In the News: Discourses of Climate Change East of I-95 in North Carolina

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Executive Summary

Background

Since passing N.C. House Bill 819, the notorious law banning the use of accelerated sea level rise rates in state policy in 2012, North Carolina has experienced several deadly and damaging hurricanes, such as Hurricane Florence in 2018. Intense storms and flooding will only worsen in the state due to climate change, especially in its economically-distressed coastal region east of I-95. This work analyzes fluctuations in climate change discourse over the decade since the state's "ban" on sea level rise, examining the influence of hurricane and flooding events, socioeconomic factors, and political movements from 2010 to 2020.

Research Question and Methods

Overarching research question: How have Eastern North Carolina newspapers shifted in climate change discourse over time?

- Was there a specific political or environmental event(s) that may have prompted a change in climate discourse?
- Are there identifiable political or social factors that influence climate change discourse?

This research followed a Foucauldian approach to discourse analysis using a dataset of newspaper articles (n=695) from four Eastern North Carolina county newspapers: the *Carteret County News-Times*, *StarNews*, *The Daily Herald*, and the *Daily Reflector*. This discourse analysis was conducted through coding articles based on three overall discourse indicators, labelled as ambivalent, skeptical, and acknowledging. These discourse indicators are based on previous literature and characterize the overall discourse surrounding climate change in each article. These indicators were attributed to each article in the dataset, analyzed for correspondence with major hurricanes and political events in North Carolina, and contextualized with socioeconomic demographics of the newspaper's location.

Key Findings

- Across the timeline and the whole sample, most articles (63%) acknowledge climate change.
- Events like the 2018 Hurricane Florence and the 2012 sea level rise "ban" law are associated with significant increases in articles in the climate discourse in the weeks following the event.
- The proportions of acknowledging, skeptical, and ambivalent articles varied across the four newspapers, suggesting that climate discourse varies within Eastern North Carolina depending on socioeconomic and geographic indicators.
- The subject of climate discourse shifts over time with an initial focus on sea level rise in the early 2010s. As the decade progresses, the conversation diversifies to include resilience concepts and more frequently links hurricanes to climate change.

- Emerging themes from skeptical articles include diminishing the credibility of climate researchers, characterizing climate science as “unsettled,” and suggesting ulterior motives from climate acknowledging public figures.
- Climate discourse in local newspapers heavily centers around state and local policy rather than national and international politics.

Introduction

Coastal North Carolina (NC) faces the challenge of increasing intensity of storms and more frequent flooding due to climate change (NC State University, 2020). Hurricane Matthew in 2016 caused an estimated $1.5 billion in damages to North Carolina alone, followed by Hurricane Florence in 2018 which caused nearly $22 billion in damages to NC communities (ABC 11, 2020). In response to these threats, the North Carolina Department of Environmental Quality Division of Coastal Management, alongside several other non-profits, has worked to provide guidance to respond to these hazards (NC DEQ). In contrast to these efforts, there has been the development of climate-skeptic groups like NC-20, notorious for their influence on the 2012 NC House Bill 819, which banned the “unscientific forecasting” of sea level rise model guidance in NC (NC-20, 2012).

The impacts of sea level rise are not just reserved for coastal North Carolinians, there are significant impacts that contribute far into rural Eastern North Carolina communities. Inland towns like Ivanhoe, NC experienced tremendous flooding from their rivers during Hurricane Matthew (Healy, 2018). Several of these inland East NC communities have low tax bases and rely heavily on benefits from the land (Gomes, 2022). The agricultural sector of NC is highly vulnerable to climate change as reported in the 2015 NRDC report *Climate-Ready North Carolina*. This report highlights the $778 million in crop losses due to drought, heat, flooding, extreme wind, and extreme precipitation between the years 2010-2014 (NRDC, 2015). Eastern North Carolina faces the existential challenge of addressing these risks caused by climate change to their livelihoods and health.

This study aims to highlight the changes in climate change discourse in Eastern North Carolina by leveraging county newspapers as a source of community discourse.

Discourse Analysis

Discourse analysis (DA) is a linguistic approach that considers the linguistic content as well as social context of communication. The French philosopher Michel Foucault, lauded as one of the pioneers of DA, denoted DA as a “historically contingent social system that produces knowledge and learning” (Adams, 2017). DA can reveal the socio-interpersonal context beyond the literal meaning of communication. Our study intends to use DA to reveal the context as well as development of climate change discourse in our selected NC counties.

Research Questions

Our research aims to reveal the frequencies and trends of climate change discourse as it has developed over time in our selected newspapers. We've chosen four county newspapers as our dataset due to local media being a robust source of community sentiment and principles (Nurjannah, 2017). Our analysis aims to reveal how climate discourse has developed in these newspapers over time, as well as how factors like socio-economic status, political affiliation, and proximity to natural hazards influence climate discourse.

This analysis will also consider significant climate and political events that occur during our dataset timeframe that may influence a shift in climate discourse. Over the timeframe of 2010 to 2020 North Carolina has experienced both Hurricane Matthew (2016) and Florence (2018), House Bill 819, as well as national influence of the 2012, 2016 and 2020 elections.

Additional considerations include: How does place affect climate perceptions? How do hurricanes shape climate discourse? How does the economic status of counties, and therefore access to resources for pre- and post-hazard mitigation, affect climate change discourse? How does the geology of counties, and therefore difference in type, timing, and extent of climate hazards, affect climate change discourse? How does terminology around hurricanes differ between counties? Do disasters lead to discussion/action on climate resilience? Finally, when/where are climate solutions being discussed in North Carolina communities?

Literature Review

Previous studies have utilized discourse analysis to answer their research questions of community climate discourse to a high degree of success. Fleming (2009) highlights the work of Foucault and his influence on their work. In their study they conducted 63 interviews with apple, dairy, and agriculture consulting communities in Tasmania, Australia. These semi structured interviews recorded people's feelings and perceptions as well as general discourse observations. The interviews were transcribed and entered into N-Vivo examined using a constructivist grounded theory approach. Then they searched for themes relating to the resistance to action for climate change. The four discourses were arranged into, Money, Earth, Human Responsibility, and Questioning. The interviews revealed community values and trends in ways of framing the issues of business viability, social action, trust and information (Fleming, 2009).

Mittal (2012) conducted qualitative analysis using a "Frames" method consisting of a schema of interpretation. This schema is an organizing principle that can enable insights into events through pre-existing beliefs and value systems. The authors chose 15 articles due to their diversity and depiction of specific ideology. These articles were chosen through a range of months to ensure there was no bias in the timing of publication. The analysis focused on the theme of the article and the tone of the article based on this schema where the discourse was then contextualized using these frames.

