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## Overview of Student Projects and Articles

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# Overview of Student Projects and Articles

Padideh Ghadiri and Madeline Brenner

All over the globe, the negative impacts of climate change and sea level rise have garnered the attention of prominent researchers and the press alike. Previous research on sea level rise and climate change in Hampton Roads has concluded that this region is one of the most vulnerable areas of land in the United States ("Initiative for Coastal Climate Change Research"). The geographical proximity of the numerous bodies of water found in and around Hampton Roads and the low elevation leads scientists to believe that this area will experience the repercussions of climate change and sea level rise first ("Initiative for Coastal Climate Change Research"). It has been projected that, within the next century, anywhere from 160 to 870 miles of roads will be lost and the total cost of the damage will

range between 12 billion and 87 billion dollars ("New Climate Change Study for Hampton Roads, VA"). Consequently, these major disasters will affect 5,000 to 50,800 jobs ("New Climate Change Study for Hampton Roads, VA"). A major obstacle researchers face when communicating messages that warn of the dangers of climate change and sea level rise, has proven to be the public's unwillingness to listen. An article published by the *New York Times*, "Are Words Worthless in the Climate Fight?" discusses the ways in which communication and mitigation efforts fail in bringing forth change and what these failures could mean in the grand scheme of America's future. The writer, Andrew Revkin, discusses the innate human qualities that will always pose a challenge when creating effective public messages, such as the tendency to ignore a problem until it is an immediate threat. The difficulty is that, when dealing with the potentially devastating impacts of climate change and sea level rise, waiting until the repercussions are felt is too late because the damage done to the environment is irreversible. Also, when an issue is over-

emphasized, the magnitude of the problem can become too overwhelming for the public and the problem seems to be impossible to fix (Revkin, 2007).

Hampton Roads is home to numerous historical sites, landmarks, and businesses, all of which are at risk for being affected by climate change and sea-level rise. According to an article in the *Washington Post*, by Lori Montgomery (2014), renovations done to repair damages caused by flooding to the prestigious Chrysler Museum of Art in Norfolk, Virginia, cost twenty-four million dollars. This is just one example of an expense caused by sea-level rise, and the Hampton Roads public could potentially be in store for more if these issues are not addressed. In addition to economic impacts, climate change and sea-level rise are having alarmingly negative impacts on wildlife and ecosystems in the Hampton Roads area. Just a slight change in sea-level or temperature can disrupt even the most formidable of ecosystems (Eggleston and Pope, pg. 6). In addition to the disruption of ecosystems, climate change and sea-level rise have

the potential to cause several health hazards to Hampton Roads citizens. These health hazards can stem from either injury caused by natural disasters, or disease/complications caused by temperature, subpar sanitation, etc.

The research conducted by students in the Honors College at Old Dominion University (ODU), enrolled in the Principle Investigator's course, "Honors Crisis Communication and Climate Change," aimed to uncover the perceptions of Hampton Roads residents on climate change and sea level rise in the area--more specifically, how Hampton Roads residents perceive the following: global warming and related issues, the efforts to resolve these local issues, and the communication tactics employed to address the problems. Identifying existing perceptions on climate change and sea level rise is an essential step towards understanding how to effectively communicate climate change mitigation efforts to the public.

## **RESEARCH METHODS**

The target subjects of the study were current Hampton Roads residents. The facility in which the phone surveys were conducted was the Old Dominion University SSRC. The callers were supplied with Virginia telephone numbers from an outside agency. To create the landline samples, a computer-generated random digit dial method was employed. Given a budget of five hundred dollars by the ODU Honors College, the seventeen interviewers enrolled in the Fall 2014 ENGL 231C, section 21013 course, were able to, under the supervision of at least one graduate research assistant, conduct 73 complete interviews. For each interview, the computer-assisted telephone interviewing system (CATI) randomly selected a respondent to be called. The telephone interviewer read the scripted introduction, survey, and thank-you statement from the computer screen, recording the participant's responses as necessary. Data was only collected from household residents who are 18 years or older

and who have had the most recent birthday (landline). When CATI reached the budget of five hundred dollars, the interviews ended. Respondents were asked to answer various questions about climate change and sea-level rise in Hampton Roads.

