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Doomscrolling: How Science Journalism Can Fight Climate Despair

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Abstract

This thesis explores how the compulsive consumption of negative climate news leads to passivity and what science journalists can do to galvanize rather than traumatize readers. While journalists must alert the public of the climate crisis' severity, they should avoid creating a too-late-to-help narrative. This thesis attempts to find a balance in the tones of intensity and optimism in environmental communications. The first chapter establishes climate change as human-caused before exploring the history of climate communications and its contributions to eco-anxiety. The second chapter looks at the use of emotional pleas in climate change reporting as found in fake climate change news and accurate environmental reporting. The third chapter looks at climate news through the framework of environmental economics, specifically how corporate interests influence media coverage. It will also establish a connection between capitalism and the downfall of local climate news. The fourth chapter discusses the failure of politicians to prevent media conglomeration and the impacts of political polarization on the reception of environmental communication. The fifth chapter identifies more effective journalistic practices and their effects on despair, using principles of environmental sociology and grassroots organizations as examples. It proposes policy recommendations that can help mitigate the adverse impacts of climate communications on readers' mental health and makes recommendations for further study.

Keywords: eco-anxiety, journalism, environmental communications, disinformation, media conglomeration

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Introduction

As a journalism major, we are constantly encouraged to read more news. To be a good reporter, you must be familiar with national and international happenings and the techniques used by journalists to tell a story. But is the style used by mass media publications one I want to emulate? With a keen interest in environmental trends and our political responses, I open the Climate and Environment section of the New York Times and Washington Post every day. An onslaught of despair greets me. We have twelve years to live. The polar bears are stuck on increasingly thin slabs of Arctic ice. The time to act has passed. On Fox News, I encounter a different reality. The democrats are fearmongers. Environmental policies are destroying the American economy. Increasingly deadly wildfires are fueled by "windy" weather, with no mention of climate change.

The news leaves me feeling anxious. Is it ethical to have children? Will I die from climate change? Is there anything at all I can do? Perhaps for others, climate disinformation quells this anxiety with promises of the IPCC's deception and the normalcy of climate changes. For me, it only fuels the fire; how will we ever effectively address climate change when millions of people doubt its existence and question if human activity is to blame? Worse than my anxiety is the paralysis it generates. Sometimes I feel there's nothing I can do to help and, therefore, no point in trying. With twelve years to live, I might as well eat all the meat I want and fill my closet with fast fashion. If we are on a path of existential destruction, there's no need to become politically involved or participate in other forms of environmental activism.

My emotions are not uncommon. Eco-anxiety — feelings of guilt, despair, powerlessness, and exhaustion in response to climate change awareness —is becoming increasingly common (Hickman, et al., 2021). Young people are especially susceptible to eco-

anxiety as they have relatively little political power but will pay a greater price for the government's inaction. Some eco-anxiety is in response to the realities of climate change. Like all climate change-related issues, the only all-encompassing solution is to stop the emission of GHG into the atmosphere. However, sometimes eco-anxiety becomes debilitating, threatening peoples' ability to work towards climate change mitigation and prevention. Journalists fan the flans of eco-anxiety. Working in a profit-driven industry, they employ graphic imagery, sensationalized titles, and theatrical language to drive viewership.

This paper explores the impact of environmental media on readers' mental health, why these issues arose, and how journalists can more effectively galvanize the public toward climate action.

In Chapter One, I will use data from the United Nations Intergovernmental Panel on Climate Change (IPCC) and Millennium Ecosystem Assessment to demonstrate the severity of human-caused global warming. I will then present a timeline of environmental news before exploring the connection between the media and eco-anxiety. Using quantitative data, including the largest and most recent eco-anxiety study from the University of Bath, I will demonstrate the proliferation of emotional distress related to the awareness of environmental degradation. In Chapter Two, I will explore emotional pleas in environmental communications. This chapter will encompass both fake climate change news and accurate climate reporting to illustrate how climate change reporters elicit fear to increase readership. I will argue these strategies are ineffective in prompting action.