The articles revealed a "striking lack of skepticism" and an acceptance of anthropogenic relationships to climate change. Climate change received very high coverage in English press in India, and it included a variety of global and local elements. Radhika also notes that this is "unlike the US" in its skepticism of climate change (Mittal, 2012).

Vulpe, S.N (2020) develops their methodology as it refers to the Foucauldian approach to discourse analysis. In this light, the author explains that discourse analysis looks at how skeptical knowledge is constructed within historical context. This analysis was conducted first by collecting articles using climate change and global warming as guiding search terms in an article database. The author also uses a specific set of criteria to select these articles. These parameters are that the authors of the website articles display a skeptical perception of climate change and that the articles were released following the date of June 1, 2017 (when Donald Trump pulled out of the Paris Agreement regarding climate change making international news and sparking diplomatic action). The author acknowledges that they are making an assumption that climate change skepticism discourse was influenced by this action (Boykoff, 2008).

Tenali et al (2022) examines the presence of climate change acknowledgement in local policy documents and its implications for sustainable development in those areas. The authors used census data and Google maps to identify 47 coastal towns in Florida and then searched each town website for a sustainability plan, which narrowed the sample to 12. Five towns' plans were chosen for further study. Each text was examined for language and degree of acknowledgement on climate change. The authors also explored the context surrounding the development of the plans through associated websites, newsletters, recorded meetings, and media articles.

The authors found that the plans that acknowledge climate change promote more climate migration and long-term solutions than those that did not. Those that explicitly discuss the human cause of climate change developed greenhouse gas mitigation targets. These plans also had more proactive and inspiring language than those that lacked an acknowledgment. All plans promoted sustainability as a means of social and economic development rather than solely environmental stewardship. The authors also found that environmental champions played an essential role in developing the plans, signaling the influence of citizen demands at the municipal level (Tenali, 2022).

Our methodology in this study leverages the successes of the "frames" concept used by Radhika (2012) as well as the frequently used process of attributing overall "Skepticism" to an article. The previous literature considers the importance of defining "Skepticism" in both the eyes of the researcher and societal context. It's important for this study to reduce the variance in how "Skeptical" articles are identified, standardizing this process allows for the dataset to be more robust. Vulpe (2020) search term methodology is integral to supporting this studies creation of search terms. It is integral to the outcome of our dataset that the search terms are useful and applicable to our research goals.

Methods

Newspaper Rationale

We focused on four counties within North Carolina including Halifax, Pitt, New Hanover, and Carteret County (Figure 1). Ultimately, we wanted to compare the climate change discourse among two counties directly on the coast (Carteret County and New Hanover County) and two that were located in the coastal plain of North Carolina (Pitt County and Halifax County). The variance in proximity to the coast provides a variance in exposure to coastal hazards such as hurricanes and coastal flooding. We selected newspapers as our dataset due to their availability as well as their ability to provide insight into community discourse regarding a specific topic, in this case climate change (Mutz and Soss, 1997).

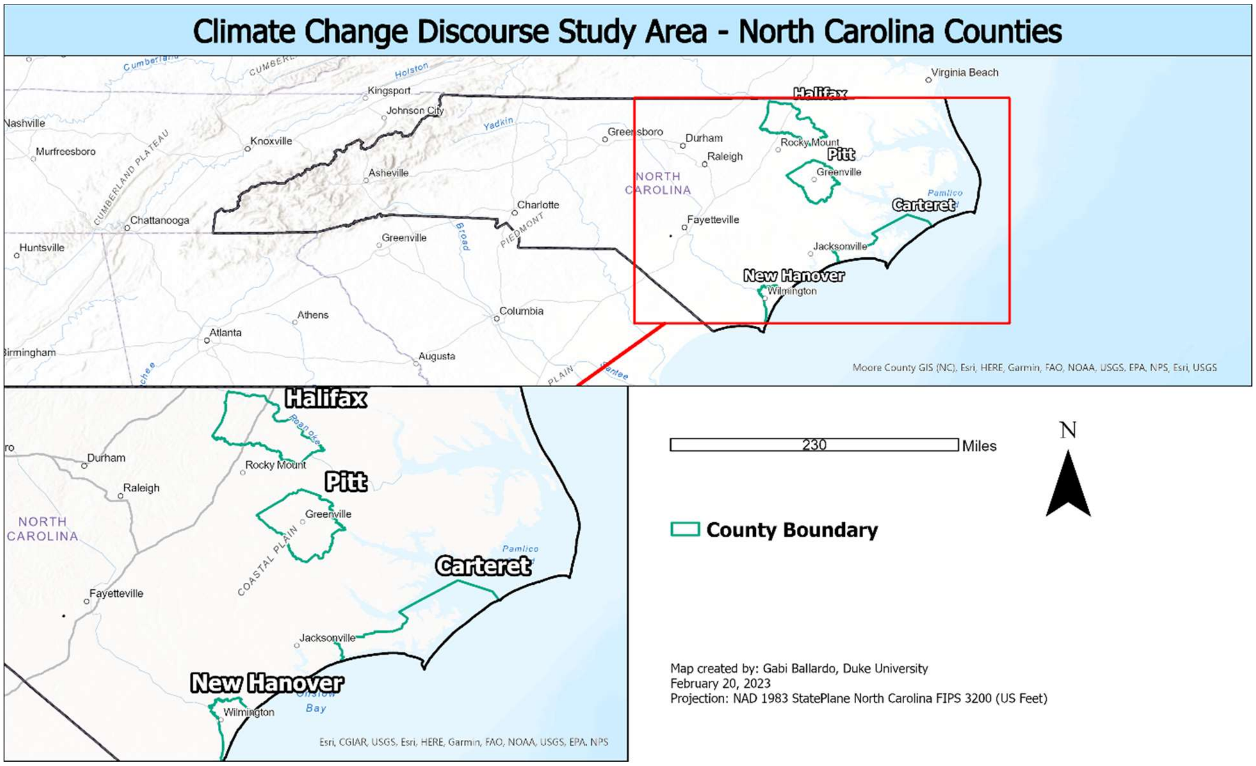

Figure 1: Eastern North Carolina Study Area Map

The four newspapers were initially chosen on a county basis from the FEMA Hurricane Disaster Declaration for both Hurricane Matthew and Hurricane Florence (FEMA, 2022, 2023). The next criteria being publishing frequency, our requirement being at minimum a monthly publishing schedule in an online article format. We then sampled a range of counties that represent differing proximity to the ocean (Beach – having an oceanic shoreline - or Inland), economic distress tier (based on the NC Department of Commerce County Distress Rankings, 1 being highest distresses tier (NCDOC, 2023), population (ranging from 50,000 to 216,000), median family income ($50,000 to $76,000), and 2016 and 2020 presidential election % republican (2010 – 2020).