Participants were asked for their consent to participate in the survey before any essential questions were asked. If the respondent refused, the interviewer was instructed to thank the respondent and end the phone call. Depending on the circumstances of the refusal, landline numbers called that resulted in a “soft” or polite refusal were called again after 2-3 days. All numbers called that resulted in either a hostile or “hard” refusal were removed from the calling database. If the respondent gave the caller consent, the survey began. Respondents were able to refuse to answer any question and/or terminate the interview at any time during the survey. The first time an interviewer received a residential landline answering machine/voicemail, the interviewer left a message. The research has shown that leaving a general message reduces the number of call

attempts to achieve a completed interview and improves response rates. The message left was as follows: “Hello, this is [interviewer name] calling from the Social Science Research Center at Old Dominion University. We are calling to ask some questions about frequent flooding and Hampton Roads. I’m sorry that we missed you - we’ll try again later. Thank you and have a good evening.”

There were no additional safety precautions necessary as the risks were no more hazardous than common, daily liabilities. Participants may have felt a slight amount of intellectual discomfort if they were uninformed about local/regional issues or are uncomfortable discussing some of the quality of life issues (i.e., flooding, civic participation, etc.). Some respondents may not have felt well-informed of local issues or were disinterested in the problems being discussed. The possible risks associated with this survey did not require preventative measures. The discomfort was temporary, and not particularly more severe than any tribulations which may occur in a casual conversation. The participants still

maintained the ability to refuse to answer any question with which they felt uncomfortable and/or terminate the interview at any time.

The purchased telephone numbers did not include name data or personal identifiers. Responses were only reported on as a whole and individual responses were not identified. Interviewers conducting the survey were required to sign a notice of confidentiality in which they agreed not to discuss any information acquired as part of the research. Further, the confidentiality statement explicitly states: “I understand that any breach of confidentiality will result in immediate termination of my position at the Social Science Research Center. I understand that breach of confidentiality subsequent to my employment may result in legal action.” The original data (containing telephone numbers) was erased after the survey was completed.

## RESEARCH QUESTIONS

The results of the Hampton Roads residents' perceptions of climate change and sea-level rise were framed by the following research and survey questions:

Communication Strategies:

1. Among the issues impacting Hampton Roads, which do you feel is the most important?
  - Economic issues
  - Environmental issues
  - Health/Safety issues
  - Political Issues
  - Other \_\_\_\_\_
2. When you hear about local issues in Hampton Roads, which do you prefer?
  - I do not want to hear about problems.
  - I want to hear more about what's causing problems.
  - I want to hear more about what I can do to help.

Media/Communication Technologies:

3. Do you notice references to environmental issues in any of the media you pay attention?
4. If yes, do these references/discussions focus on climate change?

## Flooding:

5. Do you think these issues are contributing to flooding in Hampton Roads?

- Ground sinking
- High tide
- Heavy rain/storms
- Hurricanes/Nor'easters
- Sea-Level Rise
- Climate Change

## Sea Level Rise:

6. Do you believe sea levels are rising in Hampton Roads?

## Climate Change:

\*The following questions are answered on a scale from strongly disagree, disagree, no opinion, agree, and strongly agree:

7. I am concerned that climate change is affecting Hampton Roads.

(If the participant asks, define climate change as: A change in climate patterns, such as temperatures or activity common to particular areas, to both extremes.)

8. I am concerned that climate change is affecting the rest of the world.

\*If the participant answers disagree/strongly disagree, skip  
If the participant answers agree/strongly agree, continue

9. I think flooding is connected to climate change.

10. I think sea-level rise is connected to climate change.

11. I think the climate change is connected to an increase in the number of natural disasters: severe storms, hurricanes, and nor'easters.

12. I think it is possible to reduce/slow down the impact of climate change.

13. I think it is possible to eliminate climate change.

\*If strongly agree/agree

14. What do you think is the cause of climate change?

- Natural phenomena
- Human carbon emissions
- A combination\_\_\_\_
- Other\_\_\_\_

For a full transcript of the research questions, see Index A.

