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Climate Communication through a Community Perspective

An Honors College Project Presented to
the Faculty of the Undergraduate
Honors College of
James Madison University

By Kathryn McGee

Accepted by the faculty of the Honors College, James Madison University, in partial fulfillment of the requirements for the Honors College.

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PUBLIC PRESENTATION

This work is accepted for presentation, in part or in full, at the JMU Honors Symposium on April 18, 2018.

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Abstract

This project utilized psychology and science communication strategies to develop creative, locally framed climate change messaging. Through an online survey of 300 Gloucester County, VA residents, community themes of place attachment, environmental connection, risk assessment and climate change acceptance were recorded. Using the results from the survey I created a website, <https://guidinggloucester.wixsite.com/home>, which serves as an avenue for communicating with Gloucester residents. The website displays the results of the survey, explains climate change information that is relevant to Gloucester County, and gives examples of local actions to help increase engagement in climate solutions. In addition to the website, I propose using signs modeled after the Gloucester symbol, the beehive, to display information about environmental concerns in areas that citizens reported being highly attached to. Using place attachment and addressing community specific concerns can serve as a guide for framing climate change through a community perspective in rural, coastal communities.

Introduction

Over the past decade, scientists have expressed increasing certainty of the effects and danger of climate change (IPCC, 2014; Melillo et al., 2014). In the United States, however, climate change is often perceived as a divisive and partisan issue (Mellman Group, 2011; Pew Research Center, 2016). As communities begin preparing for climate change, it is important to understand how citizens approach processing climate change and community resilience in conjunction with their beliefs and lifestyle. For many, community resilience against climate change is a relatively new concept and refers to a community's preparedness and ability to bounce back after natural disasters. As global climate change continues to become a local and regional concern, communities are called to prepare themselves for the specific new challenges their region will face (Melillo, 2014; Mellman, 2011).

Studies have shown several factors that influence individuals' perceptions of climate related threats. One example, a person's place attachment (one's connectedness with an area or community) can play a role in determining how they perceive the threat of climate change and sea level rise (Scannell & Gifford, 2013; Devine-Wright et al., 2015). In British Columbia, Scannell and Gifford (2013) found that people with a higher sense of place attachment reported greater climate change engagement. They also found that using locally framed messaging was more likely to elicit climate engagement than no message; however, globally framed messages did not have an increased effect (Scannell & Gifford, 2013). Using locally framed education may be able to combat climate change's notoriously large "psychological distance", meaning that even people who believe in climate change, mostly view it as separated from their daily lives (Scannell & Gifford, 2013). In the United States, most Americans believe that climate change is happening, but less than half believe that it is caused by humans or will affect them personally

(Howe, et al., 2015). Utilizing community frames to explain climate change that is scientifically accurate and locally relevant may be a solution to this crisis.

The purpose of this project was to assess the place attachment, environmental risk perception and climate change awareness of citizens of Gloucester County, Virginia. Gloucester is a rural community in the Chesapeake Bay region that is predicted to experience between 1.6-7.5 ft of sea level rise by 2100 (Gloucester County, 2016; NOAA, 2017). In a series of maps created by Yale University, Gloucester was modeled to show lower than national average acceptance of climate change and perceived risk (Howe, et al., 2015). To determine the most appropriate messaging for citizen education and engagement, I conducted a survey to determine place attachment within the community, environmental connection and risk assessment, as well as current climate change acceptance. After collecting results from the county, I developed a website to display the results of the survey and to frame climate change from a local perspective. In addition, through this project, I propose a new, grass roots environmental communication method utilizing Gloucester's local and recognizable symbol, the beehive. These physical beehive-shaped signs will communicate environmental issues in areas of highest place attachment in Gloucester County.

The Survey

The backbone of this project utilized psychology as a method for developing better science communication (Scannell & Gifford, 2013). To move forward with framed science communication, I need to first understand what is important to the members of communities with whom I am communicating. Questions in the survey fell into four general categories: Demographics, Place Attachment/ Environmental Connection, Risk Assessment, and Climate

Change acceptance. Responses were recorded on a 5-point Likert Scale from Strongly agree to Strongly Disagree and later condensed into Agree (combining strongly agree and agree), Neither agree nor disagree, and Disagree (combining strongly disagree and disagree) to simplify reporting. The survey was distributed during the month of February 2018 via electronic sources including community pages on Facebook and the county’s Town Crier email list-serve. In the month of distribution, I collected over 300 responses from Gloucester County citizens.

