

EXTENSION CLIMATE ADAPTATION NEEDS ASSESSMENT

An activity of the project: *Coordinating Climate Outreach in the Great Lakes Region* as part of the Great Lakes Regional Water Program

Minnesota Results (n=39)

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Adapting to a changing climate and associated extreme weather events is a critical challenge for communities and the national Extension system. Community decision-makers and Extension educators often have both diverse opinions and uncertainty about how to best address climate change – sometimes compounded by budget challenges and life-threatening risks. To help increase educator capacity in this area, a team of 17 Extension professionals from Land Grant and Sea Grant Extension in six Great Lakes states, and staff from the National Oceanic and Atmospheric Administration (NOAA), and River Network, 1) developed a set of core competencies for community outreach professionals addressing climate science and climate adaptation in urban and urbanizing areas and 2) completed a climate adaptation needs assessment based on the core competencies (results featured here).



Minnesota Members of the Coordinating Climate Outreach Initiative Team:

Jesse Schomberg, Minnesota Sea Grant;
Mark Seeley, University of Minnesota

The science-based core competencies list provides consistency and focus for adult education and outreach efforts. The list, created by climate scientists and educators, is available on the Great Lakes Regional Water Program website (at <http://go.wisc.edu/j4f29e>).

The purpose of the needs assessment was to determine Extension educators' ability and need to teach climate change and urban adaptation strategies. It was sent to Land Grant Extension community development and non-agricultural natural resource educators in the six-state Great Lakes Region and members of the Great Lakes Sea Grant Network (which also includes NY and PA) in fall, 2012. The University of Wisconsin Environmental Resources Center's Evaluation Unit administered the online survey with the help of state program leaders and a Sea Grant assistant director. The overall regional response rate was 43% (214/494).

In Minnesota, 67% (39/58) of educators at least partially completed the survey (meaning they answered more than demographic questions). The 58 eligible from MN included 48 educators from the Center for Community Vitality, Water Resources Team, Fish and Wildlife Conservation Education Group, Forestry Team, and Housing Team, as well as 10 MN members of the Great Lakes Sea Grant Network.

Minnesota respondents' demographics & personal beliefs about climate change:

- *Representing Land Grant and/or Sea Grant:* **82%** work for Land Grant, **15%** work for Sea Grant, and **3%** both
- *Representing one or more states:* **86%** work only in MN, and **14%** work in MN and at least one other state
- *Sex:* **38%** female & **62%** male
- *Age:* **3%** under 30, **41%** 30-40 years old, and **56%** 50+
- *Number of years working for Extension:* **16%** ≤5 years, **53%** 6-20 years, and **31%** 21+
- **66%** educate about climate adaptation strategies in their current work
- **100%** believe that most scientists think climate change is happening
- **91%** are extremely or very sure that climate change is happening
- **87%** are extremely or very sure that climate change is at least partially caused by humans

Topics Taught

Respondents reported topics taught in an open ended question asking them to identify three topics they most frequently teach. The most commonly taught topics included ecosystem management (13%), water quality (13%), and climate change or climate change adaptation (13%). Several respondents from Minnesota educated on invasive species (10%). While the sample size for each topic is too small to draw any conclusions about climate adaptation education, the percentages of those also educating on climate adaptation are high for each of the most frequently taught topics.

Need for Climate Adaptation

Majority of respondents serve communities that have expressed moderate need for climate adaptation education

The majority of respondents (44%) indicated that their communities have expressed a moderate need for climate adaptation (CA) education, and 9% indicated their communities have expressed a high need.

One-quarter (25%) of respondents reportedly serve communities expressing a low need for CA education, while 22% serve communities expressing no need for such education.

Likelihood of Addressing Climate Change given Communities' Perceived Need

Educators from communities expressing moderate or high need for climate adaptation education more likely to educate on climate adaptation in the next year

29% of those who reported that the communities they serve have expressed “no” or a “low” need for climate adaptation (CA) are likely to communicate about CA as part of other educational efforts, compared with 56% of those who reported that the communities they serve have expressed a “moderate” or “high” need for CA.