The results were the following four selections, each ideally representing a range of our search criteria.

Daily Herald - Highest economic distress tier, inland location, low population, low median family income, low % republican voter trend.

The Daily Reflector Median economic distress tier, inland location, high population, median family income, relatively balanced voting trends

Star News – lowest economic distress tier, beach location, high population, high median family income, relatively balanced voting trends

Carteret County News Times - lowest economic distress tier, beach location, low population, high median family income, high % republican voting trend

County	Newspaper	Publishing Frequency	Economic Distress Tier	Coastal Location	Population (2020)	Median Family Income (2021)	2016 Presidential Election (% R)
Halifax	Daily Herald	Daily	1	Inland	48,401	$45,300	35.9
Pitt	The Daily Reflector	Daily	2	Inland	170,059	$59,400	44.3
New Hanover	Star News	Daily	3	Beach	216,430	$76,200	49.5
Carteret	Carteret-County News-Times	Daily	3	Beach	67,571	$71,200	70.3

Table 1: Newspaper Criteria and Attributes

Newspaper ownership

The ownership of our four newspapers varied, however Carteret County was the only independently owned newspaper in our dataset. Ownership was not something that influenced our criteria, but it does impact the discussion and analysis of our research findings. Newspaper ownership can impact the ability a newspaper has to reflect community identity and public interest (Saving Community Journalism, 2021). *The Daily Reflector*, *Daily Herald*, and *StarNews* are all owned by larger organizations. In many cases these newspapers have been bought and sold several times since their founding.

Newspaper	Ownership Notes

Carteret County News-Times (tri-weekly)	• Founded in 1948
	• Carteret Publishing Company
	    ○ Lockwood Phillips
	    ○ Based in Morehead City

The Daily Reflector (daily)	• First founded in 1882
	• Cooke Communications, LLC 2009-2018
	    ○ Family-owned, based in Greenville
	    ○ Owned three ENC local newspapers and one in Key West, FL
	• Purchased by Adams Publishing Group August 31, 2018
	    ○ Family-owned, based in Minneapolis
	    ○ 30 dailies, over 100 non-daily, and collectively over 220 media-related

	products and associated websites in 19 states.

Daily Herald (daily)	• First founded in 1914
	• Wick Communications 1947-2018
	  o Family-owned community media company with newspapers, websites, magazines and specialty publications in 10 states
	  o Based in Arizona
	• Purchased by Paxton Media Group in 2018
	  o Family-owned, 71 community newspapers in Arkansas, Georgia, Kentucky, Louisiana, Illinois, Indiana, Michigan, Mississippi, North Carolina and Tennessee.
	  o Based in Kentucky

StarNews (daily)	• First founded in 1867
	• Purchased by Gannett Media in 2019
	  o USA TODAY, hundreds of local media outlets in 45 states across the country, and Newsquest, which operates 120 local media brands in the United Kingdom
	  o Based in VA/DC area
	• Under ownership of national brands
	  o The New York Times Company 1975-2011
	  o Halifax Media Group 2011-2014
	  o GateHouse Media 2014-2019

Table 2: Newspaper description

Search Term Rationale

With our newspapers selected, we then created a standardized list of search terms to frame our analysis and identify articles: "Climate Change + Hurricane", "Climate Change + Flooding", "Resilience + Hurricane", "Resilience + Flooding", "Sea Level Rise", and "Sunny Day Flooding".

Our rationale behind these terms is to use them as indicators for the discourse that has become associated with coastal climate change over the years. Initially, we observed "storm" as a potential search term, but ultimately found that singular search terms without a coastal modifier were too vague and returned up to 3,000 articles. In this study, "climate change" and "resilience" were used as constants within word pairs in order to compare and contrast how the discourse has changed over the years within the four counties. The term "climate change" is intended to be utilized as a "catch-all" of both skepticism and acknowledgement, in light of the recent decline in the term "global warming" (NASA, 2008). "Resilience" as a term is intended to encompass response to climate change in a forward-thinking context, we anticipated that this term will oftentimes accompany the acknowledgement of climate change due to its forward-thinking quality (U.S. Climate Resilience Toolkit, 2023).

Search Term	Context
"Climate Change + Hurricane*"	Climate change – any use of the term Hurricane with reference to climate change. How are hurricanes discussed with reference to global climate change?
"Climate Change + Flood*"	Climate change – any use of the term Flooding in the context of climate change. Flooding is acknowledged to be catalyzed by climate change
"Resilience + Hurricane*"	Resilience in the context of "resilience to climate change" Hurricane destruction diminished by resilience efforts/the need for better armoring
"Resilience + Flood*"	Resilience in the context of "resilience to climate change" Flooding caused by storm surge, river overflows. Flooding framed within the context of climate change, need for better resilience to flooding caused by climate change
Sea Level Rise	Any use of the term

Table 3: Search Term description

Coding Process

This analysis sourced its articles from the information repository NewsBank due to its access to our four newspaper publishers as well as the ability to process these articles digitally in NVIVO software.

Coding Rationale

We based attribution of skeptical/ambivalent/acknowledging on the methodology of *Climate of scepticism: US newspaper coverage of the science of climate change,* Liisa Antilla. (Antilla, 2005). This work helps to define what a skepticism can be recognized as in newspaper media. Our definitions reflect Antilla's methodology with minor amendments to capture the quality of ambivalence in newspaper media. These three "nodes" are used to qualify an article in terms of its overall discourse of climate change.

Node	Definition
Acknowledge	The article presents climate change or a climate change proxy as fact.
Ambivalent	The article includes views that acknowledge and are skeptical of climate change, but does not advocate for either.

Skeptical	The article denies or questions climate change as fact.

Table 4: Article code/node description

Classification/Attributes in NVIVO

We downloaded articles from the online media repository NewsBank based off of our search terms, time frame, and newspaper source. Once downloaded, we imported files into NVIVO where the documents were coded.

Using the classification tool in NVIVO, we created a "Publication Data" classification to establish attributes for each newspaper article. These attributes include "Publication Date," "Publication Name," and "Search Term(s)." This allowed us to distinguish articles from different newspapers among the selected counties for this analysis.

Results

The original dataset of newspapers (n=695) was reduced to a final count of 525 after deleting duplicate articles between individual search term returns. The search terms "Sea Level Rise" and "Climate Change + Flood" yielded the highest results. Overall, there was a peak in article yield based on our search terms in 2018 and 2019, reaching nearly 160 and 140 articles respectively (Figure 2, Figure 3). Of these 525 articles, 58 were overall skeptical to climate change, 138 ambivalent, and 329 were acknowledging. Proportionally skeptical articles made up 11%, ambivalent at 26%, and acknowledging at 63% for all newspaper sources (Table 5).

