

**Apocalyptic Rhetoric and Subversive Framing
in “The Uninhabitable Earth”**

*A Thesis Presented By:
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Abstract

Capturing the public's attention with messages of climate change is immediately important in the face of the threat of global warming. As science communicators and climate scientists struggle to effectively communicate the risks of climate change to the general public, a cross-disciplinary understanding of exemplary communication events is essential to furthering the field of climate change communication. By applying theories of rhetorical criticism to the arguments in the viral, and controversial, *New York Magazine* cover piece "The Uninhabitable Earth" by David Wallace-Wells, this study evaluated the dominant frames, appeals and persuasive narratives utilized in the article. The analysis drew conclusions to the research question: is "The Uninhabitable Earth" a persuasive apocalyptic climate change narrative? The rhetorical evaluation of this prominent article added another dimension of understanding of climate rhetoric in the emerging field of science communication. The apocalyptic narrative, metaphor and appeals of the article were effective, and have been used in similar climate change communication to the same end.

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Chapter One

"It's catastrophic, unprecedented, epic—whatever adjective you want to use," said Patrick Blood, a National Weather Service meteorologist describing the 2017 hurricane Harvey, "it's pretty horrible right now." Blood was talking about the category four storm, Hurricane Harvey, that ripped through Houston, Texas, causing a 1-in-800 year flood in the city and fifty of its surrounding counties and displacing 30,000 people (Loeb, 2017; Gomez, 2017). *The New York Times* reported that more than a trillion gallons of rain fell on Harris county over the course of the six day storm surge (Astor & Chokshi, 2017).

"This event is unprecedented & all impacts are unknown & beyond anything experienced," the National Weather Service tweeted August 27, 2017. They later tweeted about needing to update the color charts on their map graphics in order to effectively display the amount of rain that had fallen (NWS, 2017). Groundbreaking climate science has proven the attribution of extreme weather events to global warming, not just their uncharted extremes, but also the viability of these events occurring at all in the absence of global climate change (Stott, Stone, & Allen, 2004; Harvey, 2018).

In the 1950's, the threat of a nuclear holocaust was the defining existential threat of the generation, but for the teenagers and young adults of the 2010's, climate change is that apocalyptic threat. The most recent scientific consensus is that humanity will face an "existential threat" from our warming climate before the end of this century, unless we halt net carbon emissions in addition to employing carbon trapping technology to remove greenhouse gases from our atmosphere (IPCC, 2015; UNFCCC, 2017). No such

international policy or plan is currently in place, and the Paris Climate Agreement falls far behind the measures needed (Chemnick, 2017). In October of 2017, *the New York Times* reported that the US's Environmental Protection Agency had scrubbed its website of many references to climate change and links to climate change resources, all while this mounting threat was being reported daily by global media (Friedman, 2017).

The reporting on Hurricane Harvey tested the limits of weather communications as some meteorologists struggled to find the words, or the colors, to accurately portray the catastrophic storm, and yet for many other environmental communicators, the words used to inform the public about catastrophic storms, weather and, indeed, the global climate are a matter of heated debate. This debate came to a head with the recent viral *New York Magazine* piece, "The Uninhabitable Earth" by David Wallace-Wells. The piece, a 7,000 word cover story detailing the worst-case scenario for human life if global warming is left unmitigated, became an overnight and controversial success, generating over 2,000 articles and blog posts written in response since it was published July 10, 2017. Shortly after publishing, *New York Magazine* reported the piece had become the most read article in the history of the publication. The article itself reached a wide audience on social media--it was shared over 800,000 times on Facebook alone according to Crowdtangle.

"The Uninhabitable Earth" paints in vivid brush strokes eight scenes of the apocalyptic horror that climate change will bring to our civilization, from toxic smog that will smother cities, to deadly heat waves that could kill thousands near the equator, and

even total societal collapse because of the economic cost of climate change. It opens with the line: “It is, I promise, worse than you think,” and dives into a narrative of where the current tempo of climate change will lead us all, reading, “If your anxiety about global warming is dominated by fears of sea-level rise, you are barely scratching the surface of what terrors are possible, even within the lifetime of a teenager today.”

The article was a critical success for Wallace-Wells and the *New York Magazine*, but Wallace-Wells’ rhetoric drew immediate attention from fellow environmental journalists and climate scientists alike, generating thousands of tweets, blog posts and journalistic responses online. Scientists flocked to correct its scientific claims and to criticize Wallace-Wells for unproductively scaring his readers. Climatefeedback.org, a not-for-profit coalition of climate scientists who review major climate change media to report on their truthfulness, took the article to task over its scientific claims. Seventeen climate scientists concluded that “its overall scientific credibility [is] ‘low’.” A majority of reviewers tagged the article as: “Alarmist, Imprecise/Unclear, Misleading” (Vincent, 2017). Yet it was Wallace-Wells’ artistic liberty with the scientific claims of climate change that drew this attention, and while it remains to be seen if its readers feel compelled to action, the apocalyptic frame placed around the worst case impacts of global warming was a powerful one. In many of over two thousand journalistic responses to the piece, environmental journalists praised its refreshing tone and called for more fresh strategies in the way communicators talk about climate change (Mathews, 2017; Roberts, 2017; Rousseau, 2017; Campanella, 2017). *Mother Jones* published an article in

support soon after, titled, “Our Approach to Climate Change Isn’t Working. Let’s Try Something Else” (Drum, 2017). Other journalistic critiques of the article cited studies investigating the implications of the use of fear appeals in environmental communication.

As rhetors and scientists struggle to effectively communicate the risks of climate change, a cross-disciplinary understanding of these communication events is essential to every area of study these messages affect. Accurate and meaningful climate rhetoric is seemingly the only thing standing between the science of the issue and the general public. The rhetorical implications of the framing of such a prominent article in the climate change discourse is important and can add another dimension of understanding to its message and impacts.

Research Questions & Methodology

The primary research question that will direct this study will be: *Is “The Uninhabitable Earth” persuasive, or are the critiques of the article well founded?* Secondly, this study will investigate the following questions; Is this widely read and hotly debated article a landmark communication that will set the tone for future climate change messages? Or should this be held up as the exemplar of exactly what is wrong with communicating complex science to the public? In the case of communicating climate change science, should persuasive techniques take precedence over ethics and fact?

The purpose of this study is to discover and analyze the frames, appeals and apocalyptic narrative used in the *New York Magazine* article “The Uninhabitable Earth.” A qualitative framing analysis will be applied to the artifact, the arguments of the article will be assessed and used to draw possible conclusions to the research questions. The analysis will also follow an inductive method of identifying frames, and will require careful engagement with the artifact to identify the frames. This type of analysis allows for a deeper understanding of the meaning of texts (Pauly, 1999; Connolly-Ahern & Broadway, 2008; el-Nawawy, M., & Elmasry, M. H., 2017). The methodology will draw from Foust and Murphy’s (2009) work classifying apocalyptic climate rhetoric, and el-Nawawy and Elmasry’s work in the *International Journal of Communication* on inductive framing analysis. This technique will explore how framing practices in “The Uninhabitable Earth” could shape the public’s reception to the article. Capturing the attention of the general public is immediately important for climate scientists and science communicators alike, and immediately important in the face of the threat that global warming poses.

Following the publication of “The Uninhabitable Earth” journalist Wallace-Wells became a lightning rod for the discourse surrounding the way communicators talk about climate change and science. The argument that erupted revolved around the way in which the article was framed, and since then Wallace-Wells has appeared in numerous interviews and forums that centered around a discussion of the article and controversy. They have allowed him to explain his own personal motives and perspective on both the

piece itself and the controversy surrounding it. To a critic, an understanding of his personal and professional background is an important aspect of the rhetorical situation. The discussion that stemmed from the rhetoric, and its reception in various audiences, is what made this article so exceptional in its field and is the defining characteristic of this event. The discourse exposed parts of the relationship between scientists and the communicators talking about science and elevated its importance and impacts to something more complex, beyond just another news report of climate change. In the remainder of this chapter, the rhetor will be introduced, his background will be discussed, as well as his motives and purpose. Then the research methodology and audience analysis will follow. Details of the debate surrounding the piece will be explained and discussed last.

The Rhetor

David Wallace-Wells is a New York native formally educated at Brown University, where he studied History. Wallace-Wells is in his mid thirties and currently lives in downtown Manhattan. In 2011 Wallace-Wells joined *New York Magazine* as the Literary Editor, and became the Features Editor in 2016. Now, as Deputy Editor at *New York Magazine*, Wallace-Wells writes about the science and technology of the near future.

Wallace-Wells has had a prolific professional career: his writing has appeared in *New York Magazine*, Yahoo news, *Slate*, *Business Insider*, WBUR-FM (Boston, MA),

WNYC-FM (New York, NY), *The Capital Times*, *WIRED*, *Business Insider Australia*, *Vulture*, *The Paris Review*, RealClearPolitics, ATTN:, and INSIDER. In 2005 he began his journalistic career with an article in *Slate* online, for which he wrote until 2006. In 2012 he became the editor at the *Paris Review*, a literary feature magazine. In 2013 he wrote his first piece that appeared in *New York Magazine*, an interview with essayist and author Oliver Sacks.