In Chapter Three, I will explore the economic dimensions of climate change news and how corporate interests have undermined journalistic integrity. I will detail oil corporations' efforts to cover up climate science and fund disinformation campaigns. I will also explore the

impacts media conglomeration has had on local climate reporting and the subsequent effect on readers' mental health.

In Chapter Four, I will explore the political dimensions of environmental communications. I will look at America's media policies to establish a timeline of deregulation. In the second half of the chapter, I will look at environmental communications as an ideological battleground that both reflects and causes our intense political divide. In Chapter Five, I will make policy recommendations to revive local climate change news, curb the spread of climate disinformation online, and create educational programs around media literacy and the environment. I will also suggest further, more focused research into eco-anxiety.

Chapter 1: Climate Change Communications and Eco-anxiety

In 2018, the Intergovernmental Panel on Climate Change released a special report articulating the environmental impacts of 1.5°C Celsius of warming above the pre-industrial global temperature compared to 2°C of warming. With a 1.5°C increase, extreme weather events will be more frequent and severe, aquatic and terrestrial ecosystems will endure permanent damage, and sea levels will continue to rise, among other environmental impacts (IPCC, 2018). However, the Special Report highlighted that climate-related risks to human systems, while higher at 1.5°C of warming than at present temperatures, will be more severe with 2°C of warming. The IPCC suggests that mitigation measures offer resiliency to our infrastructure and agricultural systems with 1.5°C of warming. However, with a 2°C increase, harm reduction will prove more complex and less effective.

In 2018, 1.5°C of warming was the goal; the IPCC report outlined the necessary emission reductions to keep warming to this level and urged action from key policymakers. Based on

IPCC's model pathways, with no or limited overshoot of 1.5°C, CO2 emissions must decline by 24% from 2010 levels by 2030 and reach net zero around 2050. However, based on a recent report from the IPCC, released on August 9, 2021, these goals may no longer be attainable (IPCC, 2021). In this report, The IPCC states that the climate will exceed 1.5°C of warming during the 21st century under the immediate, high, and very high greenhouse gas emissions scenarios. With current trends, the world is on track to warm between 2.7°C and 3.1°C above pre-industrial levels. If governments attain their set targets, the globe will still warm 2.4°C.

Humans are the root cause of these environmental changes. Since the industrial revolution, we have burned an abundance of fossil fuels for energy, leading to significant increases in atmospheric greenhouse gases, including methane and carbon dioxide (Miller and Spoolman, 2012). Usually, global ecological systems such as the carbon cycle can regulate themselves. Carbon moves around the Earth through photosynthesis and cellular respiration, among other biochemical processes. For centuries, the amount of carbon in each sphere — the biosphere, hydrosphere, atmosphere, and geosphere — remained relatively constant, as did global temperatures (Miller and Spoolman, 2012). Carbon dioxide and other atmospheric gasses are essential to humanity's survival on Earth by trapping the sun's heat in a process called the greenhouse effect. Without GHGs, Earth's surface would be 33°C cooler than it is now, making the planet unlivable (NASA).

The carbon cycle is a regulating service — one of four ecosystem services the environment provides. The others include provision services, the material outputs from ecosystems; habitat or supporting services, providing living space for plants and animals; and cultural services, the non-material benefits people obtain from contact with ecosystems. The accelerated rate at which humans add carbon dioxide to the atmosphere interferes with the global

ecosystem's ability to sequester and store the compound and regulate temperature. Positive feedback loops accelerate temperate increase and further disrupt Earth's regulating capabilities. For example, as Earth's temperature rises, wildfires will become more intense and frequent. As more trees burn and lose the capacity to absorb carbon dioxide, the temperature increase will accelerate.