Separating the results by newspaper source, we are able to visualize the proportion of skeptical, acknowledging, or ambivalent articles overall. *Carteret County News-Times* yielded the highest proportion of skeptical articles at 23%. *Daily Herald* was 2nd most skeptical with 8% of the articles analyzed being skeptical. *The Daily Reflector* had the highest percentage of articles acknowledging climate change at 72% (Figure 4, Figure 5).

The proportionality of overall article discourse changed over time (Figure 6) with the overall Acknowledging articles peaking in 2010 and 2017 between 70% and 80% and reaching their lowest percentage during 2012 where it did not reach 40%. Skepticism was the lowest proportion of articles published by all newspapers, but still experienced an ebb and flow-like pattern over the 10 years of data. Skeptical articles reached their peak of 21% of articles coded in 2017 while experiencing their lowest rate of zero percent in 2020.

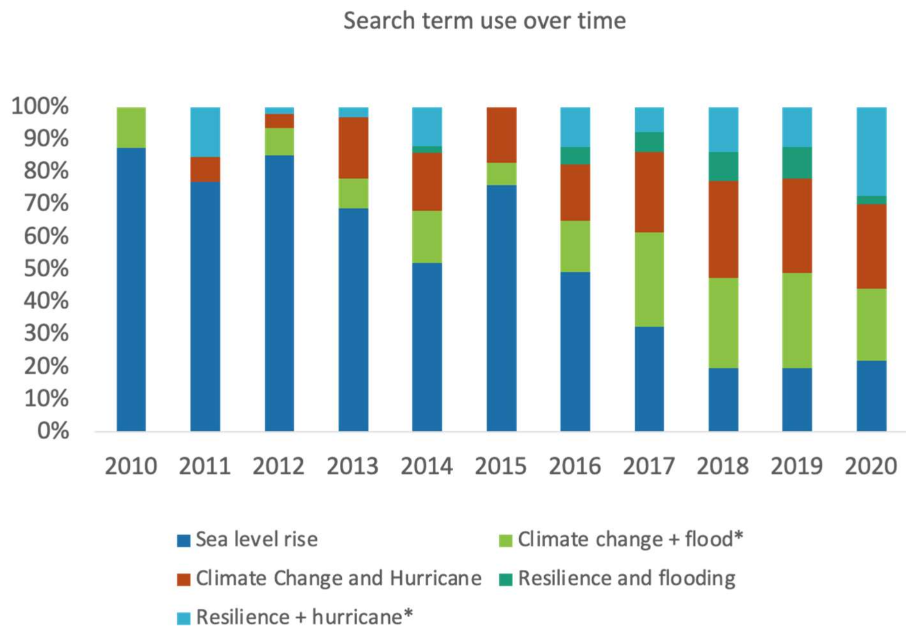

Figure 2: Proportion of article yield by search term

Row Labels	**Sum of Skeptical**	**Sum of Ambivalent**	**Sum of Acknowledge**
Carteret County News-Times	40	49	82
Daily Herald	1	4	7
StarNews	6	51	127
The Daily Reflector	11	34	113
Grand Total	**58**	**138**	**329**
Proportion	11%	26%	63%