Demographics

Demographics are vital to understanding which parts of the community are being represented. The participants in this study represented all age groups from 18-65+ with a slight majority in the 50-64 years old range (Table 1). Participants gender was overwhelmingly female compared to male and prefer to self-describe (Table 2). I compared males and females using a T-Test and found that there was no significant difference between the genders for age, political beliefs, or years lived in Gloucester.

Table 1. Age of Gloucester County survey participants.

| Age | <i>N</i> | % |
|-------|----------|-------|
| 18-24 | 26 | 8.33 |
| 25-40 | 80 | 25.64 |
| 41-49 | 58 | 18.59 |
| 50-64 | 105 | 33.65 |
| 65+ | 43 | 13.78 |

Table 2. Gender of Gloucester County survey participants.

| Gender | <i>N</i> | % |
|--------|----------|----|
| Female | 256 | 82 |
| Male | 55 | 17 |

All political beliefs were represented, with conservatives and moderates making up about 60% while liberals and not political accounting for about 40% (Table 2). Most respondents lived in Gloucester for more than 10 years indicating our participants have a strong fundamental knowledge about the county (Table 4).

Table 3. Political beliefs of Gloucester County survey participants.

| Political Beliefs | <i>N</i> | % |
|-------------------|----------|-------|
| Conservative | 94 | 30.23 |
| Moderates | 90 | 28.94 |
| Liberal | 69 | 22.19 |
| Not political | 58 | 18.95 |

Table 4. Years lived in Gloucester County by survey participants.

| Years Lived in Gloucester | <i>N</i> | % |
|---------------------------|----------|-------|
| 1-5 years | 43 | 13.78 |
| 6-10 years | 48 | 15.38 |
| 11-20 years | 71 | 22.76 |
| 20+ years | 146 | 46.79 |

Overall, with all age groups and political beliefs represented and most participants having lived in Gloucester for several years, I feel this survey reveals useful patterns for developing communication strategies in Gloucester County.

Place Attachment/ Environmental connection

Place attachment, one’s psychological connectedness to an area, can be assessed through several related connections such as pride in an area, a sense of connection to the community, incorporating place into identity, and the community’s ability to meet one’s needs (Scannell & Gifford, 2013). Responses to questions of this nature were ranked on a Likert scale from strongly agree to strongly disagree. Overall, the responses show a strong place attachment with Gloucester County as a whole (Figure 1).

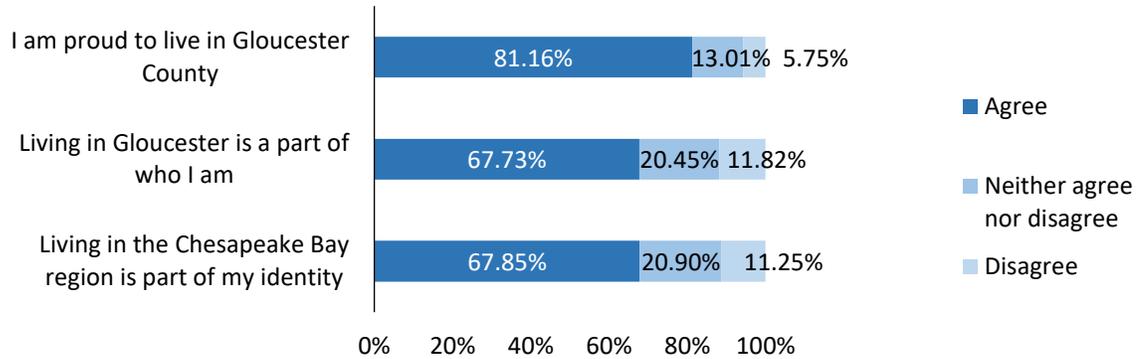


Figure 1. Gloucester County Place Attachment Results. Strongly agree/ agree responses were combined, and strongly disagree/disagree responses were combined.

