Background: History of NEMIA, Michigan Sea Grant’s pilot IA

When Dr. Donald Scavia joined Michigan Sea Grant in the fall of 2003 as Director, he brought with him experience in integrated assessment from the congressionally mandated Gulf of Mexico Hypoxia integrated assessment and an interest in seeing if application at the state and watershed level would be a useful decision-support tool for local, state and regional resource managers and policy makers.

In January 2004 Sea Grant included a call for integrated assessments (IA) with the regular biennial request for pre-proposals. Although we received several pre-proposals that purported to be IA, there were none that met our criteria. Recognizing the need for more education about what IA was, the kinds of issues it was best suited to address, and how to develop a strong team, the Sea Grant Management Team developed a strategy for educating local, state and regional resource managers and policy makers and the Michigan research community about the process and its value. One aspect included closely working with agency personnel to identify a suite of good IA topics for the next RFP in 2006, and hosting a workshop and developing a virtual workshop online to educate the research community about IA. The other aspect was to undertake a pilot IA managed by the program to demonstrate the process’ value on the ground.

In the spring of 2005 Scavia met with Michigan State University Extension’s regional directors and introduced them to IA. At that meeting, the group agreed that the region of the state that seemed most in need of such a process was the northeast Lower Peninsula, in the Alpena area. Having just hired Brandon Schroeder as the extension educator in that region, the Management Team encouraged him to explore the possibilities of IA within the region. After considerable work with regional entities such as the Northeast Michigan Council of Governments, the Michigan Department of Natural Resources, the Michigan Department of Environmental Quality, municipal and county economic leadership and the NOAA Thunder Bay National Marine Sanctuary and Underwater Preserve, Schroeder convened a meeting in the fall of 2005 to discuss in more detail what an IA process for northeast Michigan might address. The result of that meeting was an agreement to move forward with a process to examine access to the Lake Huron coast in the context of an expanded economy. Specifically, the focal question was: How can coastal access be designed, in a regional context, for sustainable tourism that stimulates economic development while maintaining the integrity of natural and cultural resources and quality of life?

Out of this question emerged the Michigan Sea Grant’s pilot IA project: Northeast Michigan Integrated Assessment (NEMIA). Michigan Sea Grant led the NEMIA process, with Schroeder coordinating the stakeholder engagement process and Jennifer Read, Sea Grant’s Assistant Director and Research Coordinator, coordinating the technical assessment teams. When an IA is undertaken, the process and products may be tailored to meet the needs of the environmental problem being addressed, and available funding and other resources, and thus may not exactly align with the process, products, and outcomes of the ideal theoretical IA as described in the MSG factsheet. For example, available resources may limit the power of the IA organizers to dictate the purpose and direction of the technical assessments. Such was the case with NEMIA, in which much of the activity was carried out through in-kind support. This included the socio-economic assessment which was conducted by NOAA National Marine Sanctuary Program economists who were already engaged in the area working on Thunder Bay’s 5-year plan update. They merely extended their effort from the Sanctuary’s boundaries to encompass
the three-county study area. The planning and zoning assessment was conducted by researchers from the University of Michigan’s Urban and Regional Planning Program who had resources in place to assess coastal community master plans and zoning codes and were able to include the study area in northeast Michigan as part of their project. The ecological assessment was conducted by two masters students from the University of Michigan’s School of Natural Resources and Environment as a practicum to meet their graduation requirements. Other technical aspects of the study, such as the inventory of cultural assets and the American Institute of Architects’ Sustainable Design Assessment Team (SDAT) process, were viewed as value-added opportunities arising during the course of the project and were not conducted with the same rigor, or purpose, as the three primary technical assessments.

**Instructions for Reviewers**

Four criteria have been used to evaluate integrated assessments (Clark and Majone 1985): technical adequacy, value, legitimacy, and effectiveness. The purpose of this review is to assess “Technical adequacy” as measured by the peer review process and the general acceptance of the science by the scientific community. Your input is critical to evaluating the creditability, rigor, and integrity of the technical assessment you have been asked to review.

In an integrated assessment, each technical assessment should be able to withstand scientific review as a standalone chapter. Therefore, our peer review guidance questions focus on the strengths and weaknesses of the technical assessments separate from the entire IA report. Please review your chapter with the understanding of how it fits into the context of the larger IA process and report, but work under the assumption that the chapter should be a useful, credible product by itself.

In addition, we developed the peer review guidance questions with future integrated assessments in mind – IAs that will incorporate many of the lessons learned during the process of conducting this pilot IA. As such, you may find that some of the questions do not apply to the assessment you are reviewing. Please ignore these questions and focus on those that do.

In a separate document, please address the following questions about the assessment you have been asked to review:

1. **Background**
   a. Is sufficient background information presented to place the assessment in context with the entire IA?
   b. Is the level of background information appropriate for the intended audience?
   c. Is there additional information or references that should be provided in the background?
   d. To what extent do the authors use the literature to provide background information?
   e. Are the purpose, goals, and objectives of the assessment clear?

2. **Methods**
   a. Is the assessment’s overall methodology explained clearly and sufficiently?
   b. Assess the rigor/appropriateness/effectiveness of the methods used to:
      i. Document the status and trends of current conditions
      ii. Explain the causes and consequences of those trends
   c. Forecast future conditions
   d. Do you have suggestions for strengthening the methodology?
3. Data
   a. Are the data sufficient for the analyses performed?
   b. Were the data retrieved from credible, reputable sources?
   c. What other datasets should the authors have considered?

4. Results
   a. Do the authors adequately:
      i. document the status and trends of current conditions?
      ii. explain the causes and consequences of those trends?
      iii. forecast future conditions?
   b. Have the authors chosen the best format (table, figure, or numbers in text) for presenting results?
   c. Are there other figures/tables that would have helped better illustrate text?
   d. Are the types of figures chosen appropriate, and are there places where multiple figures should be substituted for single, complex ones?

5. Interpretation/Discussion/Conclusions
   a. To what extent do the authors use the literature to interpret
      i. the results of the status and trends assessment?
      ii. the forecasts of future conditions?
   b. Do the author’s conclusions follow clearly from the study's results?
   c. Are there data that don’t support the conclusions? If so, do the authors address it adequately?
   d. Do the authors discuss the limitations of their findings?

6. Overall
   a. Is the text written clearly and organized logically?
   b. Is the format of the assessment consistent with style formats
   c. Should the text be expanded or condensed? If so, which sections?
   d. Is the assessment organized logically, efficiently, and clearly?
   e. Is the assessment value-independent? If no, what biases are evident?
   f. Overall, what are the assessment’s strengths?
   g. Overall, how could this assessment be improved?
   h. How does this assessment differ from what is described in the IA factsheet?
   i. Do the authors make clear any assumptions they made?
   j. Is the writing style appropriate? Do you have any stylistic suggestions?

7. Research integrity
   a. What sort of related previous research is mentioned?
   b. Are there sufficient references to information from primary literature?
   c. Are the references from peer-reviewed sources?
   d. Could the authors make better use of their references? How?

8. In addition to reviewing your selected chapter, we are also seeking comment on how the IA organizing team could have planned each assessment to more closely align with the IA model as
described in the Michigan Sea Grant IA Fact Sheet (see below). In other words, if we had unlimited resources and complete direction, how could this assessment have been done better?