Table 5: Overall sentiment count and proportion by newspaper source

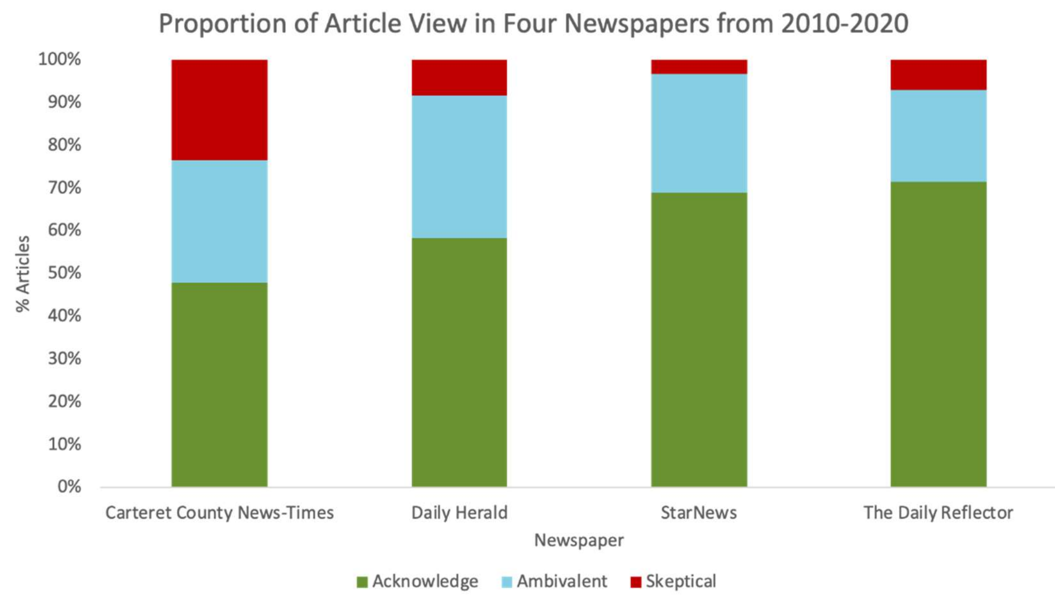

Figure 3: Overall sentiment of articles by article source

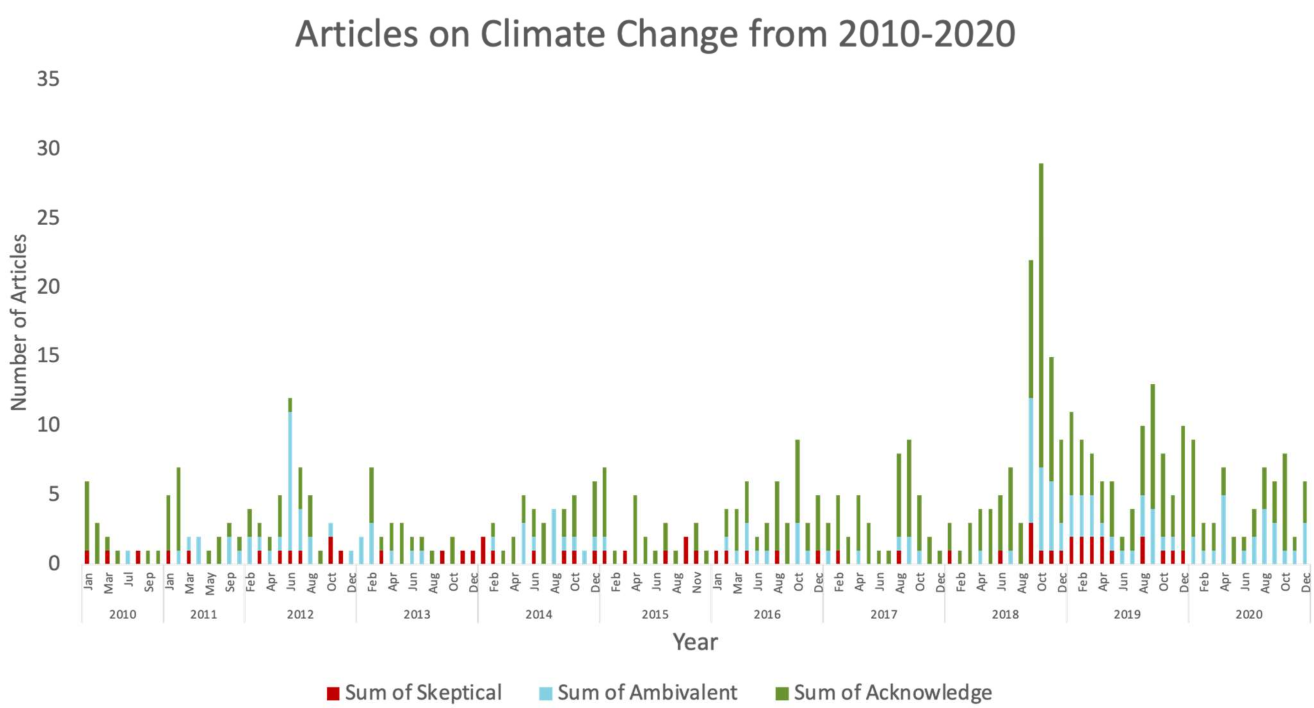

Figure 4: Sum of overall article discourse per article

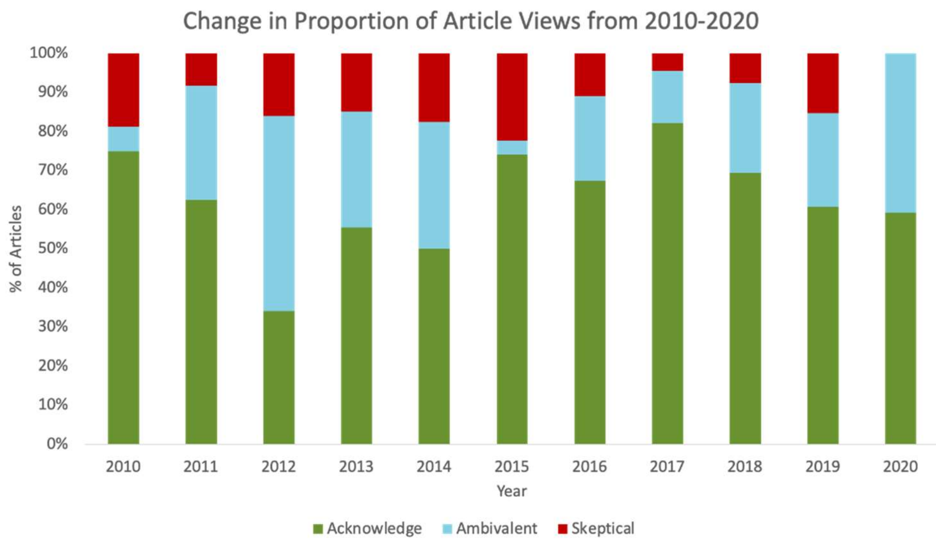

Figure 5: Change in proportion of overall article discourse over time

Discussion

Drivers of increases in climate discourse

Examining the volume of articles month by month, we identified two major peaks in the dataset in early fall 2018 and mid-summer 2012 (Figure 4). These peaks coincide with major regional events: 1) Hurricane Florence, which made landfall near Wrightsville Beach, N.C., on September 19, 2018, and 2) H.B. 819, which the General Assembly passed on July 3, 2012. We examined the content of articles around this peak to verify that the increase in articles discussing climate change around these events was not coincidental – articles detailing these events drove climate discourse at these times. Two smaller but notable peaks include those in response to Hurricane Matthew in 2016 and Hurricane Dorian in 2019.

Hurricane Florence's extensive wind and flood damage throughout the state concentrated in Carteret, Onslow, Pender and New Hanover counties (National Weather Service, 2018). Articles on Hurricane Florence from two newspapers, *StarNews* and *The Daily Reflector*, drove the fall 2018 peak in overall articles. We were not surprised to see *StarNews*, which is based in democrat-leaning New Hanover County, contribute to this peak. *The Daily Reflector* in Pitt County, however, which received almost 15 inches less rainfall than New Hanover and is not traditionally included in the epicenter of reported storm damage, contributes strongly to this peak. It is also worth noting that the *Carteret County News-Times*, which is located within the hardest hit area of the state, does not contribute to this peak and does not connect hurricanes and flooding to climate change during this event.

The release of the Intergovernmental Panel on Climate Change's Special Report on Global Warming of 1.5°C on October 8, 2018 closely coincided with Hurricane Florence and its aftermath. At least five articles during this period referenced this report and contributed to the peak, giving us the clearest – and one of the few -- example of international climate conversations making their way into local discourse in this analysis.

The passage of H.B. 819 (2011) in the N.C. General Assembly drove a smaller but still significant peak in mid-summer 2012. Rep. Pat McElraft of N.C. House District 13, which represents Carteret County, introduced the bill. The bill prohibited the use of accelerated rates of sea level rise in state regulations and policies, limiting planners to using the historical rate of sea level rise, which does not account of climate change and significantly underpredicts total sea level rise by 2100. Articles covering this controversial law was primarily ambivalent. Most articles presented a "he said, she said" style of journalist, giving equal attention to supporters and critics of the bill and leaving the reader without a clear answer of the fact of climate change.

<u>Themes in Skeptical Articles</u>

We identified three major themes within skeptical articles, which revolved around the reliability of climate science: 1) diminishing credibility of individual researchers, 2) accusing climate scientists of ulterior motives, and 3) maintaining that climate science is "unsettled."

Diminishing Credibility

In articles working to discredit climate researchers and government officials, the author would label these individuals with strong negative language, such as "outcriers," "heresayers," "extremists," and "hysterics." The following quote from the *StarNews* demonstrates this theme:

> *The theory that burning fossil fuels is going to cause the world to super heat has not been proven and no amount of computer modeling is scientific proof. A consensus of "scientists" is not proof of anything.* (Eagles, 2019, p. 10)

With the addition of quotation marks to "scientists," this author challenges climate researchers' credentials and suggests they are illegitimate or do not meet rigorous standards to earn the title "scientist."