In 2015, Wallace-Wells wrote his first science article for *New York Magazine* titled, “The Blight of the Honey Bee,” an over 6,000 word story on declining bee populations in the US. Soon after, Wallace-Wells wrote about the Mets baseball team for *New York Magazine*. Leading up to “The Uninhabitable Earth,” Wallace-Wells had covered a few science-based topics, but nothing specifically on climate change. This trend reversed upon the publication of “The Uninhabitable Earth,” as he went on to publish five conversations with scientists who were interviewed for the research in “The Uninhabitable Earth.” This included an extended interview with a key critic of the article, Michael Mann, a Professor of Meteorology at Penn State University, and arguably one of the most well known climatologists in the world. Wallace-Wells also published a “reading list” for those who liked “The Uninhabitable Earth” article so much, they wanted other texts to accompany the topic.

Following the publication of “The Uninhabitable Earth,” Wallace-Wells appeared on numerous podcasts, videos and interviews on climate change and about the article itself. In the *New York Magazine*, Wallace-Wells has continued to write about climate

change, most recently publishing articles covering several extreme weather events and their connection to climate change.

Wallace-Wells has no formal training in the scientific field, but at times is referred to as a “science communicator” or “science journalist.” At other times, in interviews with Al Jazeera and at the NYU Journalism Institute, Wallace-Wells’ counterparts during the interviews are described as “science communicators” or “science writers” while Wallace-Wells’ job description is “journalist.” These counterparts are often used as devil's-advocates or purveyors of dissenting opinions opposing those of Wallace-Wells’. While there are no specific qualifications for a career in science journalism, writing or communication, there are emerging programs and degrees in these areas that may separate Wallace-Wells from fellow journalists who are given the title “science journalist.” In a Q&A with online magazine *Gothamist*, Wallace-Wells described himself as “a civilian, as an amateur observer of [climate science].” Later in the same piece, while talking about the possible outcomes described in “The Uninhabitable Earth,” he self-described again as “...uninformed,” and a “non-specialist” (Fishbein, 2017). Wallace-Wells, as a journalist, not a climate scientist, would be undertaking a fair amount of research, and informative interviews to write the piece, and within the article mentions accomplishing both of these tasks.

Wallace-Wells also wrote a short editorial addressing the push-back to his original article, which was published as a preamble to his series of conversations with

climate scientists. This statement seems to be his most direct and clear public comment on his intent and his true beliefs about climate change.

But I own up to the alarmism in the story, which I describe as an effort to survey the worst-case-scenario climate landscape. We have suffered from a terrible failure of imagination when it comes to climate change, I argue, and that is in part because most of us do not understand the real risks and horrors that warming can bring, especially with unabated carbon emissions. For the sake of clarity: I do not believe that the planet will become uninhabitable in 2100. As I write in the story, our complacency will surely be shaken before we get there. But I do believe that it is important to contemplate the possibility that parts of the tropics and equator will become cripplingly hot, for instance, or that our agriculture will suffer huge losses, so that we may be motivated to take action before we get to those eventualities. And I do believe that, absent a significant change in human behavior across the globe, they are plausible eventualities (Wallace-Wells, 2017).

Much of what this statement covers is repeated in the rhetoric itself, “failure of imagination,” “horrors that warming can bring,” “our complacency,” and “significant change to human behavior,” are all phrases taken straight from the original article.

In interviews following the publication of “The Uninhabitable Earth,” Wallace-Wells explained his reasoning behind writing the piece. Specifically, he and Michael Mann, the eminent climatologist and critic of Wallace-Wells, were interviewed at the NYU Institute of Journalism by the *Wall Street Journal's* science writer, Robert Lee Hotz on Thursday, November 30, 2017. During the interview Wallace-Wells, prompted by Hotz, says he was motivated to write the piece and write it in such a way because he was identifying a gap in much of what mainstream media had written about the impacts of climate change, as he said “to my mind, [they] have not done a very good job of communicating all of the other threats that climate change poses to us,” other than

rising seas, “and had not really broached the subject, or should I say successfully communicated to the public, the whole second half of the bell curve beyond the median outcome, what the 75th percentile outcome was going to be, what the 90th, 95th percentile outcome was going to be.” He was able to identify this gap because he had followed the issue of climate change in the media as a casual observer, and learned what he could about newer research pushing the boundaries of the science (NYU Arthur L. Carter Journalism Institute, 2017).

Wallace-Wells believes “most people think of the threat of climate change as being directed at people in the United States but often affecting people elsewhere in the world,” and through the writing of this piece was striving to, “shake that perception,” through the many scenes of crisis, “that climate change was going to affect everyone on the planet and change the shape of every life on the planet. We can’t comfort ourselves by saying well I don’t live in Miami, I don’t live near the sea, I’ll be okay.” (NYU Arthur L. Carter Journalism Institute, 2017)

Later in the interview he reveals that he worries that many “Westerners” are complacent and can’t “imagine” what climate change will impact in their lives. As he says;

Well informed, progressive minded, relatively well off people in the West, had a relatively good understanding of what we think of as the median outcome of climate change. We didn’t appreciate that median outcome as a median outcome, we thought of it as the worst case scenario. That can be really distorting (NYU Arthur L. Carter Journalism Institute, 2017).

In the article, he blames the distortion on a number of factors: the way that scientists communicate, the “technocrats” in power, climate deniers, the way in which people think about time, the general abstraction of the problem, and a fearful denial of the problem. During the interview Wallace-Wells also secondarily identified himself as an “advocate” after his role of journalist, an unconventional role for a traditional journalist. Wallace-Wells’ view of himself as an “advocate” comes clearly through in the piece, as it does not read as a straight news report, but rather as an essay of wary advice from Wallace-Wells himself. This style of writing is common to the *New York Magazine* and the theme of rhetor as advocate will be explored during the analysis of the rhetoric.

The Research & Audience

In addition to identifying as an advocate, Wallace-Wells also refers to himself as an “amateur” in the field of climate change, and as such, prepared to write “The Uninhabitable Earth” by interviewing “a dozen climate scientists” over the course of two months. He explicitly states this in the article itself. Wallace-Wells research for the piece was also made public following the publication of the article itself; transcripts of five interviews Wallace-Wells had with climate scientists. Each scientist described the state of the research in their field, discussed the projected outcomes for climate change and each had his/her own theory of how they think climate change will unfold. In addition to the publication of the interviews, Wallace-Wells published an annotated edition of the article, with 149 notations from various sources (Wallace-Wells, 2017).

One of the most well known climatologists in the U.S., Michael Mann, was also interviewed for the article, he spoke on the “scientific reticence” of the climate community—he believes that scientists have been bullied into "often understating" their findings and "understate risks" because of pressure from the fossil-fuel industry and climate deniers. Mann says, "There is this recurring theme of the science moving in the direction of the impacts being larger than we expected and part of that is a function of the reticence of scientists and the tendency to sort of be very conservative,” on the impacts of this pressure. Mann's own words in the conversation on the projected outcomes of climate change, and in fact, his framing, echo what Wallace-Wells says so sharply in print, that the two could have co-written “The Uninhabitable Earth.” Despite Mann's protests following the publication of the article, it seems as though much of Wallace-Wells’ writing on the outcomes and extreme events caused by global warming were taken directly from this interview.

In the interview with Oceanographer Wallace Smith Broecker, the man who coined the phrase "global warming,” there is a point in the conversation when Broecker mentioned “an interesting thing we call the PETM,” and follows that up with “you probably never even heard of that.” Wallace-Wells replied with, “no, of course I have!” Broecker’s assumption here was that Wallace-Wells was a reporter with little knowledge or background on the topic he is writing about. In many of the other conversations with scientists, it’s shown that Wallace-Wells could “hold his own” in conversations with the experts. Broecker also spoke about the scientist Jim Hansen, a climatologist turned

advocate--"It's very hard to do what he's doing, to be a scientist and an advocate without crossing over the line and making the problem look worse." This statement explains Broecker's thoughts on scientists place in swaying public opinion and influencing legislation. Broecker also divulged his understanding of how climate change could be fixed; he believes that democracy has failed the planet, and that an authoritarian dictatorship (possibly China) will have to rise up and begin organizing the world at a global level to combat climate change (Wallace-Wells, 2017).

In another interview with paleontologist Peter Ward, they discussed Ward's exceptionally pessimistic view of climate change. Ward believes that global warming is the planetary reset button that wipes our slate clean each time the Earth's biodiversity becomes too big to sustain. Ward's background is in mass extinction events, which in all but one case were caused by a buildup of greenhouse gases. Ward mentions the Fermi paradox which, much simplified, answers the question of "where is everyone?" (ie. extraterrestrials) which can be answered with—they have all wiped themselves out, over and over again with the planetary reset button that is climate change (Wallace-Wells, 2017).

