The Michigan Technological University Center for Water & Society (MTCWS) Advisory Committee (AC) met October 17, 2014 at 10:00 am in GLRC 202. The purpose of this meeting was to review the operations of CWS for the new members of the Advisory Committee, and discuss this year’s goals for CWS. The meeting was open to all CWS faculty members.

**Committee Members Present:**

- Noel Urban, Director
- Daisuke Minakata, Civil & Environmental Eng.
- Latika Lagalo - SBE
- Joan Chadde – Western UP Center for Science, Mathematics & Environmental Education
- Jason Gulley – GMES
- Chelsea Schelly – SS
- Charlie Kerfoot - BIO
- Carol Asiala, CWS administrative assistant

**Attachments:** Meeting Agenda presentation & Outreach presentation for FY 2014

### 1. CWS Overview

#### a. Outreach (K-12 teachers/students and community):

CWS contributes funding and CWS faculty and student members volunteer their time as presenters and facilitators for outreach

- i. Green Film/Lecture Series
- ii. Chassell Strawberry Festival excursions on the R/V Agassiz
- iii. Water Festival (middle & high school)
- iv. Lake Superior Celebration
- v. Programs: Ride the Waves, Lake Superior Stewardship Initiative, Lake Superior Youth Symposium

#### b. Education

- i. World Water Day (speaker, poster session, art, social)
- ii. CWS Colloquium
- iii. Graduate Certificate
- iv. CWS-sponsored Seminars
- v. Interdisciplinary degree programs
c. **Research**
   
i. Proposal submission
   
ii. Student travel and research grants
   
iii. Proposal assistance:
   1. Carol Asiala’s time is available for proposal preparation (budgets & justifications, cost share forms, transmittal signatures, proofing & editing bio-sketches and current & pending forms, assistance with sub-awards, proof-reading, references, figures, details of RFP requirements)
   2. The CWS Spring Colloquium course is available as a venue for the educational component of large interdisciplinary grants.

d. **CWS Advisory Committee Structure**
   
i. Advisory Committee
   
   Noel Urban, Director
   Daisuke Minakata, CEE
   Rupali Datta – BIO
   Joseph Wagenbrenner - SFRES
   Joan Chadde – Western UP Center for Sci., Math & Env.l Education
   Colin Brooks – MTRI

   Jason Gulley – GMES
   Chelsea Schelly – SS
   Sarah Green – Chemistry
   Craig Waddell – Humanities
   Latika Lagalo – School of Business & Economics
   Carol Asiala, CWS administrative assistant

   ii. Research & Education Committee: N. Urban, J. Gulley, D. Minakata, C. Schelly
   
   iii. Seminar & Symposia Committee: N. Urban, J. Chadde, J. Wagenbrenner, L. Lagalo

2. **Goals for 2014-15**

a. **Outreach**
   
   Continue with support for Strawberry Festival, K-12 Water Festivals, Green Film Series. If anyone has suggestions for this year’s Green Film selections, please contact Joan Chadde (jchadde@mtu.edu).

b. **Education**
   
i. Spring 2015 Colloquium course needs a volunteer to lead the course and volunteers to lead the weekly course meetings. **Ideas:** (a) invite external speakers to present remotely; (b) interactive sessions are encouraged; (c) keep topics interdisciplinary; (d) base a semester of the colloquium on a topic that funding agencies would be interested in and would be willing to participate (ex. MDEQ, EPA, Fish & wildlife service, forest service, MDNR, NOAA, SeaGrant, etc.)

   ii. CWS supported seminars include Ellen Spears, Celia Chen, Peter McIntyre, Kristen Floress. The World Water Day speaker is yet to be determined.

   iii. 2015 World Water Day theme is Water and Sustainable Development. CWS would like this year’s speaker to focus on positive developments and new innovations in water sustainability.
iv. Participate in SURF – Summer Undergrad Research Fellowship

The Pavlis Honors College (Dean, Lorelle Meadows) has asked the Michigan Tech centers and institutes to consider donating $1000 to the SURF program. In return, CWS members would be mentors and could use the services of undergrads to work on center-related research.

v. Graduate Certificate – it was suggested that a Sustainable Water Resources Systems certificate or minor be offered to undergrads. The Research and Education committee will do some background work on this.

c. Research

i. Research and Travel grants are still available

ii. What is the best method for CWS assistance with large research proposals?