Ulterior motives

Skeptical articles raise the concern that climate researchers and government officials supportive of climate action have ulterior motives. The following quote from the *Carteret County News-Times* highlights this theme:

> *… former U.S. Vice President Al Gore, who has made millions promulgating the lie about global warming. It's a money machine fueled by politicians.* (Editorial Board, 2015).

Authors framed climate change policy framed as a vessel for political or financial gain, where a politician uses hyperbole or falsified data to justify their own personal motives.

Unsettled Science

We observed trends in the use the of term "unsettled" as an argument against climate change, as seen in the following quote from *The Daily Reflector* in 2013:

> *While climate change has not been proven to be occurring, members of the far-left, including Ms. Harris and Ms. Ocasio-Cortez, believe it's "settled science." It is not. It's unproven science.* (Editorial Board, 2019)

This argument advocates for delayed action on climate change until more science is done to "prove" climate change exists; however, in the face of universal agreement of climate change among climate scientists, this argument undermines rather than affirms the value of the scientific process (Oreskes, 2004).

Examining skepticism in the *Carteret County News-Times*

Because the *Carteret County News-Times* had the highest proportion of skeptical news articles during our study period, we more closely examined the types of articles reflecting this view. We identified four categories of articles, including purchased articles, staff-written articles, editorials, and letters to the editor (Table 6).

Categorizing Articles by Type

Article Type	Definition
Purchased Article	Articles purchased from a different publication and re-printed with attribution in the analyzed newspaper.
Staff-written article	Objective news articles produced and reported by staff writers or contract freelancers with the analyzed newspaper.
Editorials	Opinion pieces from the analyzed newspaper's editorial board, which typically represent the views of the analyzed newspapers staff and/or publisher.
Letters to the Editor	Opinion pieces submitted from the public which the analyzed newspaper selects to publish.

Table 6: Article type description

Staff-written articles, the "objective" news, have the highest count of the article types, representing 44% of the skeptical articles published in the *Carteret County News-Times* (Figure 6).

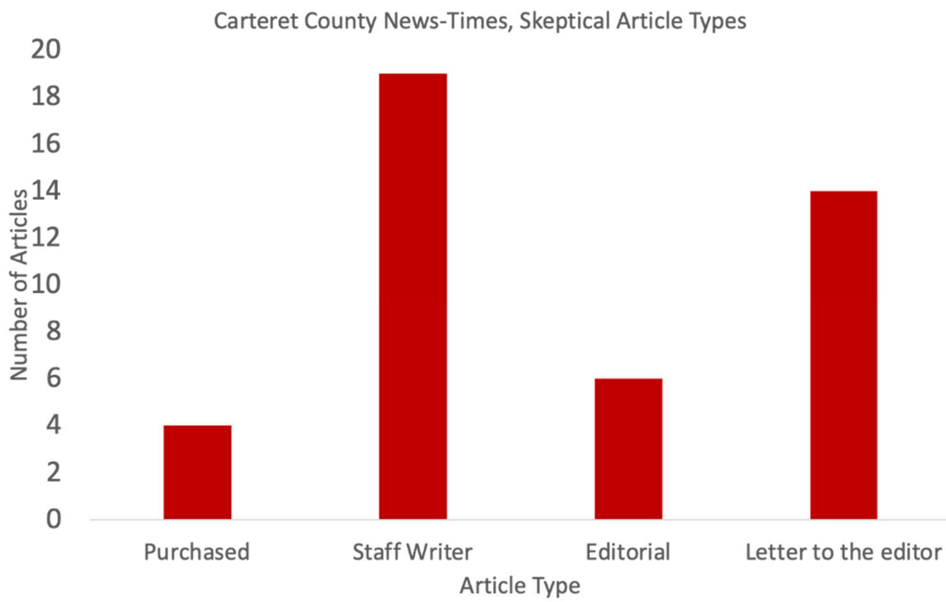

Figure 6: Carteret County News-Times type of skeptical articles

In these staff articles, we noticed a pattern of quoting the same scientists who are quoted in articles acknowledging climate change. These articles mobilize the work of 'experts' to support these arguments. This happens with a well-known coastal geologist Dr. Stan Riggs, who famously quit the N.C. Coastal Resources Commission Science Panel in 2016 because of policymakers' rejection of its sea level rise report (Shutak, 2016). The *Carteret County News-Times* quotes him in an article categorized as Skeptical in 2014 saying "there needs to be more concern for present-day issues, rather than attempting to guess the future" (Harvey, 2014). The perspective presented in this quote coincides with an argument we saw frequently in articles in the early 2010s around sea level rise, which is that worrying about sea level rise in 2100 detracts from the more important and pressing issues of today. Based on this quote alone, a reader would assume that Dr. Riggs does not support the inclusion of sea level rise and climate change into state policy. However, the *Carteret County News-Times* published the following statement from Dr. Riggs in response to H.B. 819 in 2012:

> *Longtime East Carolina University geologist Stan Riggs, a science panel member who studies the evolution of the coast, said the 1-meter estimate is squarely within the mainstream of research.*
>
> *We're throwing this science out completely, and what's proposed is just crazy for a state that used to be a leader in marine science," he said of the proposed legislation. "You can't legislate the ocean, and you can't legislate storms."* (Henderson, 2012).

This quote more closely aligns with Dr. Riggs research at East Carolina University and advocacy as a member of the Science Panel. We assume that the 2014 quote was taken out of context and misrepresents Dr. Riggs views on sea level rise policy. However, readers of the *Carteret County*

News-Times are seeing both climate acknowledgement and skepticism coming from the same pivotal figure in state coastal development policy.

Resilience

We found that the search term “resilience” does not explicitly mention attitudes surrounding climate change as we initially anticipated. Many do not even mention the term “climate change” at all. Instead, the search term pair “resilience and hurricane*” returned articles that present discourse surrounding community strength, mental health resources for coping with trauma from experiencing hurricane events, and health care in general. For example, several articles discuss the creation of a resiliency task force to help North Carolina communities deal with trauma from major storm occurrences. While the majority of the “resilience and hurricane*” articles talk more about the strength of North Carolina communities, there are a few that mention coastal resilience and adaptive measures that can be taken to improve preparedness for future storms and flooding (i.e. our original expectation). For example, a small number of articles discuss investment in improving urban infrastructure to increase resilience.

State and local politics

In all four analyzed newspaper, climate discourse overwhelmingly focuses on state and local policies and projects rather than national and international politics. While we were initially interested in the influence of national political movements, such as the 2012, 2016, and 2020 presidential elections, events at this scale were rarely connected to climate change in our analysis. As we progressed in our analysis, we pivoted to focus on events such as H.B. 819, which received significantly more coverage in connection with climate change.