James Hansen, the climatologist behind the landmark climate lawsuit called "Our Children's Trust," stuck with the topic of the lawsuit, climate legislation and politics. Hansen debated the benefits of a carbon tax over a cap and trade system, on carbon extraction and what it would take to sway the tide of climate change. Hansen, like Mann and Broecker, all mention "scientific reticence." Hansen says, "You're rewarded in

science for not stepping out too rapidly.” Hansen’s direct quotes mirror Wallace-Wells’ conclusions in ‘The Uninhabitable Earth,’;

The economic implications of that, and the migrations and the social effects of migrations — the planet could become practically ungovernable, it seems to me. But if you’re really talking about four or five degrees, that means the tropics and the subtropics are going to be practically uninhabitable. It’s already becoming uncomfortable in the summers, in the subtropics — you can’t work outdoors... (Wallace-Wells, 2017)

After being pressed about the long-term effects of burning greenhouse gases, Hansen responded to the question of short-term effects, and one can almost see the title of the original piece jump at you--”I think on the shorter term, the planet becomes much less habitable — low latitudes become less habitable, and if we lose coastal cities everything starts going backwards.” It’s almost as though Wallace-Wells interviewed experts in the field, interviewed them for a story, and then wrote the news story using the information he heard straight from the mouths of the scientists.

These interviews serve as a peek behind the curtain of the process behind writing the article, as well as a way to demonstrate Wallace-Wells’ authority as a journalist to his audience. At the *New York Magazine*, Wallace-Wells wrote for a mainly upper-middle class, young to middle age American public, according to *New York Magazine*’s media kit. Their website enjoys 11.9 million unique monthly visits and 28 million monthly page views. Sixty percent of online readers are between 25-54 years old, 53 percent are male, 47 percent are female and their median household income is \$95,760. In print, the magazine has a total magazine readership of 2,699,000 and a circulation of 405,435

copies. Almost half of all print readers are between the ages of 18-49 years old with a median household income of over \$75K. While there are no statistics available on how many people the article reached, since the article became the magazine's most read article, and has nearly 3 million copies read in print and, on average, 28 million website visitors each month, one can safely assume the article reached a huge audience, organically.

The Discourse

On social media, "The Uninhabitable Earth" was widely shared, over 800,000 times on Facebook alone, according to Crowdtangle. It set off a conversation on independent blogs, Facebook and Twitter that centered on the fact that the article was written in a way harmful to the climate change movement and to the public. Michael Mann, one of the scientists interviewed for the article, became the loudest voice of the critics when he posted a 450 word critique taking issue with the article on Facebook. This post was shared 1,300 times, many users pointed to this post as having "de-bunked" Wallace-Wells article and Mann was invited to other media platforms, interviews, and talk shows to speak on his critique of the article. As Mann mentions in the post, he was, in fact, interviewed for the article, but neither referred to nor directly quoted. His response to the piece is interesting to note because it seems to take issue with the way in which the article was written, not the science presented in the piece (though Mann does refute a few pieces of evidence used in the rhetoric).

I have to say that I am not a fan of this sort of doomist framing. It is important to be up front about the risks of unmitigated climate change, and I frequently criticize those who understate the risks. But there is also a danger in overstating the science in a way that presents the problem as unsolvable, and feeds a sense of doom, inevitability and hopelessness (Mann, 2017).

Mann's assertion that "overstating" science "feeds a sense of doom" is a far reaching claim that Mann does not support in his argument against the piece. Instead, he refutes two pieces of Wallace-Wells' evidence, first his claim about climate "feedbacks" and frozen methane that could be released from melting permafrost and secondly a claim supported by an outdated climate model that has since been re-evaluated (Mann, 2017). Wallace-Wells "exaggerated" the claim about methane being released, and wrongly reported on a climate model misinterpretation. Wallace-Wells presents numerous pieces of evidence throughout his 7000 word article, leaving many of his arguments fully intact and standing. The evidence Mann takes issue with is not a premise upon which the article's main assumptions are based. Wallace-Wells uses temperature projections that the ICPP has published on which to base most, if not all of his "crises." Mann's main opinion is that Wallace-Wells "exaggerated" the science and used "doomist framing."

This Facebook post, and others made by scientists and journalists on social media, contributed to a larger conversation that was carried out in a series of journalistic responses and forums over the coming days and weeks after "The Uninhabitable Earth" was published. [Climaterewiew.org](http://climaterewiew.org), a non profit organization dedicated to correcting mis-reporting or lies about climate science, seemingly took the article to task over its

scientific claims. Seventeen climate scientists concluded that “its overall scientific credibility [is] ‘low’.” A majority of the reviewers tagged the article as: “Alarmist, Imprecise/Unclear, Misleading,” (Vincent, 2017).

One such reviewer, Peter Neff of the University of Rochester, offered a main critique that was not based in science, but rather on the “literary license” taken in the article to “leverage information grounded in truth and paint an apocalyptic picture of extreme future scenarios possibly driven by anthropogenic climate change,” (2017).

The reviewers were not always in agreement with the “truth” of Wallace-Wells’ claims, conveying a divide on how factual Wallace-Wells’ arguments were. The following claim; “trapped in Arctic permafrost, twice as much carbon as is currently wrecking the atmosphere of the planet, all of it scheduled to be released at a date that keeps getting moved up, partially in the form of a gas that multiplies its warming power 86 times over,” was referred to as “misleading,” “generally accurate,” an “oversimplification,” and even downright “inaccurate,” pointing to a confusing divide in what, exactly, was the major point of disagreement. This was one of the claims Mann took issue with in his Facebook post, but this piece of evidence is not used as a major tenet in any of Wallace-Wells overarching arguments or included as supporting evidence in any of the narratives he portrays. Climate scientist, Michael Mann, also used this website to speak of his concerns about the article, and again voiced a critique of the article that was not based purely on factuality, but of narrative instead, “there is no need to overstate the evidence, particularly when it feeds a paralyzing narrative of doom and

hopelessness.”

Alexis Berg, an Associate Research Scholar at Princeton University was troubled that the article implied, by citing interviews with multiple climate scientists, that this article captured the tone of what the scientific community believes about climate change. Berg went on to say what “this article suggest[s] to me is that we, as a community of scientists and science journalists, need to find a better way to more accurately discuss climate change projections and to convey the associated risks to the public.” Again, while this is an interesting interpretation of the article, it is not a statement of how true the science in the article is. Rather, Berg interpreted the article as commentary on the way scientists talk about the risks of warming (Vincent, 2017).

While many scientists who spoke up during the critical fallout from the article did not have words of support, many fellow journalists and news outlets seemed to applaud the way Wallace-Wells framed the article and presented the narrative. *Mother Jones* published an article backing the article titled, ‘Our Approach to Climate Change Isn’t Working. Let’s Try Something Else’ (Drum, 2017). *The Verge* wrote a piece in response explaining how fear appeals work and don’t work in climate communication and concluded that though the scientific fields disagree about how we should talk about environmental risk, everyone agrees there is a dire need to convince readers about the dangers of climate change (Becker, 2017). On “The Uninhabitable Earth,” the director of the Center for Climate Change Communication at George Mason University, Edward Maibach said, “I applaud every journalistic effort to report on climate change, The

biggest problem is the 'climate silence' in America" (Becker, 2017). *The Washington Post's* coverage ran through both the scientific field's response to the piece and even Wallace-Wells' responses but concluded, "It is difficult to tell the story of climate change" (Mooney, 2017).

Some media outlets covered the scientific communities' backlash to the article as a news story in its own right, because this reaction was so resounding. During some of the more in depth coverage and conversations surrounding the controversy, there seemed to be three different fronts forming, scientists who believed their work was being in-accurately communicated, journalists who were looking for new ways to communicate risks to the public so they were heard and, as the article mentions, still other scientists and communicators who believed that "scientific reticence" has dangerously arrested scientific communication.

While the voices in opposition to the article were quite loud, its supporters can be found among fellow journalists, Twitter users, and climate organizers who were not quite so far into the spotlight as many famous climate scientists. *The Vox* article titled, "Did that New York magazine climate story freak you out? Good." comes to the same conclusions about the pushback against the article as this study does, that many critics' problems with the article were not founded. In the piece, the author counters the argument of writing to ensure you "reach" a particular audience, "Writing that is consciously pitched to reach and inspire some mythical average reader (as encountered in social science studies filtered through popular journalism) tends to be flavorless and

dull.” Roberts celebrates the superb, captivating writing in the article and he goes on to chide climate scientists’ brand of communication, “Similarly, the dry, hedged language of science is not the only serious or legitimate way to communicate, though climate scientists often mistake it as such.” Neither writing for the middle and utilizing the most popular psychological tricks and “best practices,” nor writing articles using a list of numbers and statistics have had as big an impact on the conversation as this article has (Roberts, 2017). In an apt comparison, an article in *Slate* by Susan Mathews called “The Uninhabitable Earth” “the Silent Spring of our time,” argues that the article was actually not quite scary enough. Mathews argues that climate inaction has already killed, and ruined lives, that this problem is one of structural inequality and is often solved through the lense of its costs to industry, not human life. The author understood, “the hopelessness that accompanies pondering our fate might depress people out of recycling their water bottles or switching their light bulbs. That doesn’t matter.” The problem, and the article must have loftier goals than recycling. They conclude with, “We don’t need to guard against alarmism, against depression, against anger, against despair when it comes to climate change,” these emotions are important to the problem (Mathews, 2017).

