for the most cost effective means of implementing each option. These efforts are designed to provide those who are responsible for action with guidance on the most technologically effective ways to implement them, as well as evaluations of their cost-effectiveness and relative potential for success.
6. **Provide evaluations and statements of the uncertainties** associated with information generated for each of the above steps. This step is important to provide decision makers with appropriate levels of confidence in the findings. It also outlines key monitoring, research, and modeling efforts needed to improve future assessments in this area.

Key Points:

Our IAs will focus on a natural resource issue in a defined geographic area. This enables the IA team to identify the stakeholders, resource managers and policy makers who will need to be engaged throughout the process.

A key to the success of the IA process 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.

Additional Material on IA:

Sea Grant's IA FAQ - http://www.miseagrant.umich.edu/downloads/research/RFP/IA_FAQ-2008.pdf

Virtual Integrated Assessment Workshop - <http://www.miseagrant.umich.edu/ia/ia-virtual-wrksp.html>

Eligibility Information

Principal Investigators (PIs) will be eligible researchers at a Michigan university. 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.

Application Submission Information

Pre-proposals are due to Michigan Sea Grant on Friday, April 4 at 5 p.m. (EDT), no exceptions. Pre-proposals not received by the deadline will not be considered. PIs must submit their pre-proposal online at <http://www.miseagrant.umich.edu/research/rfp/pre-proposal.php> where you can upload your pre-proposal as a PDF document.

Pre-proposal Requirements:

1) Title Page (*1 page, 12 pt font, 1-inch margins*)

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

2) Pre-proposal Summary (*3/4 -1 page, 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 2008 Integrated Assessment Topics

Background: Provide a brief description of the IA you are addressing, demonstrating awareness of the main issues and identifying potential stakeholders. (*~ 1/2 page*)

- Origin of the issue:
- Why this is an issue:
- Who's involved:
- What is the area affected?
- Briefly state project objectives as they would appear in a full proposal.

Characterize the Solution Space: (e.g., potential policy options / management actions that could be considered, such as management recommendations, education/outreach programs, legislation, regulations)

DRAFT IA Question: At this point one sentence will suffice using this pattern: What are the causes, consequences and correctives of <<natural resource problem>> in/at <<defined geographic location.>> It is appropriate to use the language supplied in the rfp text below under 2008 Integrated Assessment Topics.

Agency Management or Policy Contact: Identify and provide contact information for an individual with authority to make or influence management decisions relative to the problem identified above. You must append a letter from the individual indicating his/her ability and willingness to work with the process for two or more years beginning in summer 2009 – for details see below.

3) Pre-proposal Narrative (*up to 4 pp, 12 pt font, 1-inch margins*)

Project Approach

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

Project Timeline

Include project activity, project quarter and responsible team member(s).

Project Team and Collaborators

Identify the project team and individual responsibilities in a table (see below). Please provide the names and affiliations of all persons and institutions with whom you intend to collaborate. Indicate if they have already agreed to work on the project or if you still need to contact.

Name	Institution	Team Member/ Collaborator	Agreed/ Need to Contact	Role and Responsibilities

Data and Data Sets

Michigan Sea Grant will not support the collection of new data in this IA process, therefore please identify relevant existing data sets, 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

Total Amount Requested	Total non-Federal Match

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.

4) Curriculum Vitae of Project Team Members

Please submit a two page curriculum vitae of all project team members. (Does not count toward your page limit.)

2008 Integrated Assessment Topics

Proposing teams must identify a specific coastal issue that is conducive to IA methods as outlined above – that is, one clearly lacking agreement in both the cause of the problem and its solution. Michigan Sea

Grant has identified some potential topics and contacts. The topics and contacts listed below illustrate issues conducive to IA methods and agencies that have agreed to participate in the program if the appropriate proposal is rated highly. This list is of potential topics and is not intended to be exclusive nor exhaustive.

The Great Lakes Fishery Trust has agreed to partner with Michigan Sea Grant in support of IA topics that support its strategic plan. Proposers are encouraged to review the GLFT strategic plan and consider proposing issues amenable to IA. <http://www.glft.org/resourcelibrary/attachments/PROJECTS-13WebFileStrategicPlanExecSumm2005.pdf>

For researchers proposing a topic not on the list below, either one related to the Great Lakes Fishery Trust’s strategic plan or another topic, you must also include a letter from your agency management or policy contact indicating that they are willing and able to participate in your project.

