COMMUNITY PLANNERS' PERCEPTIONS OF COASTAL RISK

An Evaluation of the Michigan Association of
Planning Community Resiliency Institute

PREPARED BY

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December 3, 2018

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ACKNOWLEDGMENTS

INTRODUCTION AND PURPOSE

The Great Lakes coastal region offers a rich and diverse habitat for millions of people in North America. Although beautiful places to live, these coastal areas are also highly dynamic and constantly changing ecosystems. This makes it difficult to predict how climate change will impact naturally fluctuating lake levels and subsequent coastal erosion. However, it is projected that Lake Michigan coastal communities in Michigan will experience more frequent and severe storms, increases in winter and spring precipitation, less precipitation as snow and more as rain, reduced ice cover, more flooding events with the risk of erosion, and increases in extreme temperatures (GLISA, 2014).

The Michigan Association of Planning (MAP) hosted their Spring Institute Resiliency Summit April 26, 2018. The Spring Institute is a day-long conference focused on providing community leaders and key stakeholders with tools and information they can use to make their communities more resilient. MAP and the Michigan Department of Natural Resources Office of the Great Lakes (OGL) have formed a partnership that focuses on community resiliency, specifically what data and actions are available to local governments, how to educate communities, and resiliency policy options.

The conference had five sessions. The first session, "The Case for Resilience," focused on planning for resilience (Ronda Wuycheck, Harry Burkholder), climate change data and projections (Dr. Jeff Andresen, Dr. Guy Meadows), and urban legal planning (Dr. Richard Norton). The second session, "Approaches to Resilience," was a panel of five community leaders who spoke about ways to move forward with community resilience in mind. The panel, moderated by Shanna Draheim (Policy Director, Michigan Municipal League), consisted of Matthew Naud (Environmental Coordinator, City of Ann Arbor), Alison Waske Sutter (Sustainability Manager, City of Grand Rapids), Joel Howrani Heeres (Sustainability Director, City of Detroit), and Stacey Fedewa (Community Development Director, Grand Haven Township). The third session was a

luncheon with Keynote Speaker, Kristin Baja, who is the Urban Sustainability Directors Network Climate Resilience Officer. The fourth session, "Data-based Resilience Solutions," was made up of six panelists who spoke about different sources of data and their potential applications for communities. The panelists included Larissa Larsen (AICP, CEP University of Michigan), Zach Rable (University of Michigan Coastal Management Planner), Jerry Hancock (CFPM Stormwater and Floodplain Program Coordinator, City of Ann Arbor), Chris Hoving (Adaptation Specialist, Michigan Department of Natural Resources), Mike Sobocinski (State Hazard Mitigation Planner, Michigan State Police), Harry Burkholder (AICP Executive Director, Land Information Access Association). The final session was an interactive conversation between previous speakers and conference attendees and was intended to begin an open dialogue between community planners and data experts.

The purpose of this study was to evaluate the Michigan Association of Planning's Spring Institute Resiliency Summit. We evaluated participants' perceptions of environmental risk, what they thought of the sessions, and asked for any comments or suggestions for future events. By learning what participants think of this conference, we can design future events that are more closely tailored to community members' interests and needs. The information collected in this evaluation can help inform MAP about local planners' and officials' risk perceptions and knowledge about resilience. Furthermore, it is important to investigate the potential disconnect in risk and resilience viewpoints between stakeholders and experts. This evaluation was also important to make sure the goals of the conference were met and benefited attendees. The conference was designed to impact attendees' views towards community and coastal resilience, and to provide attendees with new knowledge and an appreciation for resilient practices.

SURVEY METHODOLOGY

Subjects

Participants included anyone attending the Spring Institute Resiliency Summit, regardless of sex, gender, race, ethnicity, disability, religion, beliefs, or other defining characteristics. Subjects were asked to provide their birth year at the end of the survey, and surveys were only included in analysis if respondent was over the age of 18. Any surveys completed by individuals under the age of 18 were destroyed. There were 130 registered attendees. This project was approved by the Michigan State University Institutional Review Board as exempt on April 24, 2018 (STUDY00000450).