Following a conversation with *Planet Forward*, during which Wallace-Wells spoke with the founder Frank Sesno, the website ran a recap of the talk with the main points discussed. One topic they emphasised was captured with the title, “It’s more important to convince those who already care about climate to care more, than it is to convince

climate-deniers to believe in the cause.” The recap agreed with Wallace-Wells use of scary narrative to make concerned readers more concerned (Campanella, 2017).

The journalists who cover climate change and the scientists working on the front lines of the research have a reportedly difficult relationship at best. In 2014 when the Intergovernmental Panel on Climate Change, an arm of the United Nations, released their last assessment of the state of climate change research, *Studies in Communication and Culture* surveyed IPCC’s members to gauge their reactions to the then current state of climate change media coverage. The research largely concluded that there was an “information deficit” in climate coverage and reporters are “not treating the issue with the appropriate quality and efficiency” (González Cortés, 2014).

The scientific reception of this article was captured by the numerous online responses, and while no quantitative analysis will be applied to the general public’s reception, context of the readership and the American public’s views on climate change, climate journalism is important for an understanding of the rhetorical event. From the following statistical analysis we can assume how the general audience may have received this message and also how they felt about the topic even before reading the piece. Many Americans do not read science news, and those who do, read it rarely. In addition, many Americans do not trust news outlets to get the facts right on science news. These views exist hand-in-hand with the belief that most Americans are very worried about climate change.

The Pew Research Center reported in September of 2017 that “most Americans say they get science news no more than a couple of times per month, and when they do, most say it is by happenstance rather than intentionally,” and in the same study they revealed that only about 17% of Americans actively seek out science news, while 36% passively read science news a few times a month. One can safely assume that most readers of “The Uninhabitable Earth” in the US had not been previously exposed to a great deal of climate news before reading this article, but that many were getting their information from general news outlets such as the *New York Magazine*. From that same study, over half of respondents said they read scientific news mainly from sources that covered many topics, and only 28% said that these publications got the science right most of the time (Gottfried & Funk, 2017). This lack of trust is interesting to note and implies that even when Americans are reading science news from news publications that they may trust for good reporting on other topics, they are skeptical about the accuracy of the reporting on climate change. Lastly, 25% of the respondents say they read mainly science centric publications for their science news, and 47% say that these sources report accurately most of the time, meaning that when readers seek out science publications for news they are much more likely to believe what is being reported as opposed to a regular news outlet. Over half of the respondents reported that “the news media do a “good job” covering science,” but 73% say that “the bigger problem with news about scientific research findings is the “way news reporters cover it” (Gottfried & Funk, 2017).

On climate change communication specifically, the Pew Research Center reported in December of 2017 that only 21% of Americans trust scientists a great deal, and 55% trust them a fair amount. Only 28% of Americans think that climate scientists understand the causes of climate change, meaning that even when climate change information is coming directly from the mouths of scientists, audiences are still incredibly cautious about trusting that information (Funk, 2017).

The last contextual audience metric is how Americans feel about climate change, and what might have been the mindset of some Americans when reading “The Uninhabitable Earth.” Recent surveys have shown populations to be very nervous about climate change, and understand that it is driven by humans but the U.S. has seen little public action on that fear. In a long term study done at the Yale Center for Climate Communication, in their most recent poll done in May of 2017, 57% of Americans reported they were "worried" about global warming, and 17% were "very worried," and these numbers have stayed relatively constant since 2008. In a study published by Gallup in March of 2018, they concluded that the “Majorities of Americans overall say most scientists think global warming is occurring (66%), it is caused by human activities (64%) and its effects have begun (60%).” The study explores the vast partisan divide on this issue in America, but still concludes that the majority of Americans know of and understand the basics of climate change (Leiserowitz, A., Maibach, E., Roser-Renouf, C., Rosenthal, S., & Cutler, M., 2017).

Globally, Americans opinions on climate change in terms of the risks it poses are vastly different from those of the citizens of many other countries. In a Gallup study in February of 2018, only 3% of Americans named issues of environment/pollution as the "most important problem facing the country." This falls below issues of unemployment, economy, and healthcare. Where Americans rank climate change in order of threat level is very different to rankings in many other parts of the world. In an international study by Pew Research Center in August of 2017, 61% of global respondents said that "global climate change" was a major threat to their country. This was the second highest response, right after ISIS (62%). In much of South American and some African countries, as well as Canada, climate change was named the top threat to national security. In most of Europe and Asia, as well as in the U.S., ISIS was listed as the major threat. Specifically in the U.S., 56% of respondents said global climate change was the top threat, a big difference from the number collected by Gallup. But fears of global warming in the US fell below ISIS (74%) and "Cyber-attacks from other countries" (71%) (Manevich & Poushter, 2017).

While it is clear many Americans are fearful about climate change, and understand that it is happening and driven by human activity, for some reason, when it comes to level of importance, climate change is often put dead last. High fear and low concern may mean that Americans do not fully understand what the impacts of climate change could be. This understanding of Wallace-Wells' audience is important to keep in mind as the theories that will influence this study are discussed in the subsequent chapter.

Chapter Two

In this chapter the theoretical backgrounds of framing, fear appeals, and apocalyptic narrative will be discussed and their relevance to this study will be explained. A brief history of each topic will be presented and followed by narrower and specific explanations of studies that will influence the analysis of “The Uninhabitable Earth.” The field of apocalyptic, climate change rhetoric is a niche area of study so the specific explanations are important as we move to smaller and smaller subsections of rhetorical theory. Following that, a broad description of the article will begin with the goals of the rhetoric, followed by the narrative structure, a brief discussion and examples of its content, and finally, a summary of its major themes.

It is important to state at this point, that this paper and analysis will operate under the assumption that the artifact knowingly drew upon culturally established motifs of apocalyptic narrative in order to accomplish its persuasive goal, while at the same time the rhetor was not actively attempting to frame the artifact as an apocalyptic story, per se. This distinction is important and is based upon the audience's response (that the piece was apocalyptic) and the rhetor's responses after the publication (that he was not consciously attempting to create an apocalyptic frame). This diverges from what

scientific critics called the frame (doomist) because there is no body of work surrounding “doomist framing,” and that one can assume that doomist--or doomsday is a synonym for “apocalypse” or apocalyptic. As for fear appeals in the article, the artifact did in fact employ fear appeals, but these things are not created formulaically within a laboratory, and the author, regardless of intent, was immediately divorced from, though still associated with, this artifact once it had been put forth to the public.

Rhetorical devices in “The Uninhabitable Earth”

The roots of framing an argument as a rhetorical device have been passed down from the ancient and famous rhetorical scholar Cicero and his idea of an argument’s point of “stasis.” In this theory, any rhetor needing to persuade a group must find one singular, shared question in order to move forward with a resolution. Once one singular question has been selected, Cicero’s four questions of stasis must be answered, questions of fact, definition, character and policy. When a frame is created, a rhetorician is deciding upon the most persuasive answers to the four questions of stasis through the choices made in the creation of a frame. They are actively choosing the angle of the topic, and answers to the questions of stasis, through their framing. The audience hears the argument only in the terms selected by the rhetor. One can see the ancient understanding of framing reflected in the influential work of rhetorical scholar Robert Entman in “Framing: Toward clarification of a fractured paradigm,” where he works to ascribe singular definitions to framing and the terms used in the literature. Entman asserts when created,

frames “define problems,” “diagnose causes,” “make moral judgments,” and “suggest remedies” to an argument or event, explaining structure in almost Ciceronian terms (1993).

Modern framing theory is akin to the tradition of “agenda setting” in media and journalism, a phenomenon written about in 1972 by McCombs and Shaw. Agenda setting operates on a basis similar to framing theory, that a communicator implicitly tells an audience what is important and not important about a specific topic or event. In news media, the agenda is set at the very start of the communication process because journalists are making choices about what is and is not written about and therefore becomes “news.”

In 1974, Erving Goffman first put forth the modern theory of “framing,” which built upon the premises of agenda setting, his book applied frame analysis to language and studied “its implications for a systematic sociological study of subjective experiences [as] examined” (Goffman, 1974). This theory extended the way in which individuals frame their own experiences and how these frames influence how they interpret frames in society. As Ardèvol-Abreu puts it, “frames are instruments of society that allow people to maintain a shared interpretation of reality” (2015). In 1996 Fairhurst and Sarr published a definitive guide to how a frame is developed in *The Art of Framing*, a book aimed at leaders in the business world and the way in which interpersonal communication could be used to enhance leadership skills through a deliberative framing of their messages. In chapter five of their book, they define and explain the five mechanisms of framing;

metaphor, jargon, contrast, spin, and stories.