Topic	Contact
Avian Botulism	Ken Hyde, US National Park Service
Locating Wind Energy Facilities in the Coastal Zone	Catherine Cunningham Ballard, DEQ
Future of the Shiatown Dam	Sharon Hanshue, Michigan DNR
Beach Closings in the Vicinity of the Grand River Mouth	Adam London, Ottawa Co. Health Dpt
Restoring a Natural Flow Regime in the Clinton River Watershed	Shawn Keenan, City of Auburn Hills
Southern Lake Huron Chinook Salmon Fishery	Tammy Newcomb, Michigan DNR

Avian Botulism

In recent years, significant die-offs of waterfowl and other shore-based birds due to botulism toxin poisoning from the bacterium *Clostridium botulinum* (Type E) have been growing in frequency and spreading across the Great Lakes basin. Deaths in large numbers began in the late 1990s in the lower lakes; 2006 and 2007 saw significant die-offs along the Lake Michigan shoreline. The cause, the bacterium *Clostridium botulinum*, is endemic in the upland soils and lake bottom sediments of the Great Lakes. It is believed that anoxic conditions in the lake bottom sediments and organic matter causes vegetative growth and, as a result, it produces toxins. The bacteria and toxins may then be ingested by macro-invertebrates, crustaceans, and/or zebra or quagga mussels in their normal course of feeding or filtering. These are then eaten by round gobies, a recent invasive fish with a voracious appetite and ability to produce large numbers of offspring. Many of these small fish soon succumb to the toxin's neuropathic effects by losing the ability to swim, resulting in numerous gobies bobbing at the surface prior to death. The gobies become easy prey and soon are ingested by fish-eating birds – loons, cormorants, grebes, and mergansers for example. The highly lethal toxins soon cause these birds to become paralyzed and to die. Maggots feeding on their bodies also become toxin-laden and are added to the washed up gobies, insects, and mussels as carriers of the toxin which can then impact shore birds and carrion feeders, such as piping plovers and ring-billed gulls. While the ecological cause and effect of the problem is fairly well understood through recent and ongoing research, the question of where to break the chain of events with a potential societal human intervention, what it might be and where/how it would be implemented is still open. An assessment that examines the causes, consequence, and potential solutions to the increase in Type E botulism outbreaks in northern Lake Michigan would be a valuable addition to efforts already underway to address the issue.

Contact: Ken Hyde, Sleeping Bear Dunes National Lakeshore, 231-326-5134 x422, ken_hyde@nps.gov.

Locating Wind Energy Facilities in Michigan's Coastal Counties

The state of Michigan is promoting the development of renewable and alternative energies. Wind energy development is of growing interest to many private and public sector interests. However some communities have limited capacity to address the potential challenges associated with locating wind energy generating facilities in the Great Lakes coastal zone and therefore are not well prepared to permit the use of the Great Lakes coastal zone for this activity. The Department of Energy's Wind Program and the National Renewable Energy Laboratory published a wind resource map for the state of Michigan that identifies wind resource potential on a scale of 1 (poor) to 7 (superb). A rating of 4 or greater is considered viable for utility-scale development. The wind resource map for Michigan indicates that wind resource potential of the vast majority of the nearshore (both land and water) area is rated 4 or greater at 50 meters in height. Interest in developing this potentially valuable renewable energy source is increasing across the state. It is challenging to manage multiple uses of the same resource, especially if they are competing and/or potentially conflicting uses. For example, the area of highest value for nearshore (land and water) wind energy development is also important fish, bird and wildlife habitat as well as having considerable aesthetic value important to the tourism industry. An assessment that examines causes, consequences and approaches to minimizing the impacts of locating wind energy generating facilities in a specific Michigan location, on or off-shore would be a valuable addition to a pro-active policy for the state of Michigan. We are particularly interested in proposals that relate to coastal communities (city, village, township or county) with limited capacity to address the challenges associated with multiple competing uses for the coastal land use, view shed and habitat.

Contact: Catherine Cunningham Ballard, DEQ, 517.335.3456; cunningc@michigan.gov

Future of Shiatown Dam

The Shiatown Dam, located on the Shiawassee River just west of Vernon, Michigan is over one hundred years old. Formerly used for generating electricity, the powerhouse is no longer active and the dam is in a state of disrepair. Recreational benefits associated with the dam are also limited and declining due to infrastructure deterioration and water quality issues behind the dam. A high water event in 2001 nearly caused the dam to fail and future high water events, which could increase in frequency and severity under climate change scenarios, threaten the dam's continued stability. In addition to safety issues relate to the dam's stability, there is the possibility that sediment behind the dam is contaminated with PCBs. The dam requires considerable repairs to stabilize it over the long term and the Michigan Department of Natural Resources, which owns the dam, is only able to support emergency maintenance for the structure. In 2003 a study was conducted on behalf of the Friends of the Shiawassee River that examined ecological, social, and economic aspects related to dam repair, replacement, and removal and recommended a collaborative decision process for the community to reach a decision related to the dam's fate. This assessment would update the 2003 report with the goal of assessing the value of the dam's continued existence and identifying potential future scenarios that address issues associated with it, such as safety, recreation, water quality and economic cost.