I also asked participants to list specific places in Gloucester County they feel the greatest sense of connection, a question adapted from Restall (2017). After identifying locations, the participants were asked about the connection they feel to nature, the community, and assessed for attachment in these places on the Likert scale. Identified locations in Gloucester highlighted connection to the environment (87.91% Agree), and community (87.21% Agree). There was also a significant correlation ($p < 0.01$) for choosing areas where there was connection to both nature and community, suggesting that in many cases the best community areas are natural areas. Participants were also asked about the amount of time they spend outside daily, how they spend that time, and if being outside made them happy. Most participants enjoy being outside (94.82%) and spend more than an hour outside for pleasure daily (65.16%). This emphasis on nature within the Gloucester community suggests that the nature/place attachment relationship is an important framework to incorporate as the county moves forward with education and resilience planning.

Risk Assessment

In the past 15 years alone, Gloucester County has been impacted by several large hurricanes, a tornado and several areas of the county experience frequent flooding. Climate change is projected to intensify these coastal risks with more severe storms and higher sea levels. In the survey, only 31% of participants reported being personally affected by floods and hurricanes while 63% report that areas they care about have been affected by natural processes (Figure 2). Interestingly, there was no significant correlation between participants who have been affected by flooding and those who say they are prepared for hurricanes and flooding. Also, only 55% of the participants reported they feel Gloucester County is prepared for hurricanes and flooding (Figure 2).

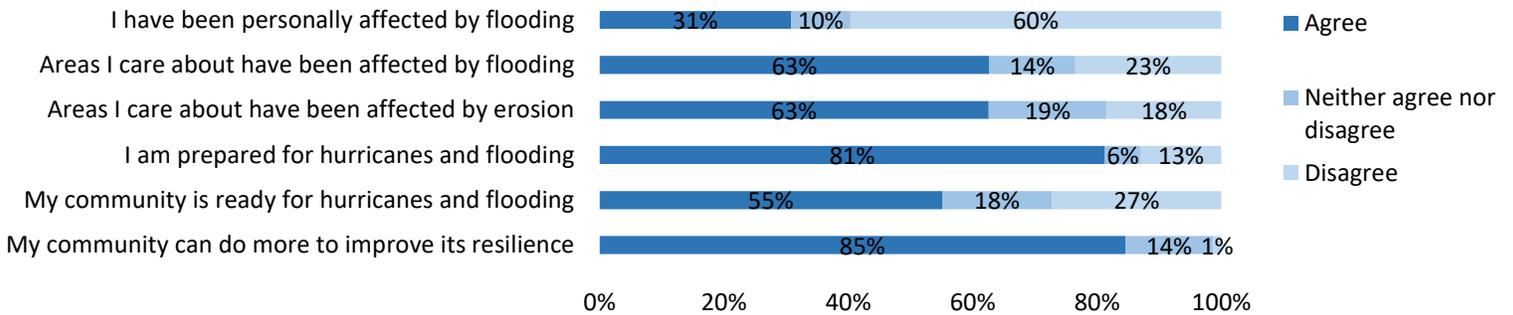


Figure 2. Gloucester County Risk Assessment. Strongly agree/ agree responses were combined, and strongly disagree/disagree responses were combined.

In addition to natural hazard experience and preparedness, participants were asked what strategies would be effective in improving community resilience with questions adapted from Mellman Group (2011) (Figure 3). With 85% of participants agreeing that Gloucester can do more to improve its resilience and between 50-80% support for the listed resilience strategies,

the data suggests that Gloucester citizens are ready to protect their county and move towards a more resilient future.