## **RESULTS**

While 63% of the survey participants said economic and health and safety issues were the most paramount, only 15.1% said environmental issues are of the utmost importance (see figure 1).

<b>Among the issues impacting Hampton Roads, which do you feel is the most important?</b>	<b>% (n)</b>
Economic issues	39.7% (29)
Environmental issues	15.1% (11)
Health/safety issues	23.3% (17)
Political issues	9.6% (7)
Other (all, education, infrastructure, transportation)	11.0% (8)
Don't know	1.4% (1)

Figure 1

Only 67.1% agree that climate change is impacting this region, while 83.6% are concerned that it is affecting the rest of the world (see figure 2).

	<b>Strongly agree/ Agree % (n)</b>	<b>Neither Agree/ Disagree % (n)</b>	<b>Strongly disagree/ Disagree % (n)</b>
I am concerned that climate	67.1% (49)	9.6% (7)	21.9% (16)

change is affecting Hampton Roads.*			
I am concerned that climate change is affecting the rest of the world.*	83.6% (61)	4.1% (3)	12.4% (9)
Flooding is connected to climate change.	77.0% (49)	11.5% (7)	9.8% (6)
Sea level rise is connected to climate change.	80.3% (49)	11.5% (7)	1.6% (1)
Climate change is connected to an increase in the number of natural disasters such as severe storms, hurricanes, and Nor'easters.	72.1% (44)	8.2% (5)	14.7% (9)
It is possible to reduce or slow down the impact of climate change.	55.7% (34)	9.8% (6)	31.1% (19)

It is possible to eliminate climate change.	6.6% (4)	16.4% (10)	75.4% (46)
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Figure 2

Although a majority of respondents answered that they agreed that climate change was impacting the region, only 47.9% of respondents accredited sea level rise to the flooding in Hampton Roads (see figure 3), even though previous research has shown that the flooding in Hampton Roads is directly caused by the rise in sea level.