In addition to environmental regulation, climate change, and the natural disasters it will spur will also impact all other ecosystem services. Climate change will lead to smaller agricultural yields, a critical environmental provision. Sea level rise spurred by global warming will leave less available habitat for human and animal life. Finally, ecological degradation will inhabit human connection with nature and other cultural services.

Climate Change and Media History. The awareness of climate change is not innate to its occurrence. In other words, people do not know about climate change simply because it is happening; media sources shape people's environmental knowledge and perceptions of climate change. The International Environmental Communication Association defines environmental communication as "an interdisciplinary field of study that examines the role, techniques, and influence of communication in environmental affairs" (Meisner, 2020). Media sources offer a platform to authorities on climate change, including politicians, scientists, citizens, activists, corporations, and indigenous people, amongst others. Environmental communicators are especially crucial regarding climate change education given the issue's severity and complexity; They are responsible for mediating hard-to-understand concepts into digestible language.

Climate change first made front-page news on June 23, 1988, following Dr. James E Hansen's testimony before Congress. The then head of NASA's Goddard Institute for Space Studies stressed three main conclusions: the Earth was the warmest in 1988 than at any time in

the history of instrumental measurements, NASA ascribed with a high degree of confidence a cause and effect relationship between temperature increase and the greenhouse effect, and climate simulations indicate changes in the likelihood of extreme weather events (Shabecoff, 1988). While not the first to ring alarm bells, Hansen's testimony made climate change a national issue; the next day, The New York Times and Washington Post ran front-page stories on the topic (Brulle, 2021). Phillip Shabecoff titled his New York Times article "Global Warming Has Begun, Expert Tells Senate."

Since then, reporting on climate change and related issues has increased across all media platforms. According to the Media and Climate Change Observatory, which monitors 127 media sources across all mediums in 59 countries, U.S. newspaper coverage has increased steadily since 2000, with peaks in 2007 and 2008. Similar trends occurred in the U.K, New Zealand, Asia, and Germany, among other countries (Boykoff, et al., 2021). This increase in media attention has coincided with a growth in public awareness, concern, and political action. Since 2008, the percentage of Americans who say that climate change should be a top priority for the president and Congress has increased. In 2020, 78% of Democrats said climate change should be a top priority versus 47% in 2008. There was a 6% increase in Republicans responding affirmatively from 15% in 2008 to 21% in 2020 (Pew Research Center, 2020). The importance of having dedicated journalists to inform the public of environmental issues cannot be understated.

Climate Anxiety. However, as news of environmental degradation has proliferated, people have begun to experience adverse mental health impacts associated with climate change awareness. In 2017, the American Psychological Association released a comprehensive guide "regarding the issue of mental health and climate change, stating, "The health, economic,

political, and environmental implications of climate change affect all of us. The tolls on our mental health are far-reaching." Since then, the concern regarding the mental health impacts of climate change has only grown among mental health professionals, with recent studies pointing to both the ubiquity and severity of environment-related emotional degradation (Manning, et al., 2017).

The APA classifies the effects of climate change on emotional wellbeing as stemming from both acute events — climate change-induced natural disasters, such as floods, hurricanes, and wildfires — and the perception of long-term environmental changes (Manning, et al., 2021). The former, while a critical and burgeoning field of study, is outside the purview of this thesis. Here, we will discuss emotional distress as related exclusively to one's awareness of the climate crisis and the media industry's role in triggering or mitigating this distress. Researchers are paying increasing attention to climate change's indirect mental health effects because anyone within reach of communicative technology can experience them. While many people have not yet suffered a life-altering natural disaster due to climate change, almost everyone in the world has access to environmental news and is thus susceptible to the associated emotional degradation (Clayton, 2020).

