



To: Michigan Technological University Center for Water & Society Advisory Committee
From: Alex Mayer, Director, Michigan Technological University Center for Water & Society
Date: November 10, 2005
Subject: October 26, 2005 Meeting of Michigan Technological University Center for Water & Society Advisory Committee
Attachments: Tentative agenda
Proposal to establish center
Marty Auer's report on the Michigan Sea Grant Integrated Assessment Workshop

The first meeting of the Michigan Technological University Center for Water & Society Advisory Committee (AC) was held October 26, 2005, 12:00 to 1:00 pm in Dow Environmental Engineering & Sciences room 426. The purpose of this memo is to describe the results of the meeting.

Present were: Alex Mayer, Director
Kathy Halvorsen, representative, Social Sciences
Noel Urban, representative, Civil & Environmental Engineering
Nancy Auer, representative, Biological Sciences
Joan Chadde, representative, Western Upper Peninsula Center for Science, Mathematics & Environmental Education
Linda Nagel, representative, Forest Resources & Environmental Science
Carol Asiala, CWS administrative assistant
Marty Auer, Civil & Environmental Engineering

The tentative agenda for the meeting is attached.

Items discussed during the meeting included the following.

Election of director

Alex Mayer was nominated and elected CWS director for a term of two years, beginning at the date of the meeting.

Role of the AC

Alex Mayer noted that the AC was charged by Vice President for Research David Reed to develop a governance document. Alex Mayer suggested that the governance document be based on the proposal to establish the center. The AC reviewed the role of the AC as described in the proposal to establish the center (see attached, primarily p. 4).

The AC agreed that their role, as described in the proposal to establish the center was too restrictive. The primary concern was that the wording did not necessarily allow the AC to

be involved in important decisions regarding the CWS. The AC charged the Director to revise the written description of the role of the AC and to present the revised description to the AC at a later date.

Subcommittees

The AC agreed to form subcommittees to study CWS issues. The AC further agreed that participation on subcommittees would not be limited to AC members, but that AC reserves the right to approve subcommittee participants.

Two subcommittees were formed: a “Seminar and Symposia” subcommittee, consisting of Noel Urban, Kathy Halvorsen, and Joan Chadde and a “Degree Program” subcommittee, consisting of Kathy Halvorsen, Nancy Auer, and Joan Chadde. There was discussion of forming a strategic planning subcommittee, but it was agreed that, since strategic planning should be a major function of the AC, it was unnecessary to have a subcommittee for this area.

It was agreed that the subcommittee members would be responsible for calling meetings as was necessary. It was further agreed that the CWS director should attend subcommittee meetings, where possible.

Timing of future AC meetings

The AC agreed that in the initial months of the CWS activities, it would be necessary to meet on the order of once every two to three weeks. In the future, however, meetings would be held less frequently, on the order of once every one to two months.

Marty Auer’s report on Sea Grant opportunities

Marty Auer attended the Michigan Sea Grant Integrated Assessment Workshop on October 12, 2005 in Ann Arbor, MI. A copy of his presentation to the AC is attached. Michigan Sea Grant is will be issuing an RFP on “Integrated Assessments” (IA). Marty explained what is meant by IA and listed the questions that the Michigan Sea Grant wishes the IAs to address. Marty noted there were no UP-specific questions on the list; however, there was an expectation that some UP-specific questions may be added to the list. Furthermore, Marty suggested that Michigan Sea Grant may be interested in expanding the list of questions if the case were made that the questions were important, especially from the standpoint of local, state, or federal agencies. Marty stressed that a government agency has to buy into the significance of the question in order for Michigan Sea Grant to list the question in the RFP.

Given the dates for the RFP, Marty said that, if we wish to propose additional topics to Michigan Sea Grant, we need to get started now on composing a question and engaging the relevant government agency(s). Marty recommended a series of steps that the AC and CWS in general should follow with regard to the RFP process (refer to last page of his presentation).

Marty suggested two questions that the CWS might respond to: (1) UP watersheds for ecosystem management indicators and (2) sulfide mining in the UP.

It was noted by Marty and the AC that the funding level for this program was probably low in relation to the effort required to concoct an IA; however, it was agreed that this program may be a good way to bring CWS participants to work together.