Mentions of national figures, such as President Obama and President Trump, also paled in comparison to the coverage and quotes from state and local figures in academia, environmental advocacy, and coastal management. Recurring characters included Spencer Rogers and Dr. Stan Riggs of the N.C. Coastal Resources Commission Science Panel, Dr. Orrin Pilkey of Duke University, Tancred Miller of the N.C. Division of Coastal Management, Todd Miller of the North Carolina Coastal Federation, and Thom Thompson of N.C. 20. These public figures represented differing interests and opinions on coastal development – and its intersection with climate change – from the viewpoint of environmental advocates, government agencies, coastal developers, and coastal local governments.

Media Discourses of Climate Change and Median Household Income

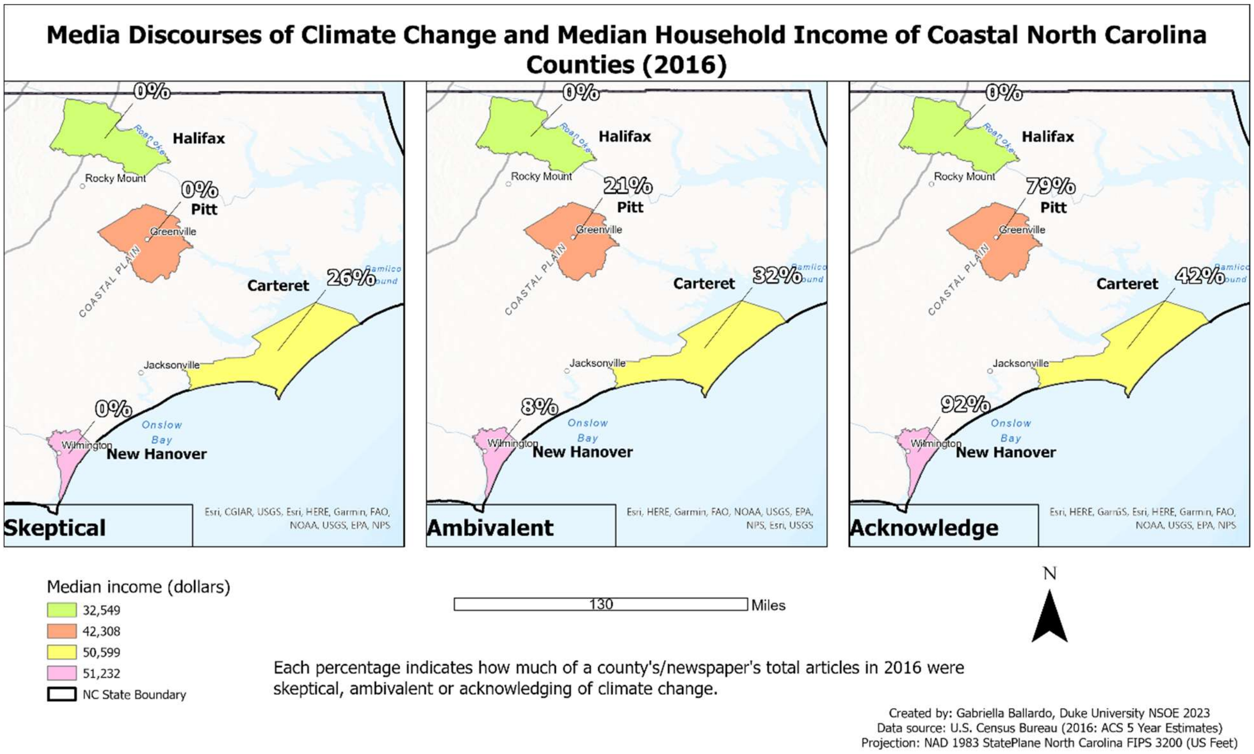

Figure 7: 2016 Median household income and climate discourse proportionality

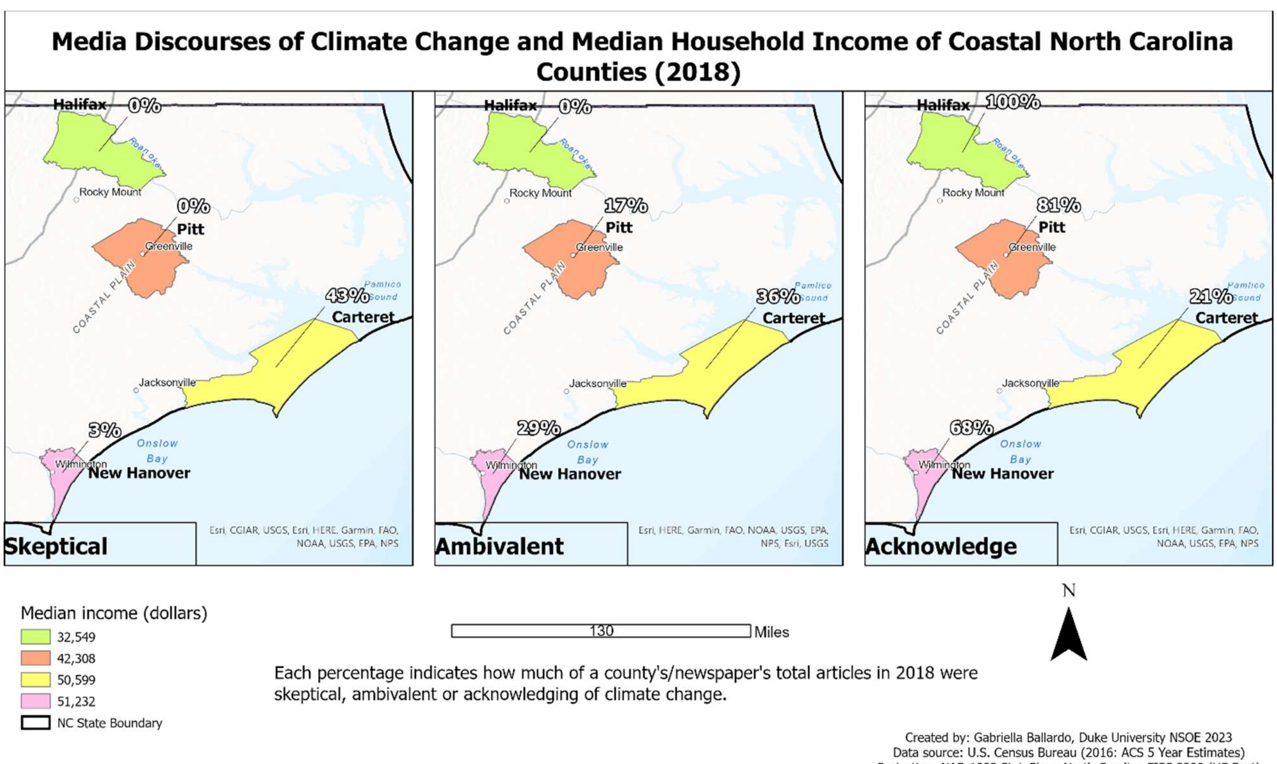

Figure 8: 2018 Median household income and climate discourse proportionality

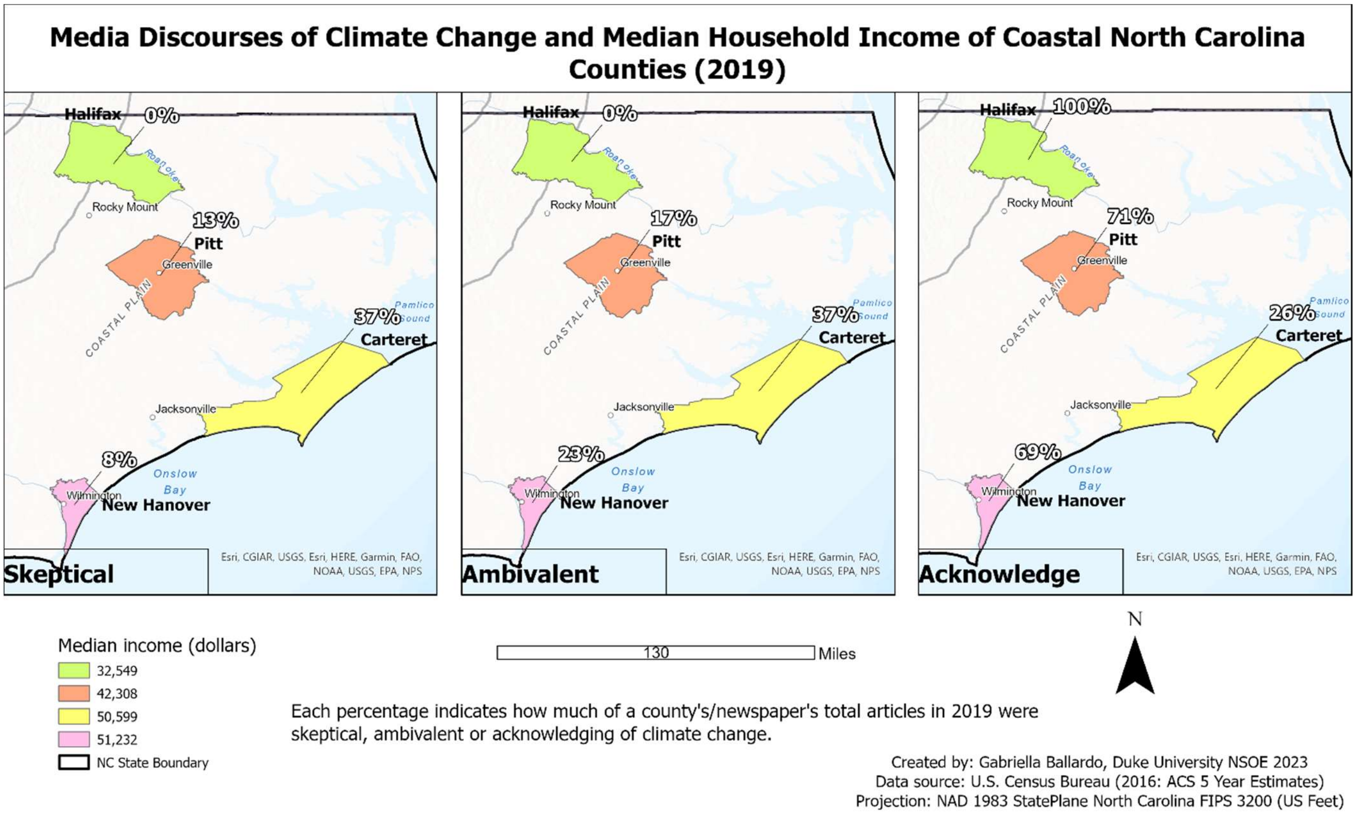

Figure 9: 2019 Median household income and climate discourse proportionality

Further research must be conducted to explore the relationship between household income and media discourses of climate change. However, evidence from our study suggests that income may be related to whether or not newspaper articles acknowledge or are skeptical of climate change amidst major hurricane events (in 2016, 2018, and 2019). As shown in Figure 7, the majority of each county's total articles in 2016 are acknowledging of climate change, where Pitt County has 79% of its articles falling within the 'Acknowledge' category. Interestingly, Halifax County's newspaper does not have any articles about climate change in 2016 and also has the lowest median household income at $32,549. This finding may suggest that lower median household incomes are associated with less acknowledgement of climate change in the media. In 2016, 2018, and 2019, Carteret County's newspaper has fairly evenly-distributed discourses of climate change compared to the other counties. This nuanced discourse of climate change in the newspaper could potentially be explained by its higher median household income ($50,599).

Limitations