The mental health impacts associated with climate change awareness are often dubbed "eco-anxiety" — a term first coined by philosopher Glen Albrecht to describe "chronic fear of environmental doom." Now, the understanding of eco-anxiety encompasses a broad range of emotions, including fear, guilt, powerlessness, exhaustion, and grief related to global warming and its impacts (Coffey, et al., 2021). Some scholars differentiate between eco-anxiety and climate anxiety, with the former describing stress related to all environmental disasters and the latter referring more exclusively to climate change anxiety. In this paper, the terms eco-anxiety

and climate anxiety will be used interchangeably to describe the broad range of unfavorable emotions in response to climate change perception and awareness.

The Diagnostic and Statistical Manual of Mental Disorders does not officially recognize eco-anxiety as a diagnosable mental disorder, and eco-anxiety does not necessarily indicate a pathological illness. However, there is a link between climate-related emotions and symptoms of diagnosable mental health disorders. According to an online survey of U.S adults, perceived environmental stress significantly positively predicted depressive symptoms (Helm, et al., 2018). Likewise, a study conducted at The College of Wooster found a correlation between climate change anxiety and cognitive impairment, with participants reporting difficulty sleeping and thinking and an increase in intrusive thoughts. Five to 9% of the United States sample described themselves as "often" or "almost always" experiencing these symptoms, and 17 to 27% said they experienced them "sometimes" (Clayton and Karazsia, 2020). In their 2017 report, "Mental Health and Our Changing Climate," the APA articulates the distinction between climate anxiety as an emotion and climate anxiety as an illness. Feelings of anxiety can warn us of an impending threat and prompt action. However, climate anxiety more closely borders an anxiety disorder when it impacts one's ability to respond to the threat (Manning, et al., 2017).

Overall, the experience of eco-anxiety, both as a philosophical terror and as a precursor to mental illness, is proliferating. According to the Yale Center on Climate Change Communications, 63% of Americans are worried about climate change, with 61% believing the current changes in climate will harm people in the U.S. (Marlon, et al., 2020). In an APA survey, more than two-thirds of respondents, 68%, said they had at least a little eco-anxiety (APA, 2021).

Unease surrounding the climate is more prevalent and severe amongst the world's youth, who feel they will spend more of their lives in climate change-induced chaos than their parents. The University of Bath conducted the largest and most comprehensive survey of climate anxiety in young people to date. The study found that a large proportion of children and young people around the world (60%) report "significant emotional distress and a wide range of painful, complex emotions (sad, afraid, angry, powerless, helpless, guilty, ashamed, despair, hurt, grief, depressed)" when thinking about the future. Over 40% of participants in every country believe "humanity is doomed." As seen in previously cited studies, many respondents (45%) reported that their emotions were causing some form of functional impairment or struggles in performing the tasks of daily life. Perhaps the most pertinent findings from this study are the disillusionment young people felt about authority figures. Many were angry with a perceived lack of action from their federal governments and a dismissal of their feelings by parents or other elders in their life (Hickman, et al., 2021).

Some argue that eco-anxiety is a natural and necessary response to the climate crisis. Graham Lawton, a columnist at the New Scientist, claims "there is no such thing as eco-anxiety" in his column "I have Eco anxiety, But That's Normal." Lawton argues that eco-anxiety is a rational response to the magnitude of environmental destruction we currently face. To pathologize eco-anxiety is to say a normal reaction to a real and serious issue is abnormal. "What we are witnessing isn't a tsunami of mental illness, but a long-overdue outbreak of sanity" (Lawton, 2019). Britt Wray, a writer who explores the psychological underpinnings of the ecological crisis, has similar qualms with the concept of "eco anxiety." She argues that unlike a fear of flying or spiders, which results from an inaccurate risk assessment, fear of climate change is rational and necessary. Furthermore, she does not want eco-anxiety to be a niche "disorder"

only a subset of people experience. Instead, Wray contends we should all confront the realities of the climate crisis and the emotional responses it elicits (Wray, 2020).