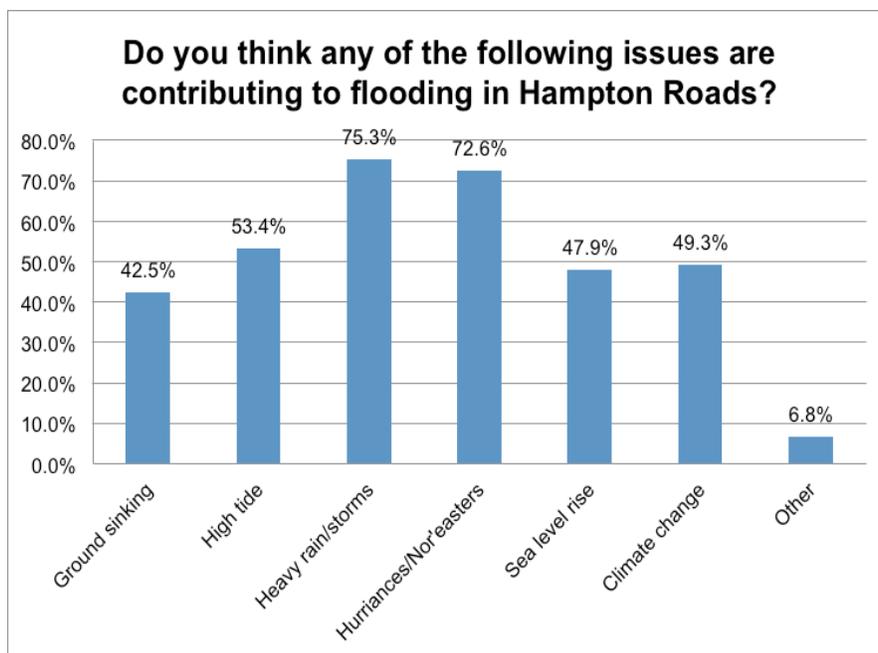


Figure 3

According to the class survey, women are more likely to mention health issues than men who are usually more concerned with the economic state of Hampton Roads; 31.8% of women said healthy/safety issues are most important while only 10.3% of men identified them as major concerns. Females are also more receptive to messages regarding environmental issues, as 88.6% noticed references of these issues in media sources. Men are more likely to mention economic issues as the most important issue impacting Hampton Roads, as 58.6% of male respondents selected this problem as compared to 23.7% of female respondents. Finally, there arose a trend in the common misconceptions of the causes of climate change; 65.6% of respondents felt that climate change and sea level rise is due to the combination of natural phenomena and human carbon emissions. 21.3% felt that CCSR is solely due to human carbon emissions and 8.2% accredited natural phenomena as the cause for the issue (see figure 4).

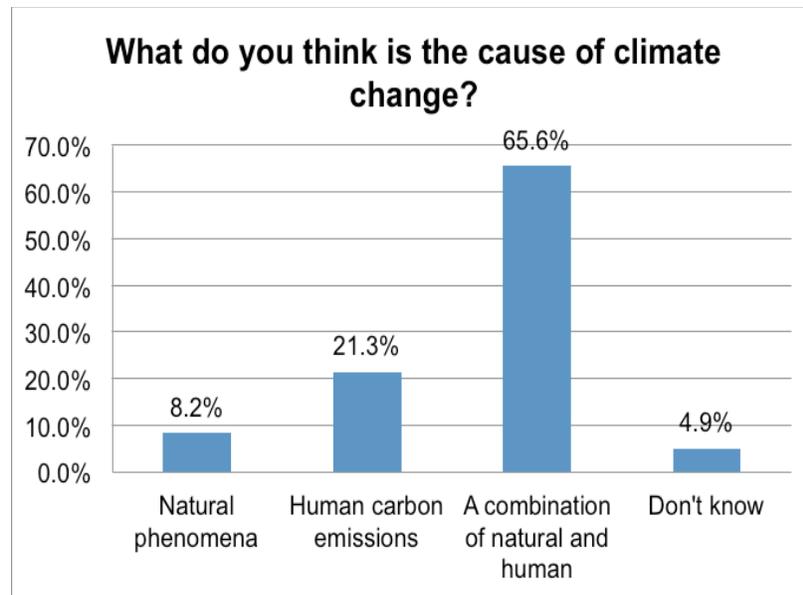


Figure 4

## DISCUSSION

It is a matter of concern that Hampton Roads residents appear not to be informed about the environmental issues that are so close to home. The environment does not seem to be as much of a priority to people as economic, health and safety issues. It can be inferred that the common idea is that economics as well as health and safety have the most direct impact on the everyday life of Hampton Roads residents, and therefore hold the most importance. This would explain why long term problems with the environment are not

considered to be a top priority in many cases. This data supports the idea that people avoid addressing long term problems until they are more of an immediate threat. It seems that the public believes climate change is affecting the rest of the world more than Hampton Roads as depicted in figure 2. The misconceptions of the public illustrated in figure 3 are representative of the lack of information the general population receives from information sources. The high number of respondents that felt climate change and sea level rise are caused by the combination of human carbon emissions as well as natural phenomena suggests that there exists a deflection of responsibility. Identifying CCSR as an inevitable issue is a coping mechanism that allows individuals to ignore their responsibility of preserving the environment. In addition, it permits the person to avoid guilt and justifies turning a blind-eye to the problems surfacing around them.

This study supports previously conducted research as it confirms the tendency of the public to ignore problems that do not

pose an immediate threat to their health, safety, or quality of life. The majority felt that the economic, as well as health and safety issues, were of the utmost importance. The majority of the population does not seem to sense the urgency of the issues at hand, which is likely a key component in the failure of communication and mitigation efforts employed to address the CCSR in Hampton Roads, as well as the rest of the world. There exists a misconception of CCSR problems that needs to be addressed via scientific support confirming the effect they have on Hampton Roads. However, it is encouraging that 63% of citizens want to hear more about the causes of local problems in Hampton Roads and 41.1% want to know how they can help solve these problems.