It is critical to acknowledge the limitations that accompany our study. Despite our standardized coding methods, each of us carries a bias to the analysis. For instance, the majority of our research group is not comprised of long-term North Carolina residents. We also bring an internalized environmentalist ideology and a perspective from an academic institution. Notably, with most qualitative forms of analysis, there is room for inconsistency with coding. While we continuously discussed our definitions and examples of how we coded different newspaper articles, it is likely that each person could interpret wording in slightly different ways. Furthermore, there are limitations associated with utilizing newspapers as a proxy for political discourse. Factors such as the decline of local journalism in recent decades, lack of funding to cover issues like climate change, and who has access to these local journalism jobs and to reading the newspaper itself all play roles in political discourse.

Conclusions

Across the dataset, most articles (63%) acknowledge climate change. Events like the 2018 Hurricane Florence and the 2012 sea level rise “ban” law are associated with significant increases in climate change discourse articles in the weeks following the event. The proportions of acknowledging, skeptical, and ambivalent articles varied across the four newspapers, suggesting that climate discourse varies within Eastern North Carolina depending on socioeconomic and geographic indicators.

The subject of climate discourse shifts over time with an initial focus on sea level rise in the early 2010s. As the decade progresses, the conversation diversifies to include resilience concepts and more frequently links hurricanes to climate change. Emerging themes from skeptical articles include diminishing the credibility of climate researchers, characterizing climate science as “unsettled,” and suggesting ulterior motives from climate acknowledging public figures. Climate discourse in these Eastern NC local newspapers heavily centers around state and local policy rather than national and international politics. Future work may consider the impacts of local policy on Eastern North Carolina climate discourse as well as changes in local demographics as a factor of discourse change.

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