Wray and Graham raise valuable points of consideration for this thesis. I do not wish to equate eco-anxiety with more strictly pathological mental illnesses nor suggest that stress and despair are abnormal in response to climate-change awareness. However, eco-anxiety that inhibits daily life or prevents people from participating in climate change solutions is not productive, and we should take steps to mitigate this experience. This thesis explores the role journalists have in this mitigation. Climate change communicators cannot avoid provoking stress and fear in readers altogether, for environmental degradation is inherently stressful and scary. However, environmental communicators should avoid leaning exclusively on fear to garner readership without demonstrating practical consumer action or urging governments to moderate climate change's impacts. The following chapters will explain how and why journalists have exploited the mental health of their readerships and explore more fruitful communication practices.

Climate Anxiety and Journalism. There is a lack of research explicitly connecting between eco-anxiety and environmental media. We lack quantitative metrics as to how many hours of climate change news increases one's chance of developing eco-anxiety or which environmental media outlets are the most damaging to readers' mental health. However, many studies have demonstrated a link between increased anxiety levels and the consumption of other media content. A 2015 study looked at the impacts of the Israeli media's coverage of the Israeli Defense Force's ground invasion of Gaza. Like climate change coverage, it both portrayed current human suffering and speculated on the gravity of future hardship. Also, similar to climate change coverage, the Israeli media relied on visceral imagery of the crisis in their reporting.

These trends in environmental communications will be discussed in more depth in the following chapter. The study found that a large majority — 70% of those surveyed — reported high-stress levels in response to the news coverage. However, they also reported being unable to look away (Simon-Tov, et al., 2015).

These findings mirror the results of an American Psychological Association survey which found that more than half of Americans say they feel stressed, and many report anxiety, fatigue, or loss of sleep when reading the news. Again, as seen in the Gaza study, many participants — 20% — constantly check their news feeds despite the negative emotional impacts associated with this exposure (Heid, 2018). According to the Anxiety and Depression Association of America, compulsive news consumption contributes to the erroneous notion that staying informed offers us control over these and future events. However, the more one seeks this sense of control over news events, the more anxious they may feel as new events occur and a sense of certainty proves forever illusive. While further research is required to establish a direct correlation between environmental news consumption and eco-anxiety, these studies show an association between media consumption and negative emotional responses.

Chapter 2. Fake News and the Climate Apocalypse: Creating Fear

Journalists often employ emotional appeals or present issues as shocking or exciting to attract readership, a well-documented and sustained editorial tactic known as sensationalism (Olausson, 2011). These pleas may come from a desire to prompt action but are also increasingly related to the media industry's need to attract viewers and advertisers to make money. This phenomenon will be explored in more depth in Chapter Three. Sensationalized media is damaging for the ways it obscures the truth and degrades trust in media sources.

Climate change communication is not free of these journalistic faults. Like news about other topics, journalists use techniques to increase readership about environmental ills that may not be in the public's best interest. This issue is found in news frequently characterized as right-leaning and left-leaning, transcending the political aisle. The importance of political beliefs in one's reception of environmental communications will be discussed further in Chapter Four.

Fake climate news — which seeks to downplay either climate change's severity or human's role in causing environmental degradation — poses apparent dangers to society and the climate movement, provoking opposition to mitigation policies. However, environmental communications that accurately report the existence and harms of human-caused global warming can also inhibit a reader's engagement in environmental action. Here, despite reporting on the severity of climate change, sensationalist tactics exhaust viewers and hinder their desire to act. Discussing the faults inherent to climate change misinformation and more dramatized climate change news is not to conflate the two nor downplay the detriment of fake news; factual climate reporting will always be better than denialism. This paper explores the degradation of climate change news as a whole and its contribution to feelings of anxiety.

Fake News Psychology. Fake climate news, as we understand it today, gained prominence in the 1990s at the same time as and in response to rising concerns about global warming (Leber and Schulman 2017). Many of these fake news stories were part of calculated public relations campaigns run by the oil industry to weaken support for environmental regulations following the Kyoto Protocol. The connections between capitalism and climate communications failures will be discussed further in Chapter Three. While one may assume that sowing doubt about climate change's severity would mitigate feelings of anxiety, fake news

often capitalizes on readers' fears. Thus, instead of being plagued by eco-anxiety, readers may fear grand hoaxes and conspiracies.