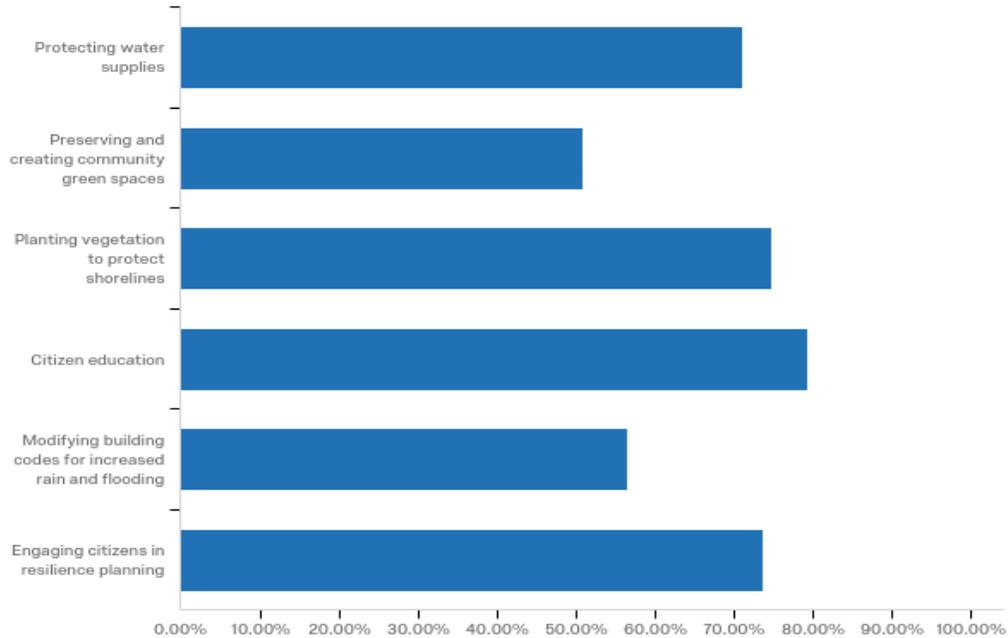


Figure 3. Actions that can prepare Gloucester for extreme weather events. Participants were able to select all options (or none) they thought would make a difference in Gloucester. Questions adapted from the Mellman Group (2011).

Climate Change

The goal of this project has been to identify strategies for communicating climate change to Gloucester County. With this goal in mind, it is essential to understand the county's current acceptance level. According to this survey, Gloucester County ranked above the national average

and projected responses for climate change acceptance, personal risk from climate change, and community risk from climate change (Howe, et al., 2015) (Figure 4).

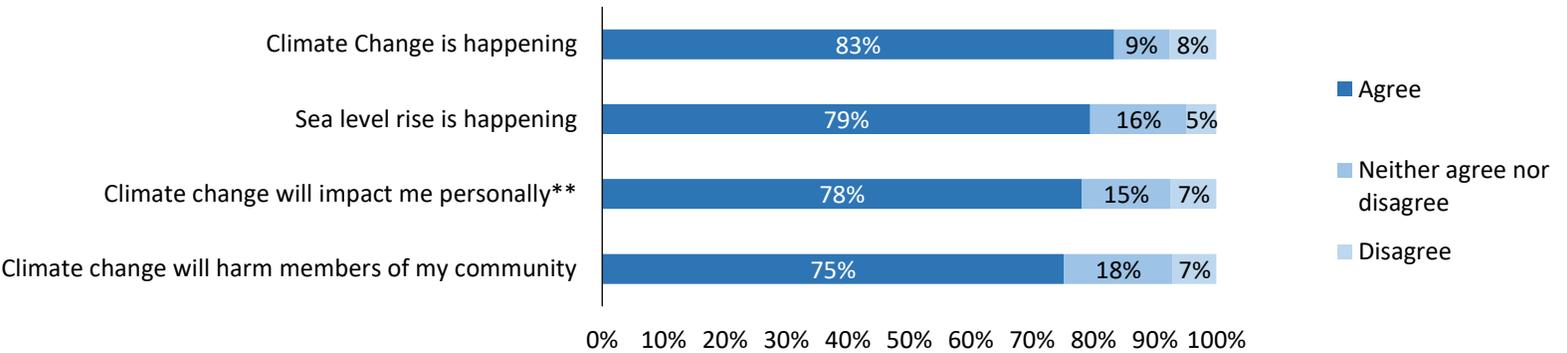


Figure 4. Climate Change Acceptance in Gloucester County. Strongly agree/ agree responses were combined, and strongly disagree/disagree responses were combined. ** This is more than twice the national average (32%) for acceptance that climate change will impact/ harm me personally (Howe, et al., 2015).

While the overwhelming acceptance of that climate change is good for public support of resilience plans, it is important that people also understand the cause of climate change and have a sense of agency in finding solutions to climate change in their community. When I asked participants about their first reaction to the term climate change, only 45% of people responded they believe they can make a difference, even though they trust the science (Figure 5).