Contact: Sharon Hanshue, Michigan DNR, 517.335.4058; hanshus1@michigan.gov

Beach Closing in the Vicinity of the Grand River Mouth

The Beach Act of 2000 provided resources to increase beach monitoring for sources of contamination and therefore risk to human health. A perhaps unanticipated result was an increase in the number of beach closures. It has become increasingly clear that current monitoring and analytical methods do not ensure that beaches are closed only on days in which human health risk is elevated. The desired outcome – better monitoring to protect human health – has not resulted, instead the increased number of beach closures are impacting local economies, especially in coastal communities where coastal tourism is a significant component of the economy. Ottawa County, Michigan, with XX miles of public beaches is experiencing increased beach closures at inopportune times for the local economy. Concern is widespread, as evidenced

by strong interest from diverse stakeholders at the annual Ottawa County Water Quality Forum. There is uncertainty regarding the source of *e. coli* contaminating Ottawa County beaches: is it beach sand itself, waterfowl, or a result of upstream riparian issues such as combined sewer overflows? And what role do meteorological patterns play in results that prompt managers to close beaches? This assessment would examine the causes, consequences and correctives for beach closings four miles north and south of the Grand River mouth.

Contact: Adam London, Ottawa Co. Department of Health, 616. 393.5625, alondon@co.ottawa.mi.us

Natural Flow Regime in the Clinton River Watershed

The Upper Clinton and Clinton Main Sub-watersheds of the Clinton River Watershed contain 21 separate impoundment lakes, most of which have a court-authorized level set independently of the other lakes in the system. This has led to suddenly varying water levels in the Clinton River as water is retained or released to maintain levels behind control structures. These abrupt changes in water level impact fish and wildlife habitats and the species that rely upon them, as well as recreational opportunities. Restoring a more natural flow regime could help ameliorate the negative impacts generated by large and sudden fluctuations. Affected communities include: City of Rochester, City of Rochester Hills, City of Auburn Hills, City of Pontiac, City of Sylvan Lake, City of Keego Harbor, City of Orchard Lake Village, Charter Township of Waterford, Charter Township of West Bloomfield, City of Lake Angelus, Charter Township of Independence, City of the Village of Clarkston, and Charter Township of Springfield. This assessment would address the causes, consequences and correctives of interrupted flows in the Upper Clinton River Subwatershed and the Main Clinton River Subwatershed that impact fish and wildlife habitat and recreational uses in the Clinton River watershed.

Contact: Shawn Keenan, City of Auburn Hills, 248.364.6926, skeenan@auburnhills.org.

Chinook Salmon Fishery Decline and Southern Lake Huron Coastal Communities

Southern Lake Huron port communities that rely upon the economic input of both charter boat operators and their customers have been severely impacted recently by a significant decline in the valuable Chinook salmon fishery.

Decline in Charters and Total Anglers in Selected S. Lake Huron US Ports, 2001-2006

Total # Anglers		2001	2006	Percent Change
	Grindstone City	2910	1011	-65%
	Harbor Beach	457	435	-5%
	Port Sanilac	572	44	-92%
# Charters				
	Grindstone City	753	225	-70%
	Harbor Beach	109	108	-1%
	Port Sanilac	130	13	-90%

Source: Michigan DNR

Port communities and the charter captains operating out of them have traditionally focused their marketing efforts on a robust and exciting Chinook salmon fishery. Both private anglers and people who hire charter services are expecting a specific fishing experience that is not currently available to them. Rather than shift focus to other options, such as native lake trout, walleye or yellow perch, anglers may seek out Chinook salmon on other lakes or not fish at all with significant economic impacts in southern Lake Huron communities.

While research is being conducted to understand causes of the Chinook decline, an assessment is required to understand the potential consequences of long-term food-web changes for the Lake Huron ecosystem and

associated coastal economies, as well as the range of responses available to coastal communities, and lake and fishery managers.

Contact: Tammy Newcomb, Michigan Department of Natural Resources, 517.373.3960;
newcombt@michigan.gov.

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; are they the correct ones; 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 reflect an effort to go beyond and contact others working in this area/issue?
- d) How data will be accessed: Does the pre-proposal identify team members or collaborators who bring data or access to data to the team? Does the pre-proposal identify how data will be accessed otherwise?
- e) 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 for the status/trends.
- f) Is there an identified agency management or policy contact?