Fake news is successful and prolific because of the way it hacks our brain chemistry. Erroneous news must grab users' attention in a saturated media landscape with shocking or novel titles (Anne Barr, 2019). Neuroscience studies have shown that only unexpected stimuli can filter through higher processing stages (Strange, et al., 2005). Similarly, dopamine, the neurotransmitter associated with pleasure, increases when exposed to novel items or ideas (Costa, et al., 2014). Thus, in an endless scroll of articles on the increasing severity of natural disasters and rising GHG emissions levels, a novel piece "debunking" global warming may stand out and attract readership.

However, far more potent than the novelty of false environmental reporting in garnering views is its use of emotional appeals. A study utilizing artificial intelligence to differentiate between fake and real news found that fake news titles "are significantly more 'emotional' and less neutral in sentiment" than their real news counterparts (Paschen, 2019). Studies have found that people share most news on social media without the user ever clicking on or reading the article (Wang, et al, 2016). Thus, the emotional nature of fake news titles is an essential mechanism for its dissemination. Furthermore, fake news content relies more heavily on negative emotions, evoking more anger, anxiety, and disgust and fewer feelings of joy than real news stories. As previously discussed, negative emotional framing is effective "at cutting through the 'information clutter.'" Readers are not only more attracted to the novel emotional stimuli of fake news but more extensively process the information and better commit it to their memory Paschen, 2019).

A fake climate change piece that garnered the most engagements in 2020 illustrates these points (Reid, 2020). The article produced by a well-known conspiracy site naturalnews.com is titled "NASA Admits that Climate Change Occurs Because of The Changes in Earth's Solar Orbit, and NOT because SUVs and Fossil Fuels." The article title is novel, proclaiming a startling announcement from one of America's most premier and trusted government organizations. This novelty helps explain why users engaged with the post — either liking, sharing, or commenting — over 4 million times. The fake news piece also triggers negative emotional responses, an essential component of fake news discussed previously. Readers may feel angry that NASA has "lied" to them, especially if the agency, as suggested in this title, blamed climate change on Americans for their vehicle choices and energy consumption. Furthermore, while erroneously denying anthropocentric climate change, the article still confirms the existence of environmental changes caused by "changes in Earth's solar orbit." Thus, climate denial does not absolve readers of any fear regarding climate change. Anxiety may be heightened in this scenario, as humans would be powerless to solve or mitigate this version of global warming.

Figure 1. Natural News Website

Overall, fake climate news — for liberals and conservatives alike — contributes to a more anxious media environment. Readers across the political aisle are susceptible to believing and sharing misinformation, especially when it adheres to their political beliefs (Kaufman, 2019). A survey conducted by the University of Cambridge exposes peoples' susceptibility to climate change misinformation. Of the 1,700 adult participants, about 850 failed to identify 50% of the fake climate change news headlines. Additionally, 44% of those surveyed were unaware of how often they were encountering disinformation online. Large proportions of respondents erroneously believed that "Scientists disagree on the cause of climate change" (46%); "Scientists believe the Sun has impacted the Earth's rise in temperature" (35%), and "Switching to jet fuel made from mustard plants would reduce carbon emissions by nearly 70%" (75%) (Biddlestone and van der Linden, 2021).

Just as both liberals and conservatives can fall victim to fake news, fake news can contribute to distrust in the media for people of all political beliefs. The Harvard Kennedy school conducted a study investigating the impact of fake news consumption on confidence in democratic institutions. They found that fake news discredits the press by directly accusing media organizations of bias and negligence or resembling a legitimate journalistic product but with outlandish claims. For all respondents, exposure to fake news was associated with a decline in mainstream media trust. On average, a one-month exposure to fake news during the 2018 presidential election predicted a 5% decrease in media trust amongst participants (Ognyanova, et al., 2020).