In order to more effectively communicate the urgency of climate change and sea level rise in Hampton Roads, it would be beneficial to highlight the effect they have on the issues respondents feel are most important, such as health and safety, as well as economic problems. By doing so, the correlation between the environment and the quality

of life for Hampton Roads citizens will become more evident and will, in turn, motivate the mitigation of CCSLR prevention efforts of the public. Also, providing the public with scientific support of the existence of global warming in the local area will help invoke a sense of responsibility in practicing more ecologically-friendly behaviors. By modelling forms of communication based on the identification and understanding of the different perspectives of various demographics (specifically gender trends observed in this study), the exchange of information will be better received by the public.

## **CONCLUSION**

Although the study was carefully designed and executed, as well as supported with financial backing, limitations of the study still hindered the scope and ability to relate the data to all of the demographics that reside in Hampton Roads. The first limitation of the study was the time constraint. The entire research process needed to be completed within the timeframe of the course. This

prevented the phone surveys to be conducted over longer period of time since the data needed to be analyzed and discussed for curriculum assignments. The entire time span of placing of phone calls occurred over a two week period, while most phone surveys typically occur over the course of months. Also, the time of the day the phone calls were able to be placed prevented contact with all demographics in Hampton Roads and only those individuals home during the daytime on a weekday. The budget provided to the researchers was also generally low considering the usual cost of a phone survey. This only allowed for a limited amount of telephone numbers to be purchased and used for the survey. The monetary restriction also determined the amount of time the SSRC call center was able to be used for the survey. The interviewers conducting the survey were also not professionally trained and acclimatized to the standard phone interview process as they were students of Old Dominion University, with no previous phone interview experience. This may have impacted not only the quantity of numbers able to be

reached given the time frame, but also the consistency of the surveys. The questions needed to be asked in a specific tone and manner which kept the interviewer neutral, which may have been a challenge to the students who were not used to this type of questioning. The only telephone numbers provided for the survey, due to cost and availability, were landlines which left a portion of the Hampton Roads population underrepresented because they may not have a landline number or were not able to answer the phone during the particular time of day.

In order to address the problems discovered with climate change and sea level rise misconceptions of the public, there should be additional research that does not exhibit the limitations of this study. By effectively understanding the many implications of this data, the scientific community and communication specialists may be able to effectively identify demographics, their beliefs, and design proper methods of communication that encourages mitigation of climate change and sea level rise inducing behavior. If the the

population in the science community as well as the general public are able to be educated on the platform of both sides, the efforts employed to stop the harmful impacts of global warming on Hampton Roads may be better accomplished and therefore more effective.

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## **APPENDIX**

### **Full Transcript of the Research/Survey Questions:**

How do Hampton Roads citizens perceive climate change and its impact on the region?

Among the issues related to the issue of climate change and sea-level rise (sea-level rise, subsidence, storm surge, and climate change), which do Hampton Roads citizens identify as the most important?

What beliefs or affiliations influence their perceptions of climate change?

Among common climate change communication strategies, which do Hampton Roads citizens find most appealing?

Which media outlets and technologies for communication do Hampton Roads citizens turn to for information about climate change and related issues?

How do Hampton Roads citizens perceive mitigation/adaptation efforts? (positive or negative; economic, scientific: health/environmental, political)

Which city do you live in?

### **Communication Strategies:**

Among the issues impacting Hampton Roads, which do you feel is the most important?

- Economic issues
- Environmental issues
- Health/safety issues
- Political issues
- Other \_\_\_\_\_

When you hear about local issues in Hampton Roads, which do you prefer?

- I do not want to hear about problems.
- I want to hear more about what's causing problems.
- I want to hear more about what I can do to help.

### **Media/Communication Technologies:**

On a daily basis, would you say you pay more attention to news media or entertainment media?

Examples of news media:

- Print news sources

- Online news sources
- Television news sources
- Radio news sources

Examples of entertainment media:

- Television shows
- Radio
- Movies/Films
- Books
- Music
- Computer Games

Among news media sources, which do you pay more attention?

- Printed newspapers
- Online news articles
- Television news broadcasts
- Radio news broadcasts
- Online social media
- Other \_\_\_\_\_

Among entertainment sources, which do you pay more attention to?