High need	9%
Moderate need	44%
Low need	25%
No need	22%

Top Obstacles

Insufficient time, community priorities, and insufficient funding each commonly listed as obstacles

Respondents were asked to choose their top three greatest obstacles to applying climate change adaptation strategies to their work. The two most common top obstacles were insufficient time (38%) and lack of applicability to community priorities (38%), with 4 people designating each as the number one obstacle. Similar rates of respondents reported insufficient funding (34%) and insufficient direction from leadership (31%) as top obstacles.

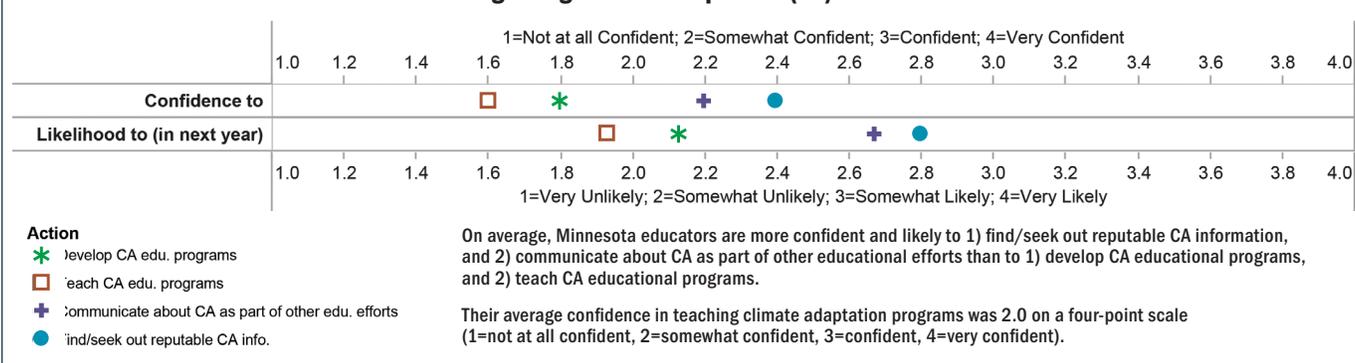
	Unlikely	Likely
No/Low Need	71%	29%
Moderate/High Need	44%	56%

Significance of Obstacles Faced

At the regional level, educators who indicated “insufficient knowledge” or “position not relevant to climate change” as top obstacles were significantly less likely and confident to take action regarding climate adaptation than those who did not choose those as top obstacles. (Those were the only two obstacles, of 12 listed, found to negatively influence confidence and likelihood.)

Obstacles	% of educators who picked as one of top three	# of educators who picked as one of top three	# of educators who picked as #1 obstacle
Insufficient time	38%	12	4
Lack of applicability to community priorities	38%	12	4
Insufficient funding	34%	11	4
Insufficient direction from leadership	31%	10	2

Confidence and Likelihood to Take Action Regarding Climate Adaptation (CA)



Self-Rated Knowledge

Respondents more knowledgeable concerning climate science than climate change effects or climate change adaptation

Respondents were asked to rate their knowledge on many topics related to climate science, the effects of climate change, and adapting to climate change. Respondents indicated greater knowledge levels regarding climate science, when compared to climate change effects and climate adaptation. Although the average knowledge level for climate science roughly translated to “Knowledgeable,” mean scores for climate change effects and climate change adaptation more closely translated to “Somewhat Knowledgeable.”

Average Knowledge of CLIMATE SCIENCE	Mean: 2.7	Average Knowledge of CLIMATE CHANGE EFFECTS	Mean: 2.2	Average Knowledge of CLIMATE CHANGE ADAPTATION	Mean: 2.1
answered < 2	13%	answered < 2	32%	answered < 2	45%
answered between 2&3	38%	answered between 2&3	50%	answered between 2&3	53%
answered ≥ 3	49%	answered ≥ 3	18%	answered ≥ 3	2%

1=Not at all knowledgeable; 2=Somewhat knowledgeable; 3=Knowledgeable; 4=Very knowledgeable

Teaching Abilities

Majority could teach protecting, enhancing and restoring native habitats; none could teach planning for increased risk of asthma or heat related illnesses

Two (2) of the 24 listed topics could be taught by half or more of respondents from Minnesota: protecting, enhancing, and restoring native habitats (60%) and encouraging water conservation (50%). Very few respondents reportedly could teach topics related to human health risks of climate change, including planning for increased risk of asthma and other respiratory illnesses (0% could teach), planning for increased risk of heat related illnesses (0%), and the effects of climate change on public health (9%).