Media mistrust is especially dangerous in times of crisis — such as the pandemics, increased food insecurity, and natural disasters the climate crisis is sure to cause in the near future. The COVID-19 pandemic is the most relevant example of the dangers of misinformation.

People worldwide tried unproven and harmful “preventatives” and “cures” for the coronavirus, including ingesting bleach. Disinformation has also been instrumental in the anti-vax movement, putting millions at a much higher risk of contracting and dying from COVID-19 (Nelson, et al., 2020). Fake climate news can have similar effects in times of acute disaster, prompting people to take action that leads to further harm.

Emotional Appeals in Accurate Environmental Reporting. As previously stated, factual climate reporting is better at informing citizens about the climate crisis and prompting action. However, environmental communications are not as effective as we need them to be to mitigate the impacts of global warming. The emotional pleas emblematic of fake climate news are also prevalent in accurate climate change reporting, which works to elicit fear and dread about climate change and inadvertently inhibit action.

In environmental news, “Climate change is most commonly constructed through the alarmist repertoire – as awesome, terrible immense and beyond human control” (Ereaut and Segnit, 2006). Communicators establish this narrative through both amplification and reduction. In some regards, the issue takes on an exacerbated intensity as something apocalyptic, “a quasi-religious register of death and doom.” However, there is also a simplification occurring, dubbed by communication scholar Birgitta Höijer, as emotional objectification — a distillation of the complex subject into a perceivable form that is both physical and concrete (Höijer, 2010). In other words, journalists represent the complex phenomenon of global warming through a singular emotion; climate change is fear. In this way, the mediated depiction of climate change transcends rational understanding; it is something purely and fiercely emotional. “It allows for no complexity or middle ground — it is simply extreme” (Ereaut and Segnit, 2006).

Journalists accomplish this near theatrical portrayal of climate change through various strategies, including linguistic alterations and the inclusion of calculated multimedia elements. A significant component of climate change news is visual accompaniments. While sometimes powerful tools of science communication, many fail to prompt prolonged civic engagement and other forms of environmental action. A pervasive representation of climate change and its impacts is polar bears, considered by some "the poster animal for climate change" (Braasch, 2013). Images of distressed polar bears isolated on narrow slabs of ice surrounded by the remnants of melted glaciers accompany articles discussing Arctic thawing and global temperature rise more generally. Polar Bears and other animal-centered images can be especially effective in evoking emotion because of animals perceived innocence, compassion, defined by Martha Nussbaum as one's awareness of another's undeserved misfortune (Nussbaum, 1996).

Figure 2. Polar Bear Imagery

Journalists also employ other emotionally-charged crisis imagery such as starving children, industrial smokestacks, flooded homes, and dried-up lakes (Braasch, 2013). In some cases, the chosen images are culturally significant, bolstering the emotional effects; the depiction of distressed wild animals is prevalent in Swedish climate change reporting, where hunting and nature conservation are valued aspects of society (Höijer, 2010). Climate disaster photographs sometimes accompany stories discussing the specific environmental phenomenon they depict. However, similar to the famous polar bear picture, news publications also employ them to demonstrate the severity of climate change in an overarching sense. Here, the inclusion of these images is not informative nor entirely relevant. Instead, journalists select these pictures for the emotional response they illicit.