Within the field of rhetorical framing, prominent modern rhetorical scholars of framing theory, Foust and Murphy, have further explored “apocalyptic framing.” In a 2009 article, Foust and Murphy argue that apocalyptic rhetoric is a prevalent and divisive frame in climate communication, and an analysis of these frames could help explain why people may feel helpless or doomed in the face of climate change, and why still others feel as though climate change is a hoax. Foust and Murphy analyzed the climate change content in four major US news publications; *New York Times*, *Washington Post*, *Time magazine*, and *USA Today* between 1997-2007. They found that most articles using the term “climate change” framed the warming of the Earth as a natural phenomena, the drivers of this occurrence being outside the agency of humans. While the term “global warming” was used in texts, most often texts framed humans as the drivers of warming. They identified the treatment of time, “telos” and human agency as the variables that differentiate kinds of apocalyptic rhetoric and narratives. The pacing of time can be expressed differently, a narratives “telos” or “endpoint” can be described as a sure thing, a hypothetical, or as happening right now. The most distinctive difference noted in variations of the apocalyptic frame is that of human agency or our ability to change with and survive climate change or mitigate the worst of it.

Following prior research in apocalyptic frames there are two main variations of apocalyptic rhetoric that treat these three variables differently, “tragic” rhetoric and “comic.” Tragic rhetoric treats time as happening quickly, has a “certain” fixed endpoint

and writes about global warming as if it were one and the same as the apocalyptic outcomes. It also removes human agency from the equation and concludes that global warming is the ultimate fate of humanity, an unavoidable inevitability. Comic rhetoric implies that humans have time to adapt to climate change or mitigate the effects of it, over the course of the timeline ahead, while maintaining that the apocalypse is inevitable though it would not end all of humanity necessarily.

Though the ending of global warming is foretold, climate change provides a comic challenge from which people may learn, grow and adapt. While the tragic variation would end the narrative with humans and all other species as victims of the catastrophic effects of global warming, the comic version is more open ended (pg. 161).

An important marker of apocalyptic rhetoric is the use of the verbs “is” and “will” and the lack of or inclusion of the verb “could” in addition, the use of present tense verbs to describe events of global warming such as, ‘the ocean “is” warming’ or ‘the glaciers “are” melting.’ The use of phrases such as “is happening” or such an event “will happen” shuts out the possibility of human intervention and choice in the face of climate events. The use of the conjunction “if”, especially paired with “will/would” pits the hope for intervention (if) against the fate (will) of the endpoint. If implies hope for a solution and human’s agency, but dismissed it as the rhetoric predicts what “will happen” anyway.

Foust and Murphy called for further research into the regular occurrence of apocalyptic framing in “everyday” global warming journalism. They concluded that tragic framing echos what the field of psychology speaks to in their understanding of

apocalyptic framing; (1) it diminishes what people feel able to influence in the face of inevitable climate change and (2) it allows climate deniers to label environmentalists “overblown alarmists” (162).

Their discussion and definition of apocalyptic frames are based on Brummett's (1991) definition of an apocalyptic rhetorical frame, which will be discussed in depth in the subsequent analysis and used to evaluate the frame in “The Uninhabitable Earth.” An analysis of frames is important to this climate change artifact because, as Foust and Murphy state, “given its power to shape interpretations, policy, and action, close attention to how the press frames the issue is crucial to building a political will to mitigate climate change,” (pg. 153). This is because of the established tradition in the area of mass media and journalism fields that news coverage heavily shapes the way a society sees its reality. News framing operates along these lines and influences how audiences understand their reality (Iyengar & Simon, 1993; Entman 2007; Papacharissi & Oliveira 2008). Even in the rhetorical discipline, framing theory is used to understand how and why a communicator attempts to structure a message in addition to how well it is carried out, and how it might affect a receiver (Zarefsky, 2008). All of this points to the persuasive and impactful power of such a widely read climate change article in the popular American press. Frame analysis helps outline the narratives that influence political and public opinion and agency (Ott & Aoki, 2002).

The broader theory of appeals, both the contemporary and classical, can also be applied to the article. Fear appeals were central to many of the arguments in “The

Uninhabitable Earth,” and the way in which they function in climate change messages is crucial to understanding the article’s impact.

In the 1970’s Howard Leventhal put forth establishing theories for fear appeal communication. His studies showed that after a persuasive message subjects who experienced the most fear were most likely to act to want to alleviate that fear. Psychologically, fear appeals work by putting an audience into an emotionally heightened mindset, overriding one’s ability to reason logically, and focusing only on removing that fear. Leventhal went on to establish that subjects with specifically high self-confidence levels were most likely to be motivated by highly fearful messages and subjects with lower confidence were less likely to be motivated by highly fearful messages. Leventhal also conducted studies that outlined the parameters for “doable” solutions and “efficacious solutions” (Leventhal, 1970).

Previous studies had already discovered that solutions were an important aspect to include in fear appeals for them to be successful, even if this theory was not called efficacy yet. Including solutions to the fearful response, as well as conveying that the solution was going to be effective in reducing fears are important when determining if fear appeals will actually influence behavior. Leventhal conducted studies using a combination of fear appeals and specific instructions for subjects to alleviate their fear, but these studies also showed that inducing fear was as necessary to the message as the solution to motivate and change behavior. Fear appeals are clearly the central emotional argument made in “The Uninhabitable Earth.” Their effectiveness can be evaluated along

the parameters laid out by established theory and by emerging theories specific to environmental fear appeals.

Non secular apocalyptic narratives have been studied for centuries, and are mostly defined by the Book of Revelations, in the Christian tradition of a rapture event. These narratives were defined as a genre of writing in the Biblical Literary Genres Project as a narrative in which “a revelation is mediated by an other-worldly being to a human recipient, disclosing a transcendent reality which is both temporal, insofar as it envisages eschatological salvation, and spatial insofar as it involves another supernatural world.” (Collins 1979: 9) It’s very clear from this definition that “The Uninhabitable Earth” does not follow the structure of a non secular apocalyptic narrative, but rather follows the trend of secular apocalyptic narratives, as easily defined by literary scholar Karen Renner as a “world-altering catastrophe” (2012). Renner sees apocalyptic narratives, not as pessimistic tales of despair, but rather a means to examine what we deem wrong with our current societies, and actually reveal what we dream for a better world. As Renner says; “today’s apocalyptic tales appeal to a yearning for experiences that will reveal the undiscovered heroic potential in the most average of us all and establish a new community in which the truly worthy are rewarded” (2012).

The popularity of numerous secular apocalyptic and post-apocalyptic narratives are apparent in much popular media today, and in many of these narratives, righteous and heroic figures are often the characters thrust upon the stage, think of Rick Grimes of “The Walking Dead” (Renner, 2012). These “heroes,” Renner says are what often make

apocalyptic narratives so appealing to audiences. Julia Cook further suggests that apocalyptic narratives do not always convey our hopes for a better society, but rather a way to criticize problems that exist in our culture. Current understanding of contemporary secular apocalyptic narratives can help society answer the question of; “what do you see after the apocalypse? (2017).”

A 1990 book by Frank L. Borchardt, argues that all discourses that involve “the end of things” are by nature rhetoric and persuasion. His survey of apocalypticism is crucial to this study as it recognizes the documented ability of apocalyptic rhetoric to motivate changes of behavior and actions.

Speculation about the end of things has a purpose, a goal. Chiefly it is to deal with crisis either by moving an audience to undertake some action to resolve the crisis in its favor or to persuade an audience of the insignificance of the crisis in the grand scheme of things, especially in view of what is yet to come (1990).

Borchardt deals with the many variations of apocalyptic rhetoric where the narrative foretells of an end, a rhetor’s community is in “crisis,” the present is awful, and a different future is envisioned for the community. This understanding of apocalyptic rhetoric differs from other variations, but shares many key components.

Perhaps the speeches of one of the most renowned of modern speakers, Dr. Martin Luther King Jr., demonstrated the utility of apocalyptic theory (Bobbitt & Mixon, 1994). In “Give Us the Ballot” and “I Have a Dream” King showed mastery of secular apocalyptic prophecy.

King’s “dream” functions as a positive apocalyptic vision of America, drawing its rhetorical appeal from his use of powerful and evocative images that exploit America’s myth of itself as a special nation with a mission to provide freedom

and justice for oppressed people throughout the world (Bobbitt & Mixon, 1994: 27).

Bobbitt and Mixon outline the frame for an apocalyptic narrative following these criteria: it is concerned with, and passes judgement on current events, it does not predict a future, but shows the alternatives and emphasizes human agency in choosing an alternative. Finally, it portrays a “new order” that could be positive (Bobbitt & Mixon, 1994; Buber, 1957; Bergoffen, 1982). This study will use this definition of apocalyptic rhetoric to evaluate the narrative within “The Uninhabitable Earth.” A study of its narratives is important to shed a light on why the article had so great an impact on its audience.