Michigan Tech Center for Water & Society
Advisory Committee Meeting
October 26, 2005

Agenda

1. Role of the CWS advisory committee
 - described in proposal to establish center (see attached)
 - modifications?
 - frequency of meetings vs. resolve/discuss via email
2. Confirmation or selection of CWS director
 - current director appointed by Dave Reed when CWS was approved
 - but, according to proposal to establish center, “director will be selected by the Advisory Committee...”
3. Marty Auer’s participation in Sea Grant Workshop
4. Topics and format of CWS-sponsored symposia or seminars
 - purpose: getting us to work together and/or generate publicity
 - work within existing departmental or center/institute series by sponsoring external speakers of broad interest and recruiting MTU speakers to speak in departments other than their home
 - sponsor targeted symposia or workshops: watershed management; “Role of Water in Michigan’s Economy;” funding opportunities
5. Producing a CWS governance document by April 1, 2006
 - adopt governance structure as defined in proposal to establish center
 - modifications?
6. Offering undergraduate and graduate students student membership in CWS
7. CWS web page
8. Formation of local and general external CWS advisory boards

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Proposal for Establishment of Michigan Tech Center for Water and Society

Submitted by

Alex Mayer, Department of Geological & Mining Engineering & Sciences

Peg Gale, School of Forest Resources & Environmental Sciences

Kathleen Halvorsen, Department of Social Sciences

Joan Schumaker-Chadde, Western Upper Peninsula Center for Science, Mathematics & Environmental Education

“Water systems...can act as a powerfully unifying resource, so it is ironic to the point of absurdity that water education, management, and discourse are so fragmented. To truly assess water resources in their most holistic sense, one needs to include the many aspects of the hydrologic cycle, from meteorology to surface hydrology to soil sciences to groundwater to limnology to aquatic ecosystems. And that is just the physical system. One should also have an integral sense of the human dimensions, from economics to law to ethics to aesthetics to sociology and anthropology. Universities and management institutions are simply not organized along these lines; often they are fragmented to the point where even surface water and groundwater, quality and quantity, are separated out as if they were not inextricably inter-related.”¹

Statement of Purpose. The purpose of the Michigan Tech Center for Water and Society (MTCWS) program is to provide the multidisciplinary perspectives and tools to manage water-related problems of local, regional, and international interest. The MTCWS will be formed as a center under the Sustainable Futures Institute (SFI).

Mission Statement. The mission of the MTCWS is to support research, education, and outreach in all disciplines at Michigan Tech related to water issues. The goal is to establish Michigan Tech as a state, regional, national and international leader in these disciplines and, in particular, in interdisciplinary approaches to solving water-related problems. The objectives of the MTCWS are

- to serve as a focal point for instructional and research activities in water-related fields and water-related outreach activities across the Michigan Tech campus;
- to provide an organizational structure that supports continuing growth in water-related fields and outreach activities and encourage interdisciplinary projects;

¹ Aaron Wolf, Associate Professor, Department of Geosciences, Oregon State University, http://www.transboundarywaters.orst.edu/publications/atlas/atlas_html/thematicmaps/thematicMaps.html.

- to support interdisciplinary graduate and undergraduate education and research in water related fields; and
- to pursue external funding opportunities to support these objectives and to facilitate MTCWS participating faculty to obtain external support.

Description of Proposed Activities. The MTCWS will be initially established as a “virtual” Research Center. By virtual, we mean that the MTCWS will not occupy physical space, but will be a consortium of people at Michigan Tech whose focal point is water-related activities. We anticipate the following activities as a focus for MTCWS efforts in the first five years.