Teaching Item	% that can teach	
	IN MINNESOTA	IN REMAINDER OF REGION
Protecting, enhancing, and restoring native habitats	60%	37%
Encouraging water conservation	50%	52%
The function of greenhouse gases in the atmosphere	47%	39%
Maintaining communities of native species through ongoing management interventions	46%	30%
The difference between climate variability and climate change	46%	44%
The effects of climate change on ecosystems	46%	34%
The difference between climate change adaptation and climate change mitigation	44%	37%
Protecting, enhancing, and restoring wetlands	38%	35%
The scientific community’s degree of consensus that climate change is real	38%	40%
How the earth’s climate system works	36%	33%
The effects of climate change on water management	34%	29%
The scientific community’s degree of consensus about recent causes of climate change	32%	32%
The difference between a scientific theory and the common use of the word theory	32%	38%
Using lake level and storm water data in planning	31%	24%
Encouraging renewable energy use	30%	43%
Expanding long-term monitoring of populations, habitats, and other natural resources	29%	27%
Optimizing ditch and shoreland buffers	29%	24%
Conserving energy used for heating and cooling	22%	34%
The effects of climate change on economic development	20%	19%
Reducing the urban heat island effect	19%	23%
Increasing disaster preparedness	13%	22%
The effects of climate change on public health	9%	14%
Planning for increased risk of asthma and other respiratory illnesses	0%	4%
Planning for increased risk of heat related illnesses	0%	8%

When asked what kinds of educational opportunities would be useful to increase their capacity to deliver climate change information to communities, educators in the region (not just Minnesota) said that they want education on locally relevant information, sources of information, adaptation strategies, and incorporating climate change information into other programs.

Regional Recommendations For Land Grant and Sea Grant Extension

- **Build upon existing strengths**
 - *Foster partnerships among Land Grant and Sea Grant educators.* Land Grant and Sea Grant Extension should foster partnerships among educators to increase capacity to address climate-related issues across Great Lakes states. A higher percentage of Sea Grant educators reported 1) being able to teach climate-related topics and 2) actively teaching climate adaptation strategies. Land Grant educators, who on average have lower capacity to do climate-related programming, could learn from Sea Grant educators. In addition, Land Grant educators cover both coastal and non-coastal areas within the Great Lakes states, potentially providing additional geographic coverage for climate-related programming.
 - *Share success stories from educators who have found ways to build climate-related topics into their programming.* Across Great Lakes states, certain types of educators (e.g. those who frequently teach forestry, sustainability, energy, and water quality) are more likely to be currently educating on climate adaptation strategies. Their stories could provide examples for others whose programming may have climate linkages (those teaching community development, food systems/food safety/farmers markets, and economic development) but are not currently incorporating climate adaptation into their programs.
- **Increase educator access to training on climate change impacts, climate adaptation strategies, and climate science.** Insufficient knowledge was one of the most prevalent barriers to Extension programming on climate-related topics. Providing more training for community development and natural resource educators on these topics would increase the ability of educators to respond to community needs influenced by a changing climate. Given already full work loads and community preferences, professional development for Extension related to climate change should focus on how they can incorporate climate information into other programs that are seen as a higher priority for Extension constituencies.
- **Increase educator access to climate-related information and sample course materials that could easily be incorporated into existing educational programs.** Educators indicated a high level of interest in having a source for climate-related information and sample course materials that they could easily incorporate into existing educational programs. The Coordinating Climate Outreach Initiative has created a short list of resources organized by Extension programming topics to get educators started (find these at GreatLakesClimate.org). More sample course materials or curriculum are needed to simplify the task of sifting through an overwhelming amount of information. Finally, we suggest a “human resource” approach, where educators already incorporating climate-related information into their programs would agree to be contacted by other educators in need of assistance. While this approach was not suggested by respondents, it has emerged during the process of locating and organizing the many resources that are available to support Extension programming on climate-related issues.

For more information on the details of the study or the results, contact Rebecca Power (rlpower@wisc.edu), Jenna Klink (jklink@wisc.edu), or Astrid Newenhouse (astridn@wisc.edu) at the University of Wisconsin-Extension Environmental Resources Center.

For regional, state-specific or Sea Grant-specific results, visit <http://go.wisc.edu/j4f29e>

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