Description & Summary of Text

The goal of any news publication is to sell stories to the public, whether that is through stories that have never been told before, or are being recast with a different frame, or through stories that entertain and are written the most attractively. In the case of “The Uninhabitable Earth,” all of these options are present in the content and the frame. “The Uninhabitable Earth” sets out to tell a story about our future that has not yet been told, but also to tell a story that is arresting and emotionally charged. In various interviews following the publication of the article, Wallace-Wells voiced his personal goals in both picking the topic and his style of writing, which have been discussed previously, but are worth noting here. Wallace-Wells wanted to write a story about climate change that he felt had not been told in popular media, one about the many risks

of climate change other than sea level rise and one that conveyed what the impacts of climate change could theoretically be beyond the projected median impact.

Wallace-Wells also wanted to write a story that would, in a way, address the issue of scientific reticence by using language and creating a narrative that was not conservative or safe, as he mentions in the article and in subsequent interviews.

Taken as a whole, the rhetoric implies that its goal is to convince the audience that the environment is changing, rapidly, and humanity is ill-equipped and unprepared to deal with the crises this will cause. This is found in the arguments it does not use, rather than the arguments it puts forth. The audience is never blamed for contributing directly to climate change, the rhetoric skirts explicitly blaming one cause for climate change, such as greenhouse gas emissions, on human activity and instead takes a bigger picture look at various global drivers of climate change, for example “Peatland fires in Indonesia in 1997, for instance, added to the global CO₂ release by up to 40 percent.” At many points it is, of course, implied that humans have indeed been the main orchestrator of the problem “...the destruction we’ve already baked into our future” but arguments that blame percentages of greenhouse gas emissions on various countries or sectors of human activity are omitted. In one paragraph the rhetoric describes humans as having “intervened” with the natural course of Earth’s climate but never directly links any human activity as being the driving force behind global warming. Humanity is an actor on the stage, we have intervened and “ravaged” the environment, unthinkingly “engineering” and “provoking” the climate we now live in. Instead of getting caught in

politicized mud-slinging arguments of who or what exactly “caused” climate change, the argument moves right on to prove that, regardless of blame, the climate is changing and this is the problem at hand.

Throughout the piece the collective words “we,” “us,” and “ours” are used to describe humans as a whole--“experts give us only slim odds of hitting it.” These collectives remove the necessity to assign specific blame and allow us to collectively mourn losses. The following statement exemplifies this generalization, “we are currently adding carbon to the atmosphere at a considerably faster rate,” the U.S. is not, the U.K. is not, we are adding carbon. The rhetor sees no need to assign the carbon to a single place or industry. The reverse can be said for things we may lose, instead of ‘the U.S. or Florida will lose Miami before the end of the century’ the rhetor writes, “we’ll lose them within the century.” Climate refugees, cities under water, the carbon in our atmosphere are all assigned to all of us and no one at the same time. Climate change will be experienced and was caused by all of us.

The rhetoric is structured into seven scenes of chaos and destruction or “crises” as this paper will refer to them, that take seven different facets of society and/or the environment and explain what will happen in each crisis if a specific degree of warming is reached. The seven crises are as follows; Heat Death, The End of Food, Climate Plagues, Unbreathable Air, Perpetual War, Permanent Economic Collapse, and Poison Oceans. These crises are bookended with an introduction and conclusion that explains some of the reasons for writing, some of the research that informed it, and the context for

the field. The titles of each crisis are self explanatory for what each section covers. For example, “Heat death” explains how a rising global temperature will cause heat stress and hyperthermia in already hot areas of the world. Each crisis is a self contained section that includes scientific sources and citations specific to the area addressed. All of the crises are grounded in technical scientific predictions, but then move past the simple numbers to weave these predictions into a more persuasive story that turns the science into an appealing narrative.

As an example of this structure, in the section “Perpetual War,” the rhetor first quantifies his conclusions with abstract numbers and percentages and then describes what those numbers and degrees would mean for a reader in everyday life;

Researchers like Marshall Burke and Solomon Hsiang have managed to quantify some of the non-obvious relationships between temperature and violence: For every half-degree of warming, they say, societies will see between a 10 and 20 percent increase in the likelihood of armed conflict. In climate science, nothing is simple, but the arithmetic is harrowing: A planet five degrees warmer would have at least half again as many wars as we do today. Overall, social conflict could more than double this century (Wallace-Wells, 2017).

While it may be hard for an audience to visualize exactly what a “10 and 20 percent increase in the likelihood of armed conflict,” means beyond knowing that more conflict is predicted, Wallace-Wells cuts through the numbers and tells the audience in no uncertain terms that this would mean: “social conflict could more than double” in a warmer world. This structure of explaining through narratives and supporting conclusions is repeated in the eight crises.

A wealth of rhetorical and social science research can be found on the impact of “apocalyptic” messages. In the psychological discipline it has been well founded that messages that are in extreme opposition to firmly held personal beliefs do little to sway people’s opinion (Feygina, Jost & Goldsmith, 2010; Furnham, 1993; Kazdin, 2009). In a highly cited article in the *Journal of Psychological Science* in 2011, researchers found that “dire” messages in climate communication increased skepticism about global warming, and reduced an individual's desire to reduce their own carbon footprint. They conclude that “dire messaging regarding global warming is at odds with the strongly established cognition that the world is fair and stable,” and because it threatens deeply held beliefs about how the world works, individuals will ignore the facts of the message entirely (Feinberg & Willer, 2011). In another 2013 study in the *Journal of Communication* opposing climate messages were examined to determine how the many different climate frames we are exposed to in popular media “compete” against one another. It analyzed their effectiveness in changing behaviors, and concluded that the actual impact of framing might depend wholly on individuals’ pre existing traits, and not the frame itself, if only because specific message frames do not exist in a vacuum. Nor does “The Uninhabitable Earth,” and its apocalyptic message does not exist in isolation.

The following chapter will consider these assumptions and fully analyze the text through the parameters outlined earlier in this chapter: its framing method, its appeals and its apocalyptic narrative as well. The theoretical backgrounds of framing, fear appeals,

and apocalyptic narrative will be discussed in the last chapter as well as a more complete evaluation of the article.

Chapter Three

In this chapter, a full analysis will investigate the rhetoric and rhetorical situation that surrounded “The Uninhabitable Earth” using the framing theory laid out in the previous chapter. Then, the use of fear appeals and their implications will be evaluated. Next, the apocalyptic narrative of the article will be discussed. Finally, the chapter will conclude with a summary discussion of the artifact as a whole and conclusions from this study will be presented.

Analysis of Rhetorical Event

In the following, the study will present an argument that the article “The Uninhabitable Earth” had factual errors, but that these errors do not discredit the work as a whole. It will also argue that the piece was not apocalyptic nor “doomist” framed. This section will speak to the apocalyptic narrative in the article and show that apocalyptic messages have been utilized by leaders and prophets throughout the ages to persuade audiences of imminent apocalypses and convince them to make drastic changes to their lives. This paper will then discuss what techniques were utilized within the rhetoric that made this message impactful as well as controversial. This article can initially be evaluated as being successful because 1) it captured the attention of so many people, becoming the most read article in *New York Magazine* in the history, and 2) it generated a huge response online both on social media sites and in other publications.

Claims About Correctness

The first aspect to analyse is the factuality of the article, as this was one critique echoed by many climate scientists. Yes, there was evidence that was not 'factual.' There were a few facts that should not have been reported as scientific fact and this cannot be excused. Especially the facts that were heavily cited by scientists as in correct, for example, the effects of methane trapped in melting permafrost and outdated climate models that predicted warming.

However, this project does not claim to be authoritative on climate science in any way, and the scientists' critiques of scientific fact will be taken as truthful, and will not be investigated in this chapter. It should be noted that the evidence that was misrepresented was not a pivotal support to the overall arguments or assumptions of the article. Any issues that reviewers had with pieces of evidence were minor. As explored earlier in the study, the main point of contention was the rhetorical angle of the article, and not its 'factuality.' In addition, the article was 7,000 words long and included 149 citations from reputable, peer-reviewed sources and most arguments rested on the consensus reported upon in the most recent publication from the IPCC. Therefore, this artifact will be evaluated based on its rhetorical (persuasive) effectiveness. The claims of most scientific reviewers of "The Uninhabitable Earth" were the following: 1) "The article was apocalyptic/doomist," which they framed as 'bad' or 'dangerous' and 2) that "Fear appeals do not work" under any circumstances.

Apocalyptic Rhetoric

By utilizing the apocalyptic rhetorical frame as outlined by Brummet, “a linear temporality emphasizing a catastrophic end-point that is outside the purview of human agency,” it will be shown that the rhetoric does not employ a traditional apocalyptic frame. While the artifact as a whole is slightly difficult to fit into a single frame because there is no single narrative thread that strongly connects each self contained “crisis” to the next, it will also be proven that there is an overarching theme that contributes to an apocalyptic narrative instead.

