Great Lakes Climate Change Science and Education Systemic Network

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Abstract: A "needs assessment" for climate change education in the Great Lakes Region

The National Science Foundation funded Great Lakes Climate Change Science and Education Systemic Network project is implementing a two year planning effort to create innovative education programs to benefit the public, formal and informal educators, scientists, and journalists in the region. The current partners include Eastern Michigan University, NOAA's Great Lakes Environmental Research Lab, University of Michigan, Michigan State University, Knight Center for Environmental Journalism, Ashland University, Ann Arbor Hands-On Museum, and the College of Exploration.

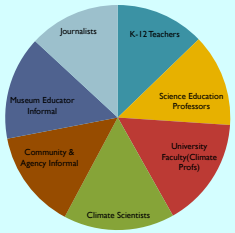
To create a network we are planning to bring together different stakeholders to write two white papers, one from the scientists' perspective and the other from the educators' (both formal and informal) perspective. The current partners key personnel have produced a list of possible people/institutions to include in a stakeholder survey. Some of key personnel developed their databases from scratch. Some used listserves, and others tried a snowball email.

To identify the best strategy that will inform these various stakeholders and the public regarding the science of climate change in the Great Lakes Region a survey was developed for each of the different stakeholders. The survey is divided into three parts 1) questions which convey some understanding of climate science and climate change 2) demographic questions, and finally 3) questions that pertain to the professional concerns or perspectives of the various stakeholders. This survey is being used to provide the project team with a "needs assessment" from the interested members of those stakeholders. The results from this process will be summarized.

Key Personnel

Key Personnel	Institution
Sandra Rutherford	Eastern Michigan University
Tina Bishop and Peter Tuddenham	The College of Exploration
Rochelle Sturtevant	NOAA's Great Lakes Environmental Research Laboratory and Michigan Sea Grant
Don Scavia	RISA and the Graham Sustainability Institute
Howard Walters	Ashland University (Ohio)
David Poulsen	The Knight Center for Environmental Journalism at MSU
Mel Drumm and Erin Gong	Ann Arbor Hands-On Museum
Ken Frank	Michigan State University; Counseling, Educational Psychology and Special Education and Professor of Fisheries and Wildlife
Julie Libarkin	Michigan State University

How well are the stakeholders grounded in climate science?



The K-12 teachers, science education professors, and Journalists had the lowest scores on the test (between 72% and 75%).

The informal educators were a surprise with higher than anticipated scores of 84% for museum educators and 80% for community and agency educators).

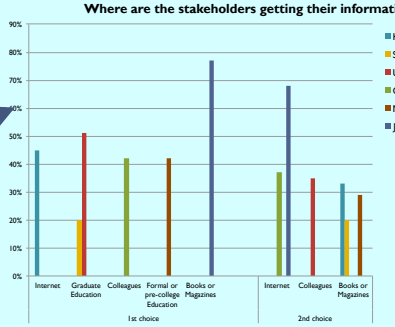
Whereas the climate scientists and the university faculty had the highest scores on the test (90% and 89%).

Questions from the Geoscience Concept Inventory http://geoscienceconceptinventory.wikispaces.com/home with others designed by David Poulsen and Kanni Haung

Trying to answer these 3 questions:

1. How well are the stakeholders grounded in climate science?
2. Where are the stakeholders getting their climate information from?
3. How are the stakeholders using climate change information in their professional practice?

Where are the stakeholders getting their information from?



First and second choices where the stakeholder checked "a lot" for their answer

Although this question asked the stakeholders about a variety of sources the bold sources were the main choices for the stakeholders.

- newspapers
- **books and magazines**
- **Internet**
- television
- radio
- family and friends
- **colleagues**
- **formal pre-college education**
- **graduate education**
- undergraduate education
- museums, zoos, aquariums
- movies

Stakeholder: Journalists

Reporters primarily tend to report on climate change 1-3 times a year.

Stakeholder: Science Education Professors

38% have students create lesson plans or activities about climate change.

31% have students do library or internet research about climate change.

Stakeholder: Informal Educators

The informal educators from the non-profits and from government agencies indicated that they primarily (40%) develop climate change online resources, workshops or activities, and lectures.

60% said they mostly do this development for adults 18 to 30 years of age.

The informal educators from museums indicated that they primarily (30%) develop climate change exhibits, workshops, demonstrations, and lectures.

60% said they mostly do this development for youth 6 to 12 years of age.

Stakeholder: Climate Scientists

Although only 45% indicated that they typically partner with extension, education, or media professionals to meet their broader impacts, 86% said they would be interested in partnering with this groups.

Stakeholder: K-12 Educators

76% of K-12 teachers said they cover climate change in some way in their teaching.

Only 9.8% of K-12 teachers teach about climate change in the context of the Great Lakes.

Resources are needed in multiple areas to teach climate change. Ex. Glaciers/Artic, Math, Plant Biology

Stakeholder: Climate Professors

79% are lecturing on climate change without a lab.

36% are lecturing on climate change with a related lab.

59% have students do library or internet research about climate change.

Surveys were developed in partnership with the key personnel and formatted for online use by Howard Walters. Most key personnel sent the surveys to their listserves or databases. Laura Schneider , Sandra Rutherford, and Howard Walters summarized and analyzed the data.

Questions for further research:

- What resources are the stakeholders looking for? What do they need to teach about climate change?
- Which stakeholders are currently teaching about climate change in the Great Lakes?
- Which stakeholders would like to teach climate change within the context of the Great Lakes?
- What is needed to foster partnerships between stakeholders?
- What is needed to meet scientists' broader impacts?