- Carol’s time in proposal preparation (budgets & justifications, cost share forms, transmittal signatures, data management plans, proofing & editing bio-sketches and current & pending forms, assistance with sub-awards, proof-reading, references, figures, details of RFP requirements)
- Listing RFP’s in newsletter
- Is there interest in using CWS funds to bring a team of proposal collaborators to Michigan Tech to develop a proposal in person?
- The CWS Spring Colloquium course is available as a venue for the educational component of large interdisciplinary grants.

iii. Carol Asiala’s time can also be included within a research proposal. She can assist with QAPP plans, project budgets and reporting, develop project web pages and databases.

b. Ideas for fostering more CWS collaboration

i. Host more events where the CWS members can meet informally to discuss research interests

ii. Joint GLRC/CWS brown bag lunch series last spring was well-attended. Last year’s focus was to introduce a topic and foster open discussion among attendees. There is interest in continuing the brown-bag series – need to decide on a format and find a facilitator for the series. Another suggested format was to focus on grad student presentations, giving them an opportunity to present their research here before they present at a professional conference or defend their theses.

iii. Create a small joint CWS/GLRC/EPSSI? Seminar series or make an effort for CWS-sponsored seminars to be held in the GLRC.

c. Old business to still work on:

i. Discussed idea of a CWS facebook page – will look into this and get more ideas on what its focus should be. Will look into using a student intern to work on this.
What is CWS?

Statement of Purpose.
The purpose of the Michigan Technological University Center for Water and Society (CWS) is to enhance the ability and the visibility of MTU personnel to solve water-related problems of local, regional, and international interest.

Mission Statement
The mission of the CWS is to promote research, education, and outreach in all disciplines at Michigan Tech related to water issues.

- 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

- To support interdisciplinary graduate and undergraduate education and research in water-related fields

- To pursue external funding opportunities to support these objectives and to facilitate MTCWS participating faculty to obtain external support.

- To enhance the visibility of MTU and CWS as centers of expertise and cutting-edge research in water-related fields.
## What is CWS? What have we done for education?

<table>
<thead>
<tr>
<th>2012-2013</th>
<th>2013-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>World Water Day</td>
<td>World Water Day – Let’s Talk About Water: Fracking</td>
</tr>
<tr>
<td>CWS Colloquium – Human Impacts on Water (3 students, 2 departments, 8 faculty)</td>
<td>CWS Colloquium – Communicating Wicked Environmental Problems (J. Perlinger, 25 participants from 6 institutions)</td>
</tr>
<tr>
<td>Graduate Certificate</td>
<td>Grad Certificate</td>
</tr>
<tr>
<td>Seminars (CEE – 2, BS – 1, SS – 1, GMES – 1)</td>
<td>Co-sponsored Seminars (BS – 2, SFRES – 1, SS – 1)</td>
</tr>
<tr>
<td>Aquatic Sciences Grad Degree Program discussed</td>
<td></td>
</tr>
</tbody>
</table>
What is CWS? What have we done for research?

<table>
<thead>
<tr>
<th>2012-2013</th>
<th>2013-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 proposals submitted, 3 awarded ($1.9M), 22 projects, research expenditures $1.7M</td>
<td>17 proposals submitted ($8M), 4 awarded ($1.7M), 17 active projects, research expenditures ~$1.8M</td>
</tr>
<tr>
<td>Student Awards (5 poster, 16 travel, 8 research);</td>
<td>Student Awards (6 poster, 11 travel, 3 research)</td>
</tr>
<tr>
<td>Matching funds</td>
<td></td>
</tr>
<tr>
<td>C2E2 - $2,500</td>
<td></td>
</tr>
<tr>
<td>REF2011 - $2,749</td>
<td></td>
</tr>
<tr>
<td>REF2012 - 7,723</td>
<td></td>
</tr>
<tr>
<td>Proposal assistance ($690)</td>
<td>Proposal Assistance ($829)</td>
</tr>
</tbody>
</table>
**What is CWS? What have we done for Outreach?**

<table>
<thead>
<tr>
<th>2012-2013</th>
<th>2013-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Films</td>
<td>Green Films</td>
</tr>
<tr>
<td>8th Annual Scientific Excursions for Public at Chassell Strawberry Festival</td>
<td>9th Annual Scientific Excursions for Public at Chassell Strawberry Festival</td>
</tr>
<tr>
<td>Great Lakes Investigations Teachers Institute</td>
<td>Ride-the-Waves</td>
</tr>
<tr>
<td>Water Festival</td>
<td></td>
</tr>
</tbody>
</table>
Who are we this year?