Questionnaire

We asked participants to indicate what best described their role in their community to allow us to compare responses between different members of the community. Response options were: community planner, consultant, community engineer, emergency manager, and other. Participants were then asked to rank what MAP and OGL consider the six risks to Michigan Communities: agriculture and food systems, coastal dynamics, extreme heat, heavy rain and flooding, natural ecosystems, and severe winter storms (GLISA, 2014). To better understand what conference attendees perceived as high and low risks to Michigan communities, we asked participants to rank six risks on a scale from 1 to 6 (with 1 being the lowest risk and 6 being the highest risk). We also asked participants to mark which of the five sessions they attended before filling out the survey.

We then asked participants to indicate how much they agreed or disagreed about the benefits of the Spring Institute, using a 5-point Likert Scale with 1 (completely disagree) and 5 (completely agree). Participants were given the following statements: I know more about community resilience after attending; I care more about community resiliency after attending; I learned at least one new tool I can use to help my community; I feel confident in my ability to find and use data and information to make decisions; I feel I better understand the challenges and trade-offs of community resiliency. We also asked participants to indicate their level of concern of the six resiliency indicators (Cutter et al., 2008): ecological, social, economic, institutional, infrastructure, and community on a 4-point Likert Scale with 1 (not concerned at all) and 4 (very concerned).

Participants were also asked to write-in what they found most interesting or compelling, and to list any suggestions or comments for future events. Lastly, participants were asked to self-report socio-demographic data, including: race, education, annual income, birth year, zip code, and gender.

Data collection and analysis

At the beginning of the conference we provided all attendees with a pen and paper survey and invited attendees to complete the survey. If attendee participated in the survey, we collected their their completed surveys in a marked container on a table next to the check-in table at the end of the conference. The survey was anonymous and completing the survey was completely voluntary. The software package R version 3.5.1 was used to calculate descriptive statistics and summaries.

RESULTS

Response rate and socio-demographics

One hundred thirty-two individuals pre-registered for the conference. We received 40 usable surveys (30% response rate). Of those who responded, 14 participants were male (42%) and 22 were female (61%).

Ninety-two percent of respondents were white (non-Hispanic), 79% had either a bachelor's or master's

degree, and the mean annual income was $75,000-$100,000. Attendees birth years ranged from 1950 to 1995 ($\bar{x}$ = 1971±13.57).