- (1) Develop an identity for the MTCWS at Michigan Tech and beyond. We will establish a web page to showcase water-related research, educational and outreach efforts at Michigan Tech. We will establish a seminar series which will have two critical missions: external speakers will give the Michigan Tech community views from outside the university and will expose those from outside the university to our efforts; internal speakers will serve to educate ourselves as to the array of water related activities on campus.
- (2) Establish Michigan Tech as the "think tank" for resolving water issues in the state of Michigan. We anticipate that the first efforts will include holding workshops at Michigan Tech, involving individuals from Michigan Tech and invited experts. The focus of these workshops will be producing white papers on the critical water issues facing the state, including: continuing loss of wetlands in Michigan; ongoing challenges of creating viable new wetlands to mitigate wetland losses; effective ways to meet the economic needs of communities that enhance rather than impact local water resources; storm water runoff management; land use; watershed management; coastal zone management; development of monitoring techniques that can easily be utilized by citizens and local communities; and engaging the business community in promoting sustainable water use and protection.
- (3) Coalesce and expand international activities at Michigan Tech related to water issues, by capitalizing on ongoing research on international water issues, the Peace Corps/Master’s International programs, the Sustainable Futures Institute, our ongoing work with the University of Sonora on water problems in Sonora, Mexico, and other relevant educational, research and outreach activities. A recent step is the submission of a pre-proposal to establish an NSF IGERT program on international water and sanitation.
- (4) Support and expand current K-12 and community education/outreach water-related activities at Michigan Tech, especially activities of the Western UP Center for Science, Mathematics and Environmental Education and the Center for Science and Environmental Outreach. We will encourage research and educational activities with a local focus, but also projects that focus on the Upper Peninsula, the Lake Superior watershed, Michigan, and the entire Great Lakes region. Our goal is to tie academic research to meeting the needs of pressing resource management and land use issues, and to make research relevant to meet the needs of K-12 students and teachers, local residents, and local governmental agencies and NGOs concerned with water resources.

Our education and outreach efforts will include the production of curricula and informational materials and the delivery of workshops and institutes that will increase public understanding and involvement in water-related decision-making.

- (5) Develop new degree programs and coursework and emphasize existing, unique educational offerings related to water. The focus of these efforts is to enhance educational offerings related to water issues and to promote these offerings to recruit undergraduate and graduate students. We will seek to establish a new inter-departmental PhD program in water resources management that recognizes the interdisciplinary nature of water and requires students to take courses in at least two departments, such as biological sciences and engineering, or education and engineering. The program will encourage PhD dissertations that also address the multi-disciplinary aspects of water resource management. We believe that this PhD program could be developed as a program that is unique to the US and thus encourage applications from a diverse pool of prospective students. This program could include an international component that addresses the growing conflict over water availability, ownership, and impacts on water quality due to increasing industrial development in developing countries. We will also seek to establish a new concentration in environmental and water resource education that would focus on education communities, local decision-makers, teachers, and non-formal educators about the hydrologic function, management, and monitoring of groundwater, stream monitoring, wetlands, lake monitoring, drinking water, wastewater treatment, threats from air pollutants, and more. This year, we will introduce a perspectives course called “Water and Society.” The intent of the course will be to encourage undergraduates to consider the multi-disciplinary aspects of water issues. The course also is intended to be established as a distribution course.

List of Participating Faculty and Staff. In Appendix I, we have listed faculty and staff who may have an interest in participating in the MTCWS.

Justification. By our estimation, the expertise of at least 10% of the faculty at Michigan Tech is either completely or at least significantly focused on water issues. This expertise on water translates into millions of dollars of research expenditures, more than 50 refereed journal articles, and more than 50 MS and PhD students graduated each year. Furthermore, several degree programs and a large number of courses consider aspects of water issues at Michigan Tech. Coincident with the emphasis at Michigan Tech on water is the rapidly growing concern with water issues in the state, region, nation and the world.

Relationship to Other Michigan Tech Institutes and Centers. The MTCWS will be a center associated with Sustainable Futures Institute (SFI). A considerable level of research, educational and outreach efforts concerning water issues are already ongoing under other institutes and centers at Michigan Tech, such as the Remote Sensing Institute. The formation of the MTCWS is not meant to compete with the efforts associated with these institutes or centers. Any efforts of the MTCWS that might overlap with other institutes or centers will be conducted in cooperation with those units.

Relationship to Michigan Tech Strategic Plan. The MTCWS supports the Michigan Tech Strategic Plan in several ways. We envision that the MTCWS will increase the size of both undergraduate and graduate student bodies. To achieve increases in undergraduate enrollment and retention, we need attractive degree programs and course offerings. An important goal of the MTCWS is to create new courses and degree programs and to generally increase the visibility of the hydrosphere as a critical area of study. To achieve increases in graduate student numbers, we need innovative degree programs and we need research support in order to provide attractive student stipends. We also need to enhance the scholarly productivity and national visibility of our faculty so that prospective doctoral students will choose Michigan Tech. The MTCWS will immediately help to address the first need through the increased research funding. It will also assist in the longer-term task of building more scholarly productivity/visibility.

Governance Structure. The MTCWS is to be administered as a Michigan Tech Research Center, under the Vice President for Research and the Procedures for Establishment and Review of MTU Research Centers and Institutes.