- Books (Online/Printed)
- Magazines (Online/Printed)
- Television shows (non-news)
- Radio (music/non-news shows)
- Online social media
- Games
- Other \_\_\_\_\_

Do you notice references to environmental issues in any of the media you pay attention? If yes, do these references/discussions focus on climate change?

**Flooding:**

On a scale from one to ten, one being not concerned, and ten being very concerned, how concerned are you about frequent flooding in your area?

In the last year, has flooding created any of the following problems for you or your household in Hampton Roads?

- Increased traffic congestion
- Car accident
- Damage to your car
- Damage to your home
- Damage to your belongings (inside or outside your home)
- Personal Health
- Other \_\_\_\_\_

Do you have flood insurance?

Is your flood insurance a FEMA approved policy? Yes/No/I Don't Know

Do you think it is necessary for most people in Hampton Roads to own flood insurance? Yes/No

Do you think these issues are contributing to flooding in Hampton Roads?

- Ground sinking
- High tide
- Heavy rain/storms
- Hurricanes/Nor'easters
- Sea-Level Rise
- Climate Change

**Mitigation/Adaptation:**

On a scale of 1 to 10, how prepared do you think Hampton Roads is to respond to flooding? With one (being very unprepared) to five (being very prepared).

Do you think local leaders are doing enough to respond to flooding?

Do you think local leaders are doing enough to prevent flooding?

**Sea-Level Rise:**

Do you believe sea levels are rising in Hampton Roads?

**Climate Change:**

The following questions are answered on a scale from strongly disagree, disagree, no opinion, agree, and strongly agree:

I am concerned that climate change is affecting Hampton Roads. (If the participant asks, define climate change as: A change in climate patterns, such as temperatures or activity common to particular areas, to both extremes).

I am concerned that climate change is affecting the rest of the world.

IF THE PARTICIPANT ANSWERS DISAGREE/STRONGLY DISAGREE, SKIP TO

IF PARTICIPANT ANSWERS AGREE/STRONGLY AGREE, CONTINUE THROUGH

I think flooding is connected to climate change.

I think sea-level rise is connected to climate change.

I think the climate change is connected to an increase in the number of natural disasters: severe storms, hurricanes, and nor'easters.

I think it is possible to reduce/slow down the impact of climate change.

I think it is possible to eliminate climate change.

The following questions are open ended: (check the following if the participant's reasoning matches up)

If strongly disagree/disagree, what is your reasoning?

- Scientists don't have sufficient evidence
- Many predictions have been incorrect
- Politicians are incorrect
- CO2 levels aren't causing changes in temperature

THE FIRST OPEN ENDED QUESTION.

ALL AND ASK THE SECOND OPEN ENDED QUESTION.

- CO2 levels aren't rising
- The sea level is not rising / Ice caps aren't melting
- Record snowfall disproves global warming
- Similar events have happened in the past / It's a natural cycle
- It's not man made
- The evidence has been faked
- It's not happening
- Religious reasons
- Other

If strongly agree/agree, what do you think is the cause of climate change?

- Natural phenomena
- Human carbon emissions
- A combination\_\_\_ Other\_\_\_

**Demographic:**

What is your gender? Female Male

What is your age?\_\_

Do you consider yourself to be?\_\_(Very)Conservative Moderate  
 (Very)Liberal Other

Which denomination or group are you affiliated with?

Christianity Islam Judiasm Buddism Hinduism Other  
None Prefer not to answer

What is the highest degree or level of education you have completed? Less than high school, high school, some college but no degree, associate's, bachelor's, graduate

How long have you lived in the area? under 1 year 1-2 years  
3-5 years 6-10 years over 10 years

What is your Income? Prefer not to answerunder \$10,000  
\$11,000-\$20,000 \$21,000-\$30,000 \$31,000-\$40,000  
\$41,000-\$50,000 above \$51,000

What is your race? Asian/Pacific Islander African American  
Native American Caucasion Latino Other/Multiracial

What is your employment status? Unemployed Part-Time  
Full-Time Retired Student