One attendee was of Hispanic or Latino, or Spanish origin. Two people did not respond to this question. Most participants who responded were white (92%), two participants were black or African American (5%), and one respondent was white/mixed (2.5%).
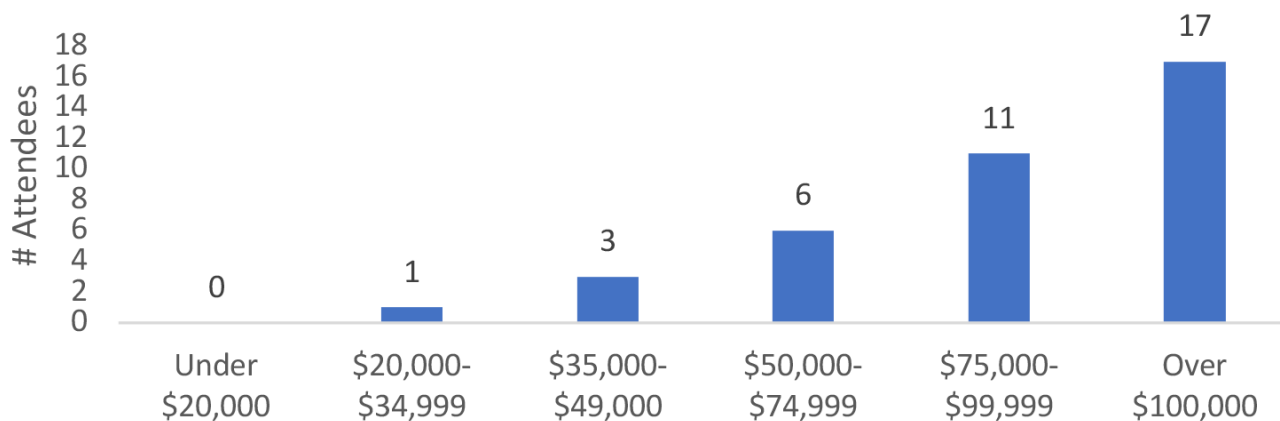
Figure I. Annual household income.
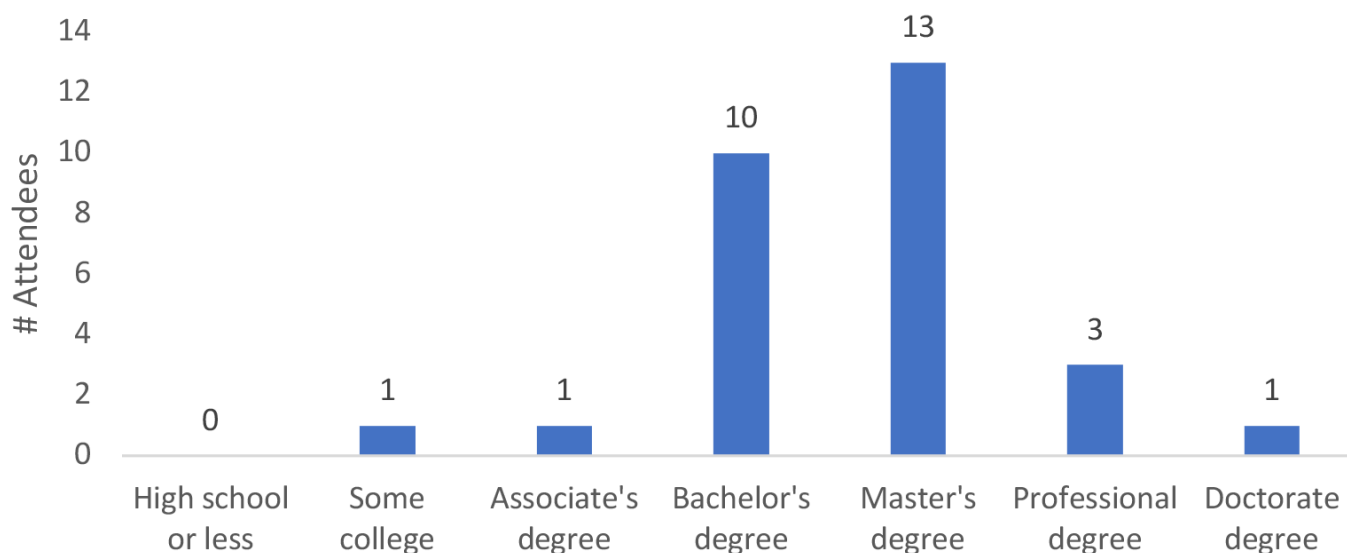
Figure II. Highest level of education.

Perceptions of risk to Michigan communities.

Respondents ranked heavy rain and flooding as the highest risk ($\bar{x} = 3.97\pm2.13$), followed by coastal dynamics ($\bar{x} = 3.68\pm1.34$). While severe winter storms were ranked as the lowest risk ($\bar{x} = 3.18\pm1.64$).