Membership in the MTCWS is open to any academic faculty, research faculty, research staff, or outreach staff member of the Michigan Tech who has an interest in water-related fields or outreach activities. Prospective members submit a simple statement of interest to the MTCWS Director. Once approved, membership is reevaluated every five years. Undergraduate and graduate students are offered student membership, which provides eligibility for MTCWS student grants and fellowships. Student membership is maintained until graduation or withdrawal from the university.

A MTCWS Advisory Committee will be formed. The responsibilities of the Advisory Committee will include (1) approval of any changes to the MTCWS priorities or governing structure, (2) evaluation and approval of reports and self studies related to the MTCWS, and (3) evaluation and approval of any changes to degree programs, minors, or certificates that are housed within the MTCWS.

The Advisory Committee consists of one designee from each participating department or administrative unit. A participating department or administrative unit is defined as a department or unit with at least one MTCWS member. MTCWS members in each department or unit are responsible for selecting a representative to the Advisory Committee once each academic year. The process of selecting representatives must include communications to all MTCWS members in the participating department or unit.

The MTCWS will have a Director. The Director's responsibility is to ensure that the MTCWS functions effectively in fulfilling its mission. Responsibilities also include (1) establishing the MTCWS priorities in manner consistent with the MTCWS Charter and the Advisory Committee's guidance, (2) directing the application and management of the MTCWS's resources, managing MTCWS programs and curricula, (3) directing MTCWS staff, and (4) overseeing MTCWS web pages, seminars, and other related functions, and (5) participating in SFI administration.

The Director will be selected by the Advisory Committee from members of the Advisory Committee or MTCWS members nominated by Advisory Committee members. The candidate Director selected by the Advisory Committee will be subject to approval by the Vice President for Research. The position of Director is meant to be rotated among Advisory Committee members or other particularly active MTCWS members. The Director’s term will be a minimum of one year and a maximum of four years. The new Director is to be determined at least a month before the end of the old Director’s term, to allow an orderly transition.

As the MTCWS activities’ expand, the Advisory Committee will consider adding a managing director to assist the Director with day-to-day activities.

Two external advisory boards will be considered. The purpose of the “local” advisory board would be to assist the MTCWS in prioritizing local issues that require the expertise of the MTCWS. The “local” advisory board would consist of local government officials, representative from relevant county and state agencies, representatives from NGOs with a local focus and interested community members. The “local” sphere would include Houghton-Hancock, the Keweenaw Peninsula, the UP, and the state of Michigan. The purpose of the “general” advisory board would be to advise the MTCWS in prioritizing regional, national, and international issues; to assist MTCWS in securing large-scale funding; and to promote MTCWS at the regional, national, and international level.

Space and Facilities Requirements. No space and facilities are required at this time. In the next few years, however, the MTCWS expects to see expansion in terms of administrative or research staff, visiting researchers, and graduate students. It is expected that space will be needed to facilitate this expansion. When the expansion occurs the MTCWS will seek to make use of currently under-used or unused space on the Michigan Tech campus.

It is also expected that the MTCWS, as a virtual center, will be affiliated with various, existing campus facilities in the next few years.

Funding. The MTCWS activities will be supported through return of the indirect cost recovered from MTCWS-affiliated grants, as shown in Table 1. Enhanced indirect cost return is also provided to the PI and the department to provide incentive for interdisciplinary research and MTCWS affiliation.

Table 1: Indirect Cost Return

Entity	Percent of Indirect Cost Returned
MTCWS	20.7
PI	10.0
SFI	10.0
Department (or Unit)	12.0
College	7.3

In the first year of MTCWS operation, we expect to incur expenses related to the MTCWS activities described in a previous section (*Description of Proposed Activities*) of this proposal, as indicated in Table 2.

Table 2: First Year Expenses

Item	Cost
Release time for Director *	30,000
Clerical support	5,000
Materials	1,000
Web page development	1,500
Travel	6,500
Seminar series	6,000
Total	\$50,000

*equivalent to approximately 1/3 of his/her time

The largest item in the budget is release time for the Director. We expect the Director will be spending a considerable amount of time promoting the MTCWS at Michigan Tech and at the state and national level. Clerical support will be needed to help to organize the Director's activities. Funds are allocated for travel to support the Director's promotional efforts outside of Michigan Tech. Funds are allocated to establish a MTCWS seminar series, which would include outside speakers. The other items in the budget, for materials and web page development, are meant to underwrite promotional efforts.

