

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

Great Lakes Regional Results (n=214)

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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,

**3-STEP
PROCESS**

**1) Identified
core
competencies**



**2) Conducted
needs
assessment**



**3) Developed
educational
materials**

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).

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 response rate was 43% (214/494). Thirty-eight percent of the respondents work in WI, 22% in MI, 20% in MN, 12% in IL, 10% in OH, 9% in IN, and 2% each in PA, NY, and other states.

Extension demographics & personal beliefs about climate change:

- *Representing Land Grant and/or Sea Grant:* **80%** work for Land Grant, **16%** work for Sea Grant, and **5%** both
- *Representing one or more states:* **94%** work in one state and **6%** work in more than one state
- *Sex:* **44%** female and **56%** male
- *Age:* **7%** under 30, **45%** 30-49 years old, and **48%** 50+
- *Number of years working for Extension:* **28%** ≤5 years, **51%** 6-20 years, and **20%** 21+
- **50%** educate about climate adaptation strategies in their current work
- **94%** believe that most scientists think climate change IS happening
(the other 6% is made up of 11 respondents: 10 "don't know" and one believes that most scientists think climate change is not happening)
- **80%** are extremely or very sure that climate change is happening
(12% are somewhat sure; rest are unsure or sure to some degree it is not happening)
- **80%** are extremely or very sure that climate change is at least partially caused by humans
(7% are somewhat sure; rest are unsure or sure to some degree it is not at least partially caused by humans)

Topics Taught

About a quarter (24%) of the respondents reported educating on economic development in an open-ended question asking them to identify three topics they most frequently teach. Other frequently taught topics include land use, organizational development, water quality, leadership, ecosystem management, and invasive species.

Many educators who reported frequently teaching the following topics also reported that they currently educate on climate adaptation:

- Forestry (91% of those teaching forestry also educate on climate adaptation)
- Sustainability (89%)
- Energy (86%)
- Water Quality (83%)

Few educators who reported frequently teaching the following topics also reported that they currently educate on climate adaptation:

- Community Development (8% of those teaching C.D. also educate on climate adaptation)
- Food Safety, Food Systems, and Farmers Markets (17%)
- Leadership (22%)
- Economic Development (28%)

Need for Climate Adaptation

39% of respondents said their communities have expressed a moderate or high need for climate adaptation education

One-third (33%) of respondents indicated that their communities have expressed a moderate need for climate adaptation education, while 6% indicated their communities have expressed a high need.

The majority of respondents (62%) reported that their communities expressed a low need or no need for climate adaptation education.

High need	6%
Moderate need	33%
Low need	33%
No need	29%

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

38% of those who reported that the communities they serve have expressed “no” or “low” need for climate adaptation are likely to communicate about climate adaptation as part of other educational efforts, compared with 63% of those who reported that the communities they serve have expressed a “moderate” or “high” need for climate adaptation.

	Unlikely	Likely
No/Low Need	62%	38%
Moderate/High Need	37%	63%

Top Obstacles

Insufficient time and community attitudes were most common obstacles

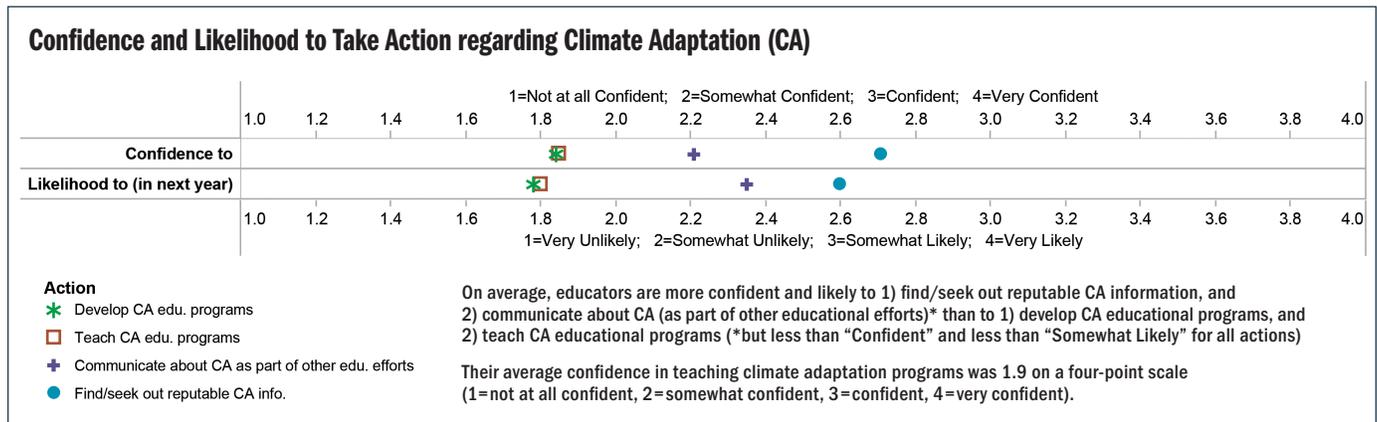
Respondents were asked to choose their top three greatest obstacles to applying climate change adaptation strategies to their work. The most common obstacles were “insufficient time” (46%) and “community attitudes about climate change” (42%), which was most commonly rated as the number one obstacle (n=35).