Figure III. Participants were asked to rank the six risks to Michigan communities. 1 indicates lowest risk, 6 indicates highest risk.
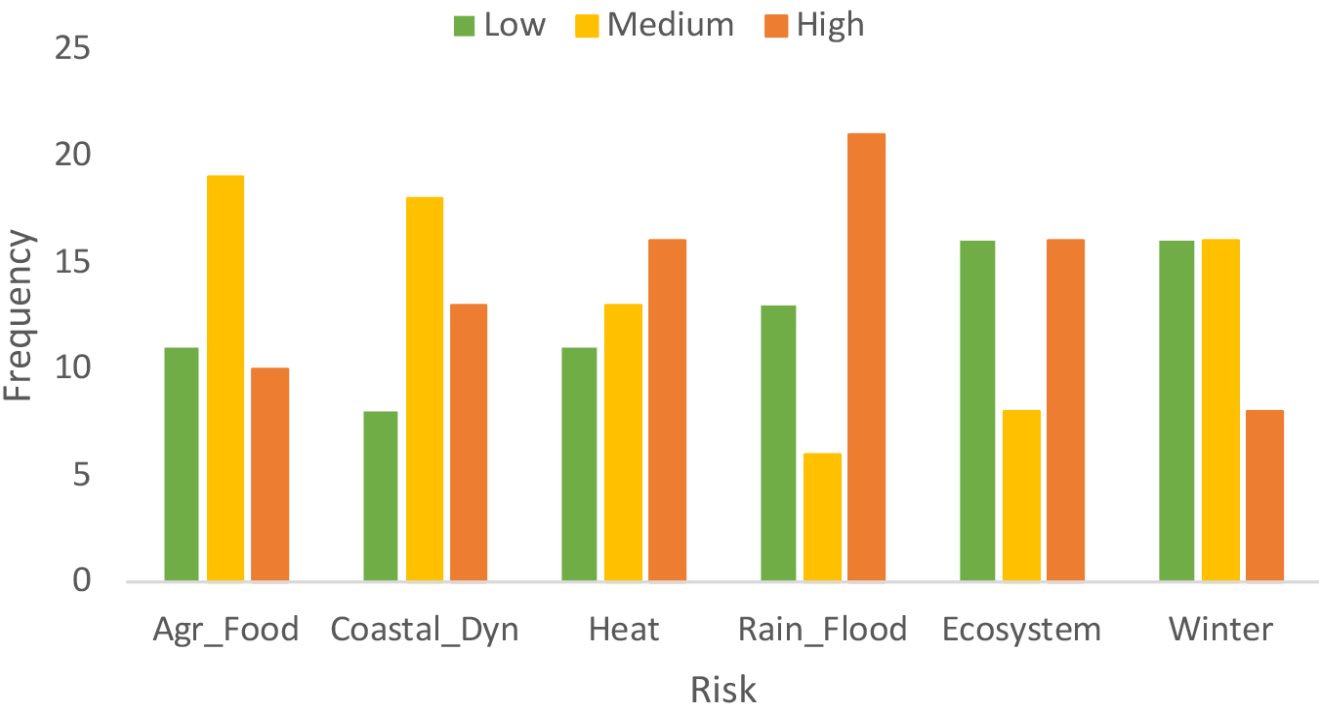
Figure IV. Overall level of risk for the six risk categories to Michigan communities. Low (1-2), medium (3-4), and high (5-6).

Evaluating attendees' confidence and knowledge about resilience.