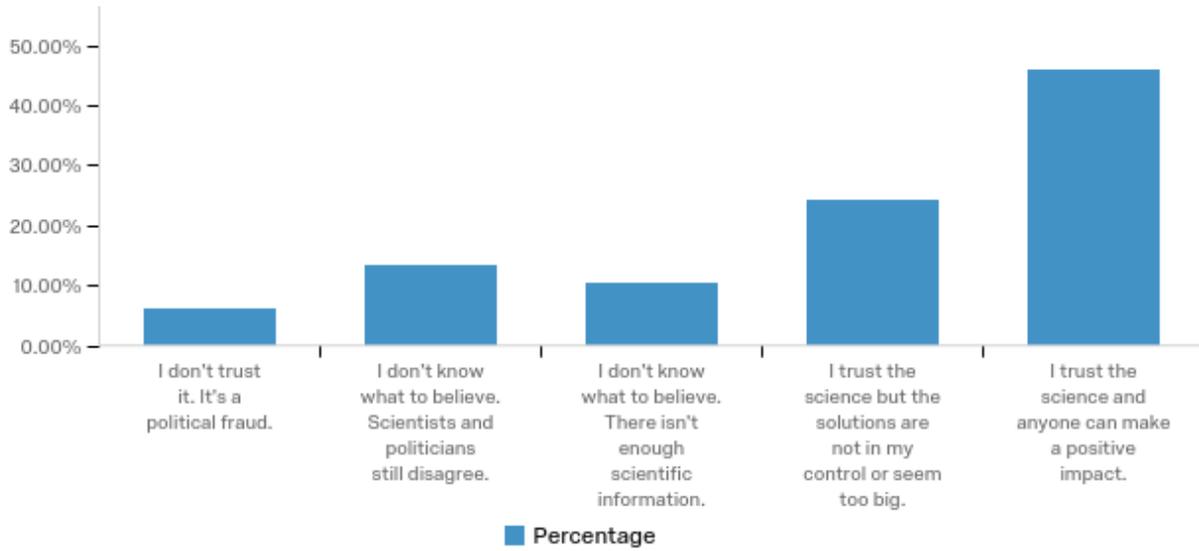


Figure 5. First reaction to the term Climate Change in Gloucester County.

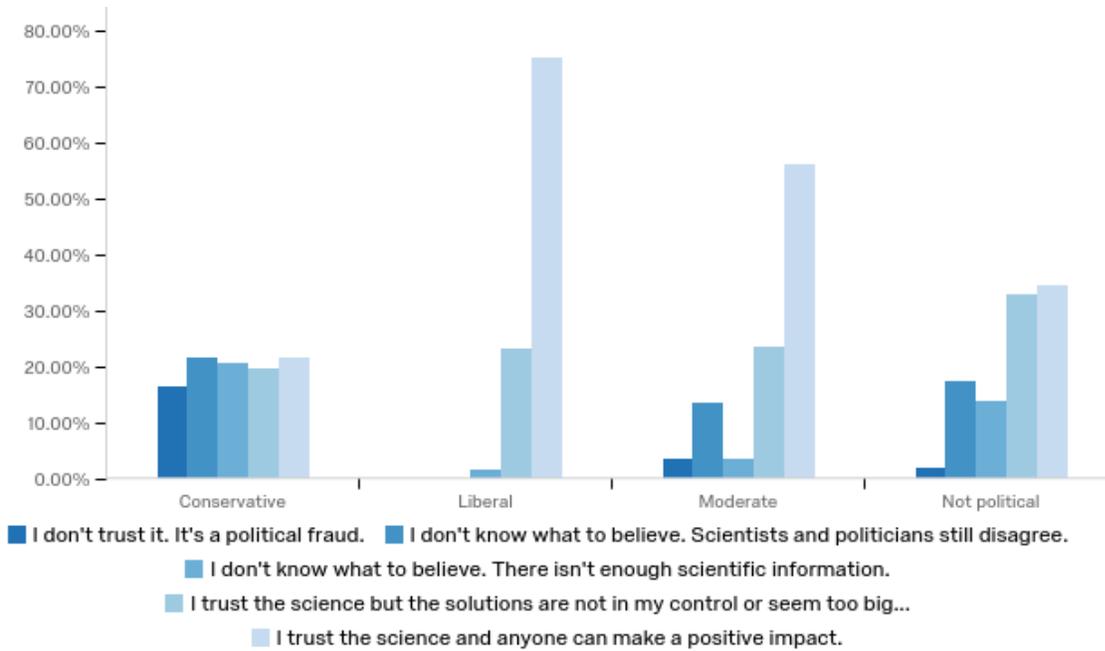


Figure 6. First reaction to climate change, organized by political affiliation

When statistics from Figure 5 are further analyzed, patterns within political affiliations differ on one's first reaction to the term climate change (Figure 6). Those who identified as conservatives are almost evenly split with each category attracting approximately 20% of the conservative participants. Individuals who identified as liberals overwhelmingly report a trust in the science and the majority report an optimistic outlook that anyone can make a positive impact. Finally, those who selected either moderate and non-political as their political affiliation offer less of a definitive pattern; however, the majority in both political affiliations trust the science of climate change.