- Membership: ~60 faculty, 11 Departments/Entities
- Advisory committee: Datta, Green, Minakata, Gulley, Brooks, Lagalo, Wagenbrenner, Shelley, Chadde
  - Bring needs from departments to CWS;
  - Bring news from CWS to departments;
- Seminars & Symposia subcommittee: Joan, Joe, Latika
  - Plan WWD
  - Evaluate/approve requests for seminar support
  - Evaluate speaker nominations
- Education & Research subcommittee: Jason, Daisuke, Chelsea
  - Evaluate research grant proposals
  - Plan Colloquium
  - Evaluate new degree programs
  - Evaluate Research support requests
<table>
<thead>
<tr>
<th>FY12</th>
<th>FY13</th>
<th>Category</th>
<th>FY14</th>
<th>This yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>$10,000</td>
<td>$8,000</td>
<td>Administration</td>
<td>$9,096</td>
<td>$9,000</td>
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<tr>
<td>$6,000</td>
<td>$6,000</td>
<td>Outreach</td>
<td>$4,935</td>
<td>$6,000</td>
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<tr>
<td>$10,000</td>
<td>$14,000</td>
<td>Student Support</td>
<td>$7,000</td>
<td>$10,000</td>
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<tr>
<td>$6,000</td>
<td>$13,660</td>
<td>Research Support</td>
<td>$862</td>
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<tr>
<td>$2,000</td>
<td>$2,400</td>
<td>Other Functions</td>
<td>$2,249</td>
<td>$5,000</td>
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<tr>
<td>$34,000</td>
<td>$44,000</td>
<td>TOTAL</td>
<td>$24,142</td>
<td>$35,000</td>
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<tr>
<td>$34,000</td>
<td>$28,338</td>
<td>IRAD</td>
<td>$31,150</td>
<td>$40,000-</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$57,554</td>
</tr>
<tr>
<td>$1.5M</td>
<td>$1.7M</td>
<td>Research Exp.</td>
<td>$1.8M</td>
<td>?</td>
</tr>
<tr>
<td>$0.6M</td>
<td>$1.9M</td>
<td>New Funding</td>
<td>$1.7M</td>
<td>$2M?</td>
</tr>
</tbody>
</table>
What do we want to do/be this year?

Outreach – Joan’s update
Other suggestions? (Art in GLRC?)

Education:
Colloquium – ?

Seminars –
- Celia Chen (BS)
- Ellen Spears (SS)
- Peter McIntyre (BS)
- 1 pending
GLRC/CWS Seminar Series ?

Graduate Certificate – tell students
Suggestions

- ID topic of local interest to agencies (e.g., exotics) and use that as basis for colloquium involving other universities, agencies, nonprofits, etc.
- Resume brown bag lunches in spring term;
- Put information on web for what is available for undergrads (research, travel, posters);
What do we want to do this year?

- **Research**
  - Graduate student support
    - travel & research grants – remove caps?
  - Other needs?
    - Statistics software?
    - MatLab training?
- **How can CWS best foster/support large research proposal efforts?**
  - Identify upcoming large, multi-disc. Opportunities
    - Provide funding for travel, workshops for planning
  - Carol assists with proposal preparation including budgets
  - Carol is available for project web page development
Suggestions

- Tech Topics release once per term;
- Need flyers, signage;
- Interpretive information in GLRC;
- GLRC as showcase of water efficiency;
Goals and Challenges

- Increase visibility
  - Host conferences
  - Attend conferences, meetings
  - Publicity – newsletter
  - Seminars/Colloquium
- **Increase funding/success** with large multi-disciplinary projects
- **Increase faculty participation**, proposal submission

- **GLRC** – how can CWS & GLRC best pool resources, avoid duplication, and enhance water research at MTU? What should be nature of interaction? How can information flow be enhanced?
Michigan Tech Center for Science & Environmental Outreach

...enhancing the teaching & learning of science and environmental stewardship for K-12 students & teachers, and communities.

Center for Water & Society Annual Report
July 1, 2013-June 30, 2014
Western U.P. Center for Science, Math & Environmental Education

- **Since 2000, a partnership of** Copper Country & Gogebic-Ontonagon Intermediate School Districts and Michigan Tech Center for Science & Environmental Outreach
- Serving schools and communities in Houghton, Baraga, Gogebic, Ontonagon and Keweenaw Counties
- Member of the Michigan Mathematics and Science Centers Network
- Website: [http://wupcenter.mtu.edu/](http://wupcenter.mtu.edu/)
CSEO is entirely grant funded