Insufficient knowledge was rated as an obstacle by 34% of respondents, and was the third most common item to be rated the number one obstacle. This suggests an educational opportunity, as many of those who view insufficient knowledge as an obstacle seem to view it as a significant one.

Obstacle	% 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	46%	86	28
Community attitudes about climate change	42%	78	35
Lack of applicability to community priorities	36%	66	17
Insufficient knowledge/Don't know what to do	34%	64	26
Position not relevant to climate change	24%	45	19

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.)



Self-Rated Knowledge *Educators reported more knowledge on 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 reported most knowledge regarding climate science, with mean scores halfway between “somewhat knowledgeable” and “knowledgeable.” For the categories of climate change effects and climate change adaptation, average knowledge levels roughly translated to “somewhat knowledgeable.”

Average Knowledge of CLIMATE SCIENCE	Mean: 2.5	Average Knowledge of CLIMATE CHANGE EFFECTS	Mean: 2.2	Average Knowledge of CLIMATE CHANGE ADAPTATION	Mean: 2.1
answered < 2	28%	answered < 2	54%	answered < 2	50%
answered between 2&3	48%	answered between 2&3	38%	answered between 2&3	44%
answered ≥ 3	24%	answered ≥ 3	8%	answered ≥ 3	6%

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

Teaching Abilities

Many educational opportunities exist

The majority of respondents reported not being able to teach 23 of 24 climate-related topics (see table at right for percentages that “can teach” each topic). A notably higher percentage of Sea Grant (SG) than Land Grant (LG) respondents reported being able to teach these topics (e.g. almost two-thirds (65%) of SG can teach the effects of climate change on ecosystems compared to 29% of LG, and 61% of SG can instruct on protecting, enhancing, and restoring native habitats compared to 37% of LG).

Teaching Item	% that can teach (n=174-187)
Encouraging water conservation	52%
The difference between climate variability and climate change	45%
Protecting, enhancing, and restoring native habitats	42%
The function of greenhouse gases in the atmosphere	41%
Encouraging renewable energy use	41%
The scientific community’s degree of consensus that climate change is real	40%
The difference between climate change adaptation and climate change mitigation	39%
The effects of climate change on ecosystems	38%
The difference between a scientific theory and the common use of the word theory	37%
Protecting, enhancing, and restoring wetlands	36%
How the earth’s climate system works	34%
Maintaining communities of native species through ongoing management interventions	34%
The scientific community’s degree of consensus about recent causes of climate change	33%
Conserving energy used for heating and cooling	32%
The effects of climate change on water management	31%
Expanding long-term monitoring of populations, habitats, and other natural resources	28%
Using lake level and storm water data in planning	26%
Optimizing ditch and shoreland buffers	25%
Reducing the urban heat island effect	22%
Increasing disaster preparedness	21%
The effects of climate change on economic development	19%
The effects of climate change on public health	13%
Planning for increased risk of heat related illnesses	7%
Planning for increased risk of asthma and other respiratory illnesses	4%

When asked what kinds of educational opportunities would be useful to increase their capacity to deliver climate change information to communities, educators said that they want education on locally relevant information, sources of information, adaptation strategies, and incorporating climate change information into other programs.

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. 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 (jklkink@wisc.edu), or Astrid Newenhouse (astridn@wisc.edu) at the University of Wisconsin-Extension Environmental Resources Center.

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

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