We note it is unlikely that the total expenses indicated in Table 2 will be generated from overhead return within the first year of MTCWS operation. To this end, we will seek funds from the Vice President for Research or other administrative units.

Review and Evaluation. The MTCWS will submit an annual report to the Vice President for Research at the end of each academic year, as described in the Procedures for Establishment and Review of MTU Research Centers and Institutes. It is expected that the MTCWS will be authorized for five-year terms. In the spring of the fifth year, the MTCWS will conduct an internal review. As long as the results of the review indicate the MTCWS is making progress toward meeting its objectives, the MTCWS Advisory Committee will develop a plan to renew and continue the MTCWS into the next five-year term.

**Michigan Sea Grant
Integrated Assessment Workshop
12 October 2005 - Ann Arbor, Mi**

Overview

Michigan Sea Grant will issue a request for proposals for FY07-09 focusing on Integrated Assessment.

An integrated assessment seeks to address specific management or policy questions by synthesizing existing scientific information and analyzing options.

Various state and federal agencies have been asked to submit research or policy questions to serve as targets for integrated assessments.

There will be 13 project years of funding available with a project year defined as \$50-100K of Sea Grant funding. A 50% match is required.

Key dates in 2006 for the RFP process are –

January 13: RFP Announcement

February 24: Pre-proposals due

April 28: Full Proposals due

October: Notification of Successful Proposals

Michigan Sea Grant Integrated Assessment Workshop

The Role of Scientific Information in Policy

- Science is unable to drive policy.
- We must do the science that policy-makers want.
- Policy relevant science is inter- and multi-disciplinary.
- The world has problems. Universities have departments.



Participation in a successful Integrated Assessment requires that scientists and engineers recognize the critical and, likely the leadership, role of policymakers in the process.

Michigan Sea Grant Integrated Assessment Workshop

The Integrated Assessment Process

Examples of topics which served as the focus for published Integrated Assessments include: acid rain, global climate change, ozone depletion and hypoxia in the Gulf of Mexico.

Once a management or policy question has been identified, the IA follows five critical steps –

- documentation of status and trends;
- description of causes and consequences of trends;
- prediction of future outcomes under action scenarios;
- provision of guidance for potential actions; and
- documentation of uncertainty (future data needs).

A successful IA will include the following –

- stakeholder engagement (public meetings)
- regular science-policy interaction (task force meetings)
- open information access (web page)
- peer review (mediated by MiSG)
- public comment (mediated by MiSG)

Michigan Sea Grant Integrated Assessment Workshop

Integrated Assessment Topics

Integrated Assessment Questions were requested from Michigan DNR, Michigan DEQ, the Michigan Coastal Management Program, the Michigan Office of the Great Lakes and U.S. EPA. Submissions included:

- waterfront redevelopment
- brownfield redevelopment
- aquatic invasive plant management in Saginaw Bay
- Detroit River fish consumption advisories
- Great Lakes water level fluctuation
- shoreline armoring
- groundwater withdrawals
- stabilization of inland lake and stream water levels
- stormwater inputs
- watershed ecosystem management indicators*

*Manistee, AuSable, Jordan, Muskegon and Thunder Bay watersheds.

No U.P.-specific questions were raised. Jen Read said that she expected to add some, e.g.

- the St. Mary's River AOC
- UP watersheds for ecosystem management indicators

We can submit “new” questions, but must gain the support of a management agency willing to sponsor (matching funds) and partner (data sources) with us and accept and apply the findings of the IA.

**Michigan Sea Grant
Integrated Assessment Workshop
12 October 2005
Ann Arbor, Mi**

Half-full – Half-empty

- this seems like an excellent opportunity for the Water Center to get started on a collaborative, cross-disciplinary project;
- the ratio of task magnitude to funding availability looks to be challenging;

Moving Ahead

- if the Water Center wishes to propose a “U.P.-specific” question for an IA, work needs to begin at once;
- suggest issuing a general call to Water Center members to attend a briefing on the Sea Grant IA initiative;
- invite interested parties to participate in the “virtual IA workshop” soon to be available on the Sea Grant website;
- as we go to break, identify a working group to be prepared to respond to the January 13th RFP.