Limitations

This project represents a significant first step in identifying the relationship of community concepts like place attachment, risk assessment, and climate change acceptance in Gloucester County, Virginia. Interpretation of survey results for all of Gloucester County may be limited due to dispersal methods only including digital media and responses being completely voluntary.

Science Communication

The Website

The second element in this creative project involved identifying and developing a method for sharing climate information and survey results back to Gloucester citizens through a website, *Guiding Gloucester* (<https://guidinggloucester.wixsite.com/home>). This website is separated into several sections: *Climate Change*, *Survey Results*, *The Beehives*, and *What You Can Do*. The *Climate Change* page provides a general overview of climate change, sea level rise, and the ways in which these will affect Gloucester County. For the effects section of this page, I focused on the natural environment and ecology because of the high environmental connection displayed in the survey results. I also introduce sea level rise and share the NOAA sea level rise viewer

website and encourage exploring the website to see the effects of sea level rise for themselves (<https://coast.noaa.gov/digitalcoast/tools/slr>). By using local framing, the goal is to provoke a greater sense of engagement (Scannell & Gifford, 2013). The *Climate Change* page ends with a reassurance statement to the resilience of our community, the Jana Stanfield quote “I cannot do all the good the world needs, but the world needs all the good I can do”, and an invitation to continue exploring the website.

The *Survey Results* section of the website displays the overwhelming positive place attachment, support for resilience planning, and overall strong acceptance of climate change impacts in Gloucester. I chose not to display these results through the lens of political ideologies in an effort to continue the theme of viewing climate change through the community perspective, not frames created by political parties. *The Beehives* page is a way of introducing my proposal of a new generation of beehives, which I will discuss later in this report. The *What Can You Do* page is a critical element in empowering citizens to get invested in climate change around the community. I provide resources for county government updates, local volunteering opportunities, Gloucester’s “go green” information, several citizen science projects, and contacts for stabilizing waterfront property in ecologically friendly ways.

The Beehives

In addition to the website, I also propose a grassroots community awareness project that connects to identifiable themes within the Gloucester community. The beehive is the Gloucester County symbol representing unity and cooperation within the community. Currently, there are 56 beehive statues scattered across Gloucester county businesses, parks, and schools from an auction in 2001 as a community art project. Instead of expensive, heavy beehive statues, I propose a new generation of beehives that individuals or businesses can create and personalize

themselves. The mission of these beehives is to bring attention to the environmental concerns highlighted in the survey. By locating the messages in relevant areas of high place attachment, the signs will bring awareness to local environmental issues in a very personal framework. Beehives will be stand-alone plywood cut outs, similar to seasonal lawn decorations. Once I create the prototype, I will include instructions on how to make your own on the website. *Make a Beehive* will become another suggestion under the *What You Can Do* page. For now, *The Beehives* page of the website is being used to display computer generated drawings of potential beehives locations and themes. This page of the website will continue to evolve after the prototype is created and can be properly presented. These new beehives are physical representations of Gloucester County's place attachment, climate change acceptance and the willingness to improve community resilience.

Conclusion

To prepare our communities for climate change and create better resilience, it is vital that citizens are involved and have a voice in the process. Tools such as the survey in this project reveal important community themes like place attachment, environmental connection, risk assessment, and climate change acceptance. Understanding these aspects of a community not only focuses issues citizens care about, it can help guide messaging for science communication and resilience planning. By personalizing the effects of climate change, a community can better understand how they fit into the larger picture and return a sense of agency to the community.

This project has allowed me the opportunity to not only learn about psychology and science communication, it has also allowed me to learn more about my home town. Nation-wide projects such as the Yale opinion maps (Howe et al., 2015) are a good tool for understanding the

United States as a nation, however, communities like Gloucester County need to take initiative to create localized surveys of citizen opinions. Every community is unique and as my survey results revealed, local opinions are not always what one would expect. In order to move ahead in the fight against climate change, we must unite communities around local issues that are relevant and powerful for them. Hopefully, this project will start a unified conversation in Gloucester where, no matter political affiliations, people can come together to strengthen their community.

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