Brummet’s (1991) definition of an apocalyptic frame can be broken down into three parts: time characterized as an immovable path, this path ending with destruction, and humans characterized as helpless against the fate of this path. First, in the depiction of time within “The Uninhabitable Earth,” there is no single path to trace, but rather a number of possible options anyone might experience. The crises show branching realities of many different timelines and changes that could occur around the world. This theoretical depiction of time is exactly what the piece sets out to achieve. By using various percentiles along the bell curve of possible warming as the basis of the arguments, the author is able to show the audience what many different outcomes might arise, instead of the single projection of four degrees of warming and what that single change will influence. Rather than one single path for humanity, there are many.

The article also does not include a clear depiction of an end-point to the many paths. The future is characterized with various degrees of collapse and stress, but there is

no defined end in sight. For example, in the “Permanent economic collapse” crisis, the language never points to an “end” of the markets, only marking their percentile losses along the way as we move forward in time and warming. Additionally, the rhetoric weaves examples of the past alongside predictions for the future, and the presentation of a clear timeline can become blurry because of this. While obviously, the theoretical future can be presented as blurry and unclear, the present and past senses of climate change are clearly characterized by straight-forward catastrophe, anthrax released from melting permafrost in 2016, field workers in El Salvador suffering from chronic kidney disease due to heat stress, and the 2003 heat wave in Europe that took the lives of thousands a day.

Lastly, many narratives are framed within humanity’s agency. In the introduction to the problem, the rhetor clearly states that this is not a prediction of what will happen because that “will be determined in large part by the much-less-certain science of human response.” Humanity’s agency will decide our future, not a preordained apocalypse. Repeatedly throughout the piece, catastrophic scenarios are described and then followed by variations of what the rhetor qualifies in the opening paragraph: “absent significant adjustments,” or “absent aggressive action.” Humans do have power if we want to avoid the scenarios presented, though it may be restrictive at this stage. A pointed explanation of human agency is found in the last section of the piece, where scientists’ optimism for humanity’s survival is described: Since we have “engineered” our way into this crisis many scientists believe we will find a way to “engineer” our way out. What is lacking

from the rhetoric is any acknowledgement of individual human agency, i.e. what each person can be doing to affect their “carbon footprint.” Wallace-Wells might not discuss this option because the rhetor does not believe individual lifestyle choices are a salient solution to solving global climate change (Klein, 2014; Griffin, 2017).

While this paper will go on to explain that the rhetoric is not apocalyptically framed by a cookie cutter standard, but rather subversively plays off of apocalyptic narratives and frames, the more immediate discussion here will be why this frame was perceived as apocalyptic and why this was so troubling for many critics.

The rhetoric is not, strictly speaking, apocalyptically framed, but rather deliberately meta-framed as a rejection of the usual frames that communicators and scientists use to talk about global warming. The author utilizes an underlying frame as a direct attack on the way scientists structure their own climate arguments, essentially a condemnation of the way in which many scientists talk about climate. Within the article, the discussion surrounding the relationship that scientists have with the public is examined as the cause for the public inaction; “the timid language of scientific probabilities,” for example, however, the journalist goes on to blame “scientists for editing their own observations so conscientiously that they failed to communicate how dire the threat really was.” The contentious debate surrounding climate change and the general public’s complacency is blamed on the scientific community’s inability to communicate risks properly. This shortcoming of scientists is, in turn, blamed on climate deniers and the effect that their skepticism has had on the scientific community. This

skepticism has caused scientists to act with such a degree of caution that they are self-editing their conclusions in the safest possible way. If their judgments are misconstrued in any way, or if they predict the future and they are in any way wrong, climate deniers can grab onto their assumptions and twist or interpret them so as to prove that global warming isn't happening.

To the narrator, scientists and news media have tiptoed around the elephant in the room that could literally put an end to humanity, and this frame is unacceptable and contributing to the problem. The public most often sees science only through the framing of the news media and scientists feel as though they and their findings are misrepresented in much of the reporting. This subversive frame explains why the article was so violently rejected by climate scientists and also why many journalists celebrated the frame and article. The frame is not threatening to other journalists and their communications about climate, the apocalyptic narrative is also not especially unique to this field as other prominent apocalyptic frames exist in climate communication (Foust & Murphy, 2009).

While the framing of the message was not apocalyptic, it did utilize elements of an apocalyptic narrative in its description of crises and structure to persuade as defined by Bobbitt and Mixon. They have outlined an apocalyptic narrative as having these characteristics: it is concerned with, and passes judgement on current events. It does not predict a future, but shows alternatives to the current status while emphasizing human agency in choosing an alternative. Finally, it portrays a "new order" that could be positive

(Bobbitt & Mixon, 1994; Buber, 1957; Bergoffen, 1982). This study uses this definition of an apocalyptic rhetoric to evaluate the narrative within “The Uninhabitable Earth.”

With reference to the first characteristic, the article demonstrates its concern with the status quo through almost every scene of crisis. In “Heat Death” the author writes that dangerous heat waves are already happening, and many people in the tropics are suffering under these conditions. In “the End of Food,” while discussing the future of agriculture, the inequality of our current world is discussed frankly--“we do not live in a world without hunger as it is.” In “Climate Plagues” the pressing crisis of the Zika virus and the many thousands who have been infected, and sadly, delivered children with birth defects, are the prime example of a warming worlds’ ability to spread a virus. Within “Unbreathable Air” the author writes “more than 10,000 people die each day from the small particles emitted from fossil-fuel burning;” to illustrate the injustice humanity endures in the present because of global warming. Some of the more poignant statements in the article--“The mass extinction we are now living through has only just begun; so much more dying is coming,” for instance, illustrate Wallace-Wells’ view on the present crisis. In each of these examples, the present is characterized by death, suffering and inequality, meeting the characteristics as laid out by Bobbitt and Mixon concerning the present time. The judgment of the status quo comes in the critique of the audience and the scientific community. The audience is blamed for “a failure of the imagination” surrounding the issue of climate change, they have not acted to abate the problem as they are unable to imagine what might happen to their world.

The second characteristic of apocalyptic rhetoric is its portrayal of the future and human agency. Bobbitt and Mixon characterize the future as not being predicted in the rhetoric, but rather as showing the future as a selection of options for the community to decide upon. This claim is crucial to the message being considered as persuasive, as the ultimate goal of the message to influence behaviors and actions. These messages of apocalyptic rhetoric appear in the simplest of religious messages: 'Dedicate your life to God, and you will be saved. If you don't, you will suffer eternal damnation.' The author's portrayal of human agency, and the many branching futures of climate change in "The Uninhabitable Earth" repetitively inserts human choice qualifiers before detailing a number of crises, fitting the characteristics of persuasive apocalyptic narrative. The final characteristic of an apocalyptic narrative is the idea of a positive "new order" to the world. This can be found in the articles' concluding paragraphs, "now we've found a way to engineer our own doomsday, and surely we will find a way to engineer our way out of it, one way or another." Here the author shows that though the present may foreshadow our doomsday, there is another world in which humans "find a way to make it livable."

This use of the apocalyptic narrative has been used, successfully, in other widely received climate media. In a 2008 analysis of two popular climate change artifacts, the movie and subsequent social movement of Al Gore, "The Inconvenient Truth," and "Climate Change Show," researchers found the apocalyptic narratives in both so successful "because the story of disaster is evident and compelling in ways that exceed the technical rationality of the scientific core" (2008). They also claim that similar

narratives can “indirectly facilitate the new and more active forms of scientific citizenship.” They go on to conclude that these “structure(s) function as a powerful rhetorical resource for integrating these modes of proof into politically and ethically as well as technically compelling science stories” (Spoel, P., Goforth, D., Cheu, H., & Pearson, D., 2008)

The classical rhetorical theory of the artistic proofs of ethos, pathos and logos, as invented by Aristotle, can be applied to the rhetoric of “The Uninhabitable Earth” to evaluate its persuasive salience. Ethos, an important proof in the field of journalism, conveys the integrity of the rhetor and must demonstrate that the rhetor understands the topic, and is communicating with good intentions (Higgins & Walker, 2012). The pathos of an argument deals with emotional appeals to an audience, including fear appeals, which are used extensively in “The Uninhabitable Earth” (2012). Lastly, logos is the logical or factual soundness of an argument, which is also utilized in “The Uninhabitable Earth” through citations and scientific quantifications.

“The Uninhabitable Earth” and the discourse surrounding the piece use two very different forms of proof to persuade. While Wallace-Wells uses mainly pathos to convince, creating fear and apocalyptic appeals, scientists attempt to persuade through the use of logos appeals. While these deliberate choices of proof target and convince different audiences, the audiences themselves are perhaps not chosen consciously. The emotional rawness of the rhetoric is apparent to any reader. For those who know these cities, the sentence, “Most people talk as if Miami and Bangladesh still have a chance of

surviving,” can be unsettling, especially when followed by, “most of the scientists I spoke with assume we’ll lose them within the century, even if we stop burning fossil fuel in the next decade.” When the reality of this statement is fully realized--homes, lives, businesses, schools, entire metropolises drowned, the imagery can be powerful and emotional.