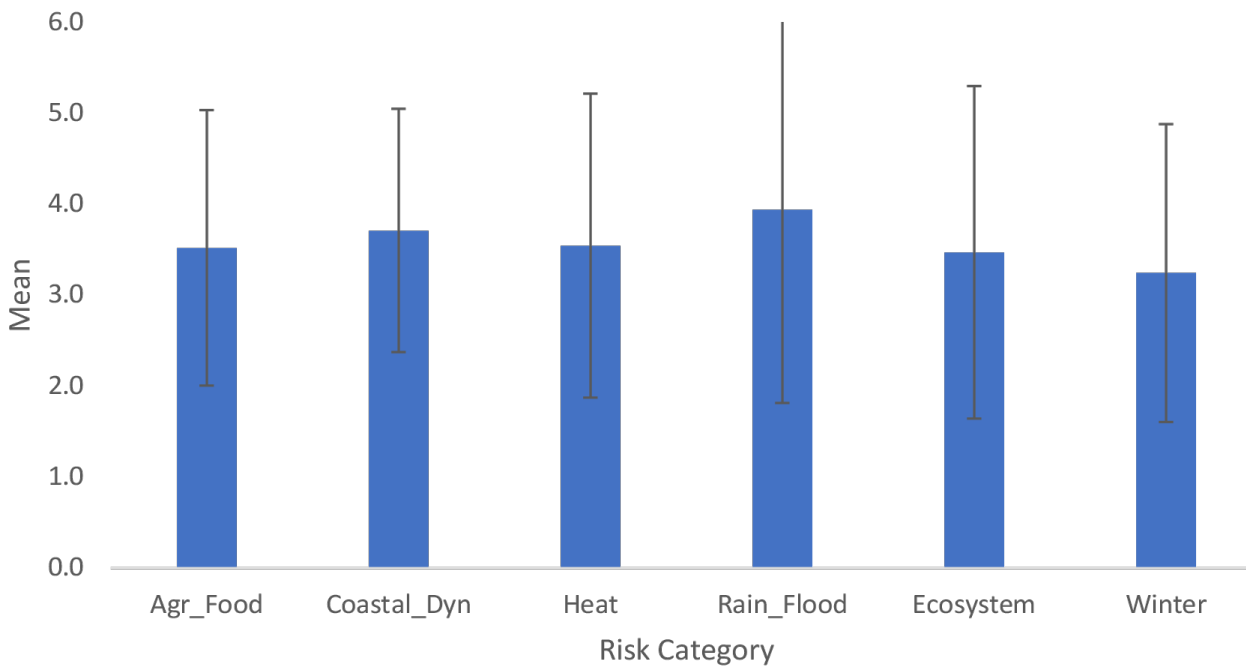Respondents indicated they were most confident they "know more" ($\bar{x}$ = 4.8±0.33) and "learned" ($\bar{x}$ = 4.6±0.53) about community resilience as a result of participating in the MAP resiliency summit. Respondents were least confident in their "ability to find and use data to make decisions." ($\bar{x}$ = 4.2±0.698). Only one attendee noted they "slightly disagreed" with the statement: I feel I better understand the challenges and tradeoffs of community resilience.

Figure V. Participants were asked questions about confidence and knowledge in resiliency. 1 (completely disagree) to 5 (completely agree).

Evaluating attendees' level of concern for resiliency capacity.