Grants received 2009-2015:
- Great Lakes Fishery Trust / Great Lakes Stewardship Initiative (since 2007)
- Kinship Foundation (2007-present)
- Keweenaw Community Foundation (multiple grants)
- Michigan STEM Partnership (multiple grants)
- Michigan Space Grant Consortium (multiple grants)
- Michigan Forest Foundation (multiple grants)
- Michigan Works
- Michigan Department of Natural Resources
- National Science Foundation (family engineering)
- NOAA Bay Watershed Education & Training (B-WET)
- NOAA Environmental Literacy- Earth Force (2 grants)
- US Forest Service (2 grants)
- Michigan Tech Center for Water & Society (annual)
Annual Water Festival 2012-2014

2012. Water Festival for Gr. 4-8 = 900 students

2013 Water Festival for Gr. 9-11 = 300 students

2014 Water Festival for Gr. 4-8 = 900 students
+ 50+ presenters (mostly MTU faculty & students)

The Water Festival is designed to:
offer students engaging standards-based experiences taught by MTU scientists, students, and community experts involved in Great Lakes and STEM career fields
2014 Water Festival
at MTU's Great Lakes Research Center

Thursday, October 23

FREE for 4–8th grade students in CCISD & GOISD

Science & engineering,
STEM careers, activities, art,
Great Lakes stewardship,
and MORE!

Come to the Great Lakes Research Center (GLRC) on MTU's waterfront campus for an exciting array of activities that will increase your students' knowledge of Great Lakes science, social studies, and engineering! During each half-day session, students will attend four 35-minute activities.

The Water Festival is designed to offer students engaging standards-based experiences taught by MTU scientists, students, and community experts involved in Great Lakes and STEM career fields. Activities will span content areas and will provide hands-on learning opportunities for students.

What will be offered?
- Remotely-Operated Vehicles
- Non-native invaders
- Great Lakes monitoring
- Low impact development
- Land & water stewardship
- Keweenaw geology
- Aquatic food web
- Water around the world
- Emerging contaminants
- Fish ecology & habitat

Who are the presenters?
Presenters include Michigan Tech faculty, staff, students, community organizations, government agencies, authors, artists, photographers, and more.

Choose one session to attend:
Morning: 8:45 - 11:30 am
Afternoon: Noon - 2:50 pm

Register Early!
(space for 20 classes per session)
Bus travel stipends (1 bus per school) for first 10 schools to register.
Register online at: http://wupcenter.mtu.edu

Please indicate:
✓ Teacher name and school
✓ Grade level
✓ Class size
✓ Morning or afternoon session

Questions Contact:
Joan Chaide jchaide@mtu.edu
Lloyd Wescoat lwescoat@mtu.edu
Or call: (906) 487-3341

Lake Superior Celebration

6:00-8:00 PM ~ TUESDAY, APRIL 22
at Michigan Tech’s Great Lakes Research Center

HANDS-ON ACTIVITIES
- Building tours: green roof & other cool stuff!
- Dollar Bay High School S.O.A.R. Team’s ROV demo
- Build a groundwater model in a cup
- Wild About Wildlife!

LOCAL OFFERINGS
- Growing Up Green ~ new PBS video on Great Lakes Stewardship Initiative
- School-Community Projects
- Taste “Superior” local foods
- Plants, herbs, honey, maple syrup, jams, other products

CELEBRATE!
- Wildflowers of the U.P. by Bob Wild, Portage Mountain Wilderness State Park
- Water’s Edge Art Exhibit with Amy Arntson, Bonnie Peterson, Joyce Koskenmaki
- Displays & exhibits
- Cake & lemonade

LAKE SUPERIOR STEWARDSHIP INITIATIVE
Bringing schools & communities together in the stewardship of Lake Superior and its watershed.

ALL INVITED! FREE!

Sponsored by Lake Superior Stewardship Initiative, Michigan Technological University, and Western U.P. Center for Science, Mathematics and Environmental Education.
Funded in part with a grant from the Michigan Space Grant Consortium.
Green Film Series: Issues & Dialogue

One Thursday each month, January - May 2014

Location: G002 Hesterberg Hall, Michigan Tech Forestry Bldg
Time: 7:00-9:00 pm; enjoy coffee, dessert, and facilitated discussion
Cost: FREE; $3 suggested donation

Jan. 23 - Fuel A shrinking economy, failing auto industry, rampant unemployment, out-of-control national debt, and an insatiable demand for energy weigh heavily on all of us. “Fuel” points the way out of this mess by explaining how to replace every drop of oil we now use, while creating green jobs and keeping our money here at home. Not dwelling on the negative, the film shows solutions already within our reach. (112 min.)