Effectiveness of Fear Appeals

As mentioned in the description in chapter two, and in the discussion of the rhetor, one of the goals of the article was to convince an unconcerned audience that they needed to be more worried about global warming. Repeatedly, throughout the artifact, anxiety is invoked through descriptive language that promotes a fearful response to discussions of death, war, and collapse.

Taken as an entire body of rhetoric, “The Uninhabitable Earth” uses a persuasive fear appeal and includes an efficacious solution, although it leaves out a significant behavioral motivator in the form of a practical solution. However, the rhetor cannot be faulted for not providing an individually operable solution. Climate change is a global, all encompassing problem, that will touch each and every corner of humanity. Additionally, at this point in time, its impacts are undeniable and will continue to occur (IPCC, 2014). There is no efficacy appeal that is operable for individuals or even for one entire country. Even the actions of a coalition of nearly every country on Earth are still not enough to stop the trend of a warming world. If one country continues to emit greenhouse gases

rapidly the end results can not be avoided. There are no practical suggestions for audiences because “solving” climate change isn’t an individual choice, or a set of instructions that one can follow to reduce fear. It is a further commodification of our climate to try to make the solution to climate change a consumer choice: buy reusable water bottles, not plastic, replace your washer and dryer with energy efficient ones, buy new LED light bulbs for your whole house, vote for a green candidate. It is a fallacy fed to us by capitalism and democratic leaders. Yet, the way in which human agency is artfully implied in the artifact speaks to the “do-ability” of the solution on a grander scheme; humanity as a whole can do this. While the “do-ability” of the solution in the rhetoric can be contested, the efficacy of the solution cannot be.

Fear appeals are clearly the central emotional argument made in “The Uninhabitable Earth,” and their effectiveness can be evaluated along the parameters laid out by established theory and by emerging theories specific to environmental fear appeals. In “Putting the fear back into fear appeals,” Witte focused on furthering the field's understanding of efficacy in fear appeals. The study defined the understanding of perceived threat and perceived efficacy in fear appeal communication. The model, the Extended Parallel Process model, explicated the field's previous understanding of the fear appeal model and argued that fearful messages caused by a high perceived threat and a low perceived efficacy cause a “defensive response” to the messages (Witte, 1992). Messages of massive upheaval of life, like those in “The Uninhabitable Earth,” followed by a discussion of a solution that does not seem to “solve” the problem might create an

apathetic response. But the solutions discussed in the rhetoric are implied as efficable in that they would, theoretically, halt or slow warming for much of the Earth, effectively negating all of the crises outlined in the rhetoric. The efficacy appeals are also closely tied to ethos appeals, as scientists, the ostensible experts on the topic, are brought back into the narrative at the point of discussing solutions. They are portrayed as in support of, and believing in these solutions as well as being unable to imagine not implementing these solutions.

Climate change fear-appeal scholars come to the same conclusion that the classic fear literature does: efficacy must be perceived as high in order for a fear appeal to work. Additionally, however, they conclude that “fearful” messages capture audience attention and elevate the importance of the issue but ultimately undermine any efficacy appeal included in the message (O’Neill & Cole, 2009). Efficacy in climate change messages has been broken down further into two kinds of efficacy specific to the problem: adaptation efficacy solution and mitigation appeals. Adaptation efficacy includes proposed solutions that involve humans and our physical civilizations adapting to a warmer world, i.e. building sea walls to protect low lying areas, or moving communities away from shorelines. The other type of efficacy in climate arguments is mitigation appeals, which refer to policies or technology that might change the physical quantity of greenhouse gases in our atmosphere and alleviate the effects of warming, such as carbon taxes, cap and trade policies and carbon removal technology (Grothmann and Patt, 2005). In a 2016 study on motivating different audiences with messages of climate change, it

was found that dire messages about the environment can work when coupled with climate change adaptation choices, as opposed to providing mitigation tactics. This breaks with traditionally held assumptions about fear appeals and climate change fear appeals as well (Hine, D. W., Phillips, W. J., Cooksey, R., Reser, J. P., Nunn, P., Marks, A. D. & Watt, S. E., 2016). The efficacy appeals in “The Uninhabitable Earth” are mitigation appeals, exclusively. This distinction could mean that while the fearful appeal in the rhetoric captured audience attention and even elevated the importance of the issue, it also undermined its own efficacy appeal by discussing only mitigation techniques.

The scientific community provided many of the most stringent critics of the rhetoric, as many of these critics may have taken offense to the subversive frame of the article, others still may have taken offense at the use of purely emotional appeals as the main kind of proof in the arguments. In scientific writing and research, logical appeals are used almost exclusively to convince audiences of conclusions, that is the nature of scientific writing. Yet logos, the appeal of scientific fact, does not yield a completely convincing argument, this is made clear to us in almost any argument for climate change that has been rejected again and again in the public sphere.

Discussion and Impacts

This section will revisit the original research question: Is “The Uninhabitable Earth” a persuasive climate change narrative? As well as the secondary question: Was the controversy that surrounded the article a well-founded, informed critique? This question

was selected because, as stated, the frame is not unique to the field, but rather the controversy surrounding the publication is what has elevated the article to rhetorical consideration.

Scientific critiques of “The Uninhabitable Earth” focused on the particularities of David Wallace-Wells’ communication of scientific facts but ignored the persuasive effects of Wallace-Wells’ work, an area in which they were not authorities. In particular, Michael Mann denounced the persuasion but failed to tear down any arguments in the article, especially the claims made about the issues that surround the scientific communication of climate change. Its message is effective as persuasion, and should be evaluated as persuasion, not as a scientific report. The article reached a huge audience, generated a conversation that is still continuing ten months later. The scientific community wanted this article to use no other rhetorical techniques to convince its audience besides scientific fact. Based on Brummett's apocalyptic rhetoric model, Wallace-Wells’ is not apocalyptic rhetoric at all--it is an apocalyptic narrative in the tradition of religious scholarship, which has been proven, in the past, to sway and motivate audiences. The controversy should consider the question: In the case of communicating climate change science, should persuasive techniques take precedence over ethics? Whether or not it is ethical and “correct” to write climate change stories in such a way is a different conversation. Critics must be able to evaluate this message free from judgments concerning narrow questions of whether or not this news story will make every citizen install solar panels on their homes. That is not what the article sets out to

do, nor does it allude to such. The text is explicitly clear in its purpose at many points: scare an unconcerned audience by showing them where a path of uncorrected, risky behavior could lead.

For all the scientists' talk about the best practices for convincing an audience to take action, the reality of our world is such that many people are terrified and no one can seem to take substantial actions. The discourse scientists created concerning "The Uninhabitable Earth" is a distraction from the real risks and questions of mitigating climate change. Wallace-Wells and Mann are in agreement on all the questions of stasis: climate change is happening, it is impacting us in these ways, it will hurt many lives globally, and there is a plan of action to avoid this that we must take.

Put simply, invalidating articles concerning scientific journalism based on the emotions they elicit is harmful to the message of climate change and to the movement as a whole. This study has presented evidence that many people already do not trust the mass media when it comes to scientific journalism. By working to invalidate an article that was widely received, reviewers are spreading falsehoods about rhetoric and communication, under the guise of a crusade against scientific falsehoods. These critiques are just an extension of the "reticence" of the community and an attempt to control the conversation that we need to have, instead of a contribution.

Our society must be able to rely upon and take part in the conversation about climate change, and we must be allowed to voice the emotions that connect us to that conversation. Our society cannot be expected to talk about climate science as if we were

writing a peer-reviewed scientific journal article. Scientific reports are not written to persuade the general public or even assume the general public as the target audience, rather scientific reports inform the academy and legislature of the best disciplinary understanding of the problem. Scientific reports, of course, have their place within the conversation, as scientific reports are rhetoric, but rhetoric created through the use of logos only.

Again, for all the scientific communities' critiques about journalistic efforts to communicate climate change, and their claims that this article is damaging and there are better ways to write about the science, the public has yet to see anything as widely read emerge from the scientific community. Emotional appeals should not be evaluated through the lens of scientific rhetoric, as they are not such. Journalistic efforts are not working to accomplish the same goal. Wallace-Wells, and other journalists working to convey scientific narratives in a way that captures the imagination, should not be picked apart at the seams of the particularities. Those concerned about climate change cannot use confusing numbers, statistics, and safe language to convince. The public needs heightened language, artistic metaphors and heightened emotions portrayed in mass media messages about climate change. These things must have an important place in the climate change rhetoric.

The apocalyptic narrative of the article was not particularly unique to the field, but the massive push back and response as well as the massive audience is what truly sets this article apart. Apocalyptic metaphor and narratives have been shown to be effective in

the past in the face of seemingly monolithic, systemic issues. Its nuanced approach to human advocacy and choice in its appeals show the audience that there are many branching paths forward. Rhetoric that illuminates the paths and generates serious concern over our circumstances is essential in spurring us to strive for a better future.

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