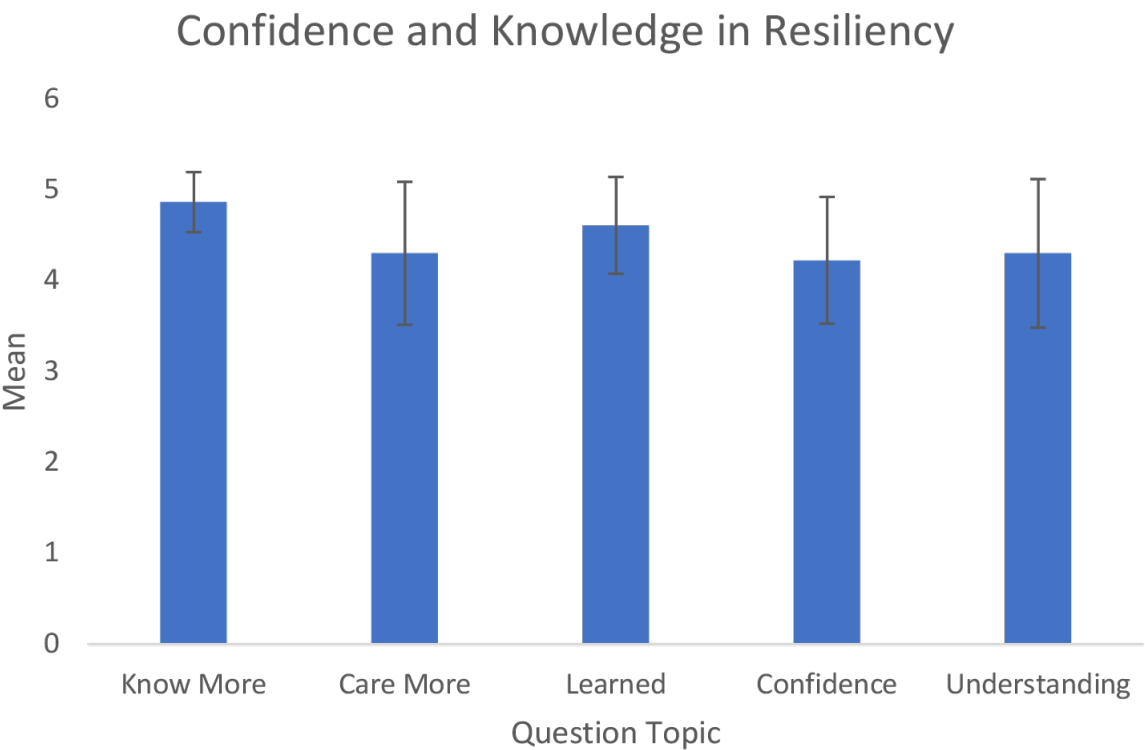Respondents indicated they were most concerned about the resiliency capacity of infrastructure ($\bar{x}$ = 3.6±0.53), ecological ($\bar{x}$ = 3.6±0.54), and social factors ($\bar{x}$ = 3.5±0.64). Respondents were least concerned about institutional resiliency capacity ($\bar{x}$ = 2.9±0.68). Only one respondent noted they felt "not concerned at all" about the resiliency capacity of economic factors.
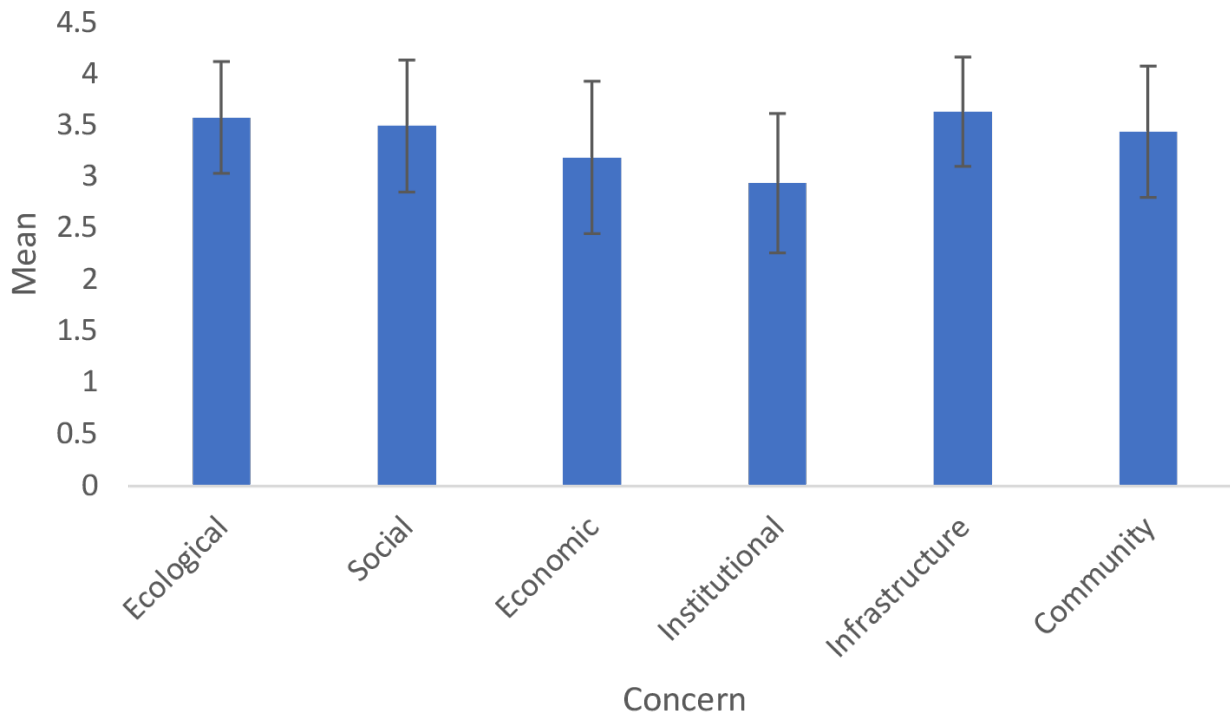

Figure VI. Participants were asked how concerned they felt about six indicators of resilience. 1 (not concerned at all) to 4 (very concerned).