Feb. 20 - Tiny: A story about living small The “tiny house” movement can be traced back as far as Thoreau’s book, Walden. Thoreau’s ideal of simplifying life, considering which comforts and possessions can be done without in order to live a life that is “more deliberate” rings true for many. Whatever their motivation, Tiny House owners have come up with some inspiring designs and innovations for living comfortably in small spaces. (62 min.)

March 20 - Gasland Focusing on US communities impacted by natural gas drilling (fracking), the producer spent time with citizens in their homes and on their land as they layed out stories of natural gas drilling including a variety of chronic health problems directly traceable to contamination of their air, of their water wells or of surface water. Throughout the documentary, Fox reached out to scientists, politicians, and gas industry executives. Find out why hydraulic fracturing was exempted from the Safe Drinking Water Act in the Energy Policy Act of 2005. (100 min.)

April 17 - Thin Ice Climate science has been coming under increasing attack. In this documentary, geologist Simon Lamb takes his camera to climate science colleagues around the world to find out what’s really going on and reveals the human face of climate science. The film provides an accessible introduction to the latest Assessment Report of the Intergovernmental Panel on Climate Change. (114 min.)

May 15 - GMO OMG Explores the systematic corporate takeover and potential loss of humanity’s most precious and ancient inheritance: seeds, investigating how loss of seed diversity and corresponding laboratory assisted genetic alteration of food affects young children, the health of our planet, and freedom of choice everywhere. Following one family’s struggle to live and eat without participating in an unhealthy, unjust, and destructive food system. Has the global food system been irrevocably hijacked, or can we take back our food, heal the planet, and live sustainably? (85 min.)

More info: http://www.wupcenter.mtu.edu/ and http://lakesuperiorstewardship.org

Cosponsored by Lake Superior Stewardship Initiative, Michigan Tech Center for Water & Society, Keweenaw Unitarian Universalist Fellowship, and Keweenaw Land Trust
# 2014 Green Film Series
## Budget & Participation

### Income:
- 2014 - $600 Keweenaw Community Foundation
- 2013 – Copper Country League of Women Voters and Friends of the Land of Keweenaw

<table>
<thead>
<tr>
<th>Date</th>
<th>Film/Source</th>
<th>Film Cost</th>
<th>Refreshment Cost</th>
<th>Donations Income</th>
<th>Total Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 23</td>
<td>Fuel</td>
<td>Free</td>
<td>LSSI</td>
<td>$70</td>
<td>40</td>
</tr>
<tr>
<td>Feb. 20</td>
<td>Tiny Homes</td>
<td>$250</td>
<td>CWS</td>
<td>$93</td>
<td>100</td>
</tr>
<tr>
<td>March 20</td>
<td>Gasland</td>
<td>$275</td>
<td>KLT</td>
<td>$115</td>
<td>90 (30% HS students)</td>
</tr>
<tr>
<td>April 17</td>
<td>Thin Ice</td>
<td>$255</td>
<td>LSSI</td>
<td>$40</td>
<td>33 Snowstorm/no school</td>
</tr>
<tr>
<td>May 15</td>
<td>GMO OMG</td>
<td>$250</td>
<td>KUUF</td>
<td>$93</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Total Expenses</td>
<td>$1030</td>
<td></td>
<td>$318</td>
<td>343</td>
</tr>
</tbody>
</table>
Hosted
10th Biennial Lake Superior Youth Symposium
May 16-19, 2013
for 500 students & teachers in Gr. 8-12 from MI, WI, MN, ON
at Michigan Tech
http://lakesuperioryouth.org/index2013.html

Next Year
11th Biennial Lake Superior Youth Symposium
May 14-17, 2015
Thunder Bay, Ontario, Canada
hosted by Lakehead C&V School.
We will send 1-2 buses for 45-90 western UP students & teachers to attend
Ride the Waves Participation Summary ~ May-Oct. 2014

48 student excursions AND 9 community excursions

25 ~ Aquatic Food Web & Lab Investigation
6 ~ Mine Waste Remediation & Torch Lake Restoration
3 ~ Investigate “the Lake” with a Remotely Operated Vehicle
4 ~ Lake Superior Ring of Fire

567 students + 219 adults = 786 Total Participants

Total MTU Faculty & Staff “in-kind” = 300 hours

“Thank you!! This is fantastic! We are so excited to have the students go on this trip.

"I want to know how you guys chose this job!"

“Thanks for doing the boat trip. It was 10x better than fun!”

"I liked best that since there weren't so many people on the boat, you got a chance to do everything."