What is the most interesting or compelling thing you learned today?

Respondents most often (62.5%) mentioned the climate trends data that was presented. Six respondents also mentioned climate action planning or resiliency planning (37.5%). Six respondents mentioned either Resilience Hubs (keynote luncheon) or the importance of community resiliency in general (37.5%).

Do you have any suggestions or comments for future events?

Eighteen attendees responded (45%). Six respondents were interested in hearing about how they can be pro-active or methods they can use (33.3%). They were generally interested in results and solutions. Six respondents also mentioned logistical suggestions, predominantly about longer breakout sessions and shorter presentations (33.3%). Two respondents mentioned they enjoyed hearing about other community planners' experiences and resiliency strategies (11.1%).

CONCLUSION

Participants who completed MAP Spring Institute Resiliency Summit were primarily wealthy, well-educated, white (non-Hispanic) planning and municipal professionals. About half of the participants were community planners (47.5%) and the other half were predominantly a mixture of managers/coordinators/directors (20%), government employees (10%), and educators (7.5%). The remaining participants identified their positions as "other" (15%).

Respondents most often ranked heavy rain and flooding as the highest risk to their communities. This could potentially be due to the heavy rain and flooding experienced by most of lower Michigan earlier in the Spring, prior to the conference. Severe winter storms were listed as the lowest risk to communities, which was somewhat surprising as the winter of 2013-2014 saw record breaking snowfall and temperatures. Previous climate change research suggests that extreme weather events influence public opinion and raise awareness about issues related to climate change (Melillo, Richmond, & Yohe, 2014; Owens & Driffill, 2008; Weber, 2011) This is perhaps explained by the fact that the impact of these extreme events is diluted over time.

Encouragingly, most respondents said they felt confident they know more and learned about community resilience after attending the conference. Although participants ranked their "ability to find and use data to make decisions" the lowest, the average is still above "slightly agree" on the 5-point Likert scale. As questions were asked in the context of the conference, this suggests that the MAP Conference successfully educated participants about community resilience and helped them feel more confident and knowledgeable about resiliency issues. As data is important for policy makers to make informed decisions, conferences like the Spring Institute Resiliency Summit are beneficial.

Respondents also indicated that infrastructure, ecological, and social factors are their top priorities of concern. Cutter et al. (2008) describes infrastructure

as transportation networks, housing development, and commercial and manufacturing establishments. Ecological indicators include wetland area, rates of erosion, biodiversity, percentage of impervious surfaces, and number of coastal defense structures (e.g. seawalls). Lastly, social factors are demographics, social networks, faith-based organizations, and community values. This suggests attendees may be open to learning and discussing about improving resiliency in these areas or learning about practical methods to maintain community resilience.

Participants mentioned they were most interested in the climate trends data that was presented and the resiliency planning sessions that were offered. Participants also suggested future conferences could offer pro-active methods and solutions to address issues of climate change. Future conferences could include an interactive activity that asks people to come up with solutions to a coastal hazard using available climate change data. It seems that participants are aware and concerned about issues affecting their communities due to climate change, and they would benefit most from tangible solutions to increase their resiliency. Future conferences could build off the data and information presented at the Resiliency Summit and focus more on methods and practical solutions. For example, the community planners' experiences and resiliency strategies session gives conference attendees useful approaches that have been successful in other coastal communities. Potential future sessions could include topics such as, "communicating the importance of resiliency with your community," "how to avoid turning the Great Lakes into a bathtub," or a structured session that allows attendees in adjacent communities to solve hypothetical problems together. Offering professionals a structured environment to make connections and figure out how they can share information across peer-to-peer networks can help increase shared governance. Because Michigan coastal areas are managed by local governments, often small with limited capacity, such networks would be beneficial in coastal habitat stewardship.

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