Researchers have found emotionally charged images to have a profound initial effect, with viewers reporting an "urge to do something" about climate change and its impacts (Olausson, 2011). Researchers have found emotions to be powerful tools in environmental engagement (Ojala, 2010). However, this engagement fades drastically over time and is replaced by emotional fatigue — people hit a limit with the amount of misery they can process and respond to. In a study investigating the relationship between visual representations of climate change and people's perceptions of the issue, some participants reported that "thinking about climate change made them feel so scared and depressed that they purposefully did not think about it" (O'Neill and Nicholson-Cole, 2009). Moreover, as argued by Matthew Nisbet in his article "Communicating Climate Change: Why Frames Matter for Public Engagement," framing an environmental issue broadly — as with generic crisis imagery — without considering the cultural or political identities of the audience — can weaken the reader response. If polar bears do not resonate with a particular audience, they may ignore the climate change news journalists

have framed around their declining wellness. Conversely, if readers are religious, climate change news that frames the issue around climate change's religious and moral dimensions will be far more effective (Nisbet, 2010).

The detriments of crisis images can go beyond the emotional despair they illicit. The Journal of Science posted a dramatic stock image of a polar bear on ice to demonstrate climate change's severity in response to politicians and denialists' inaction. However, while similar to a real one from National Geographic, the image was fake — a composite of separate photo elements such as the bear, open water, and ice. The target audience — climate denialists— soon discovered these discrepancies and used the false image as evidence of faulty climate science (Braasch, 2013).

Another strategy journalists employ to construct a fearful representation of climate change is careful language choices. In May 2019, the Guardian decided to change how they describe environmental degradation to ensure scientific precision and impress the severity of the issue onto readers. Instead of climate change, the publication prefers climate emergency, breakdown, and crisis; instead of global warming, the Guardian pledged to use global heating instead (Zeldin-O'Neill, 2019). Extreme language is becoming increasingly prevalent in environmental news, even when journalists are tasked with summarizing scientific reports that utilize a more objective tone. In 2001 Mike Hume examined the coverage of that year's IPCC report in the top ten prominent national UK newspapers the day after it was released. Of the nine newspapers that recovered the release of the report, all of them introduced adjectives such as "catastrophic," "shocking," "terrifying," or "devastating" in their description of climate change. However, the IPCC report did not contain any of these words, nor did scientists use them in their presentation of the report in Paris that year (Hume, 2007). As with anxiety-inducing imagery, such language

may produce a profound initial reaction but results in reader fatigue and disengagement over time.

Climate Change as The Latest Apocalypse. These editorial decisions come at the latest stage in the evolution of climate discourse, firmly placing climate change within the cannon of apocalyptic imagination. In the bible, weather and climate are either divine blessings or harsh judgments; In response to humanity's wickedness, the biblical God floods the Earth. According to visions written by John in Revelation, four horsemen of the apocalypse are due to arrive, each bringing more suffering and destruction than the last. The final horseman is Death. However, despite the utter destruction spurred by these biblical events, humans sustained a chance of redemption in God's infinite love (Swyngedouw, 2010). Current apocalyptic beliefs took on similar images of destruction and promises of redemption. In Marxist theory, a redemptive communist state will only emerge after capitalism reaches an apocalyptic state. Techno-apocalypses — like an AI takeover or Y2K — can be prevented with the appropriate social and political action.

Climate change discourse adopted the characteristics of apocalyptic destruction — floods caused by sea-level rise, extreme drought, and the impending extinction of the human species. However, the 'climate apocalypse' lacks all redemptive quality. "Environmental apocalyptic imaginaries are 'leaving behind any hope of rebirth or renewal . . . in favor of an unquenchable fascination with being on the verge of an end that never comes" (Jay, 94). Scholar Erik Swyngedouw calls this phenomenon "apocalypse forever," where humans are always running out of time to prevent an inevitable demise. Swyngedouw references several journalism articles to illustrate his point: Prince Charles warned that we only had 100 months to act in 2009, while the Observer titled a 2004 article "Pentagon warns Bush of apocalyptic climate change by 2020"

(Swyngedouw, 2020).

Swyngedouw argues that the use of apocalyptic imagery in climate discourse does not offer a critique of unbridled capitalism. Instead, "sustaining and nurturing apocalyptic imaginaries is an integral and vital part of the new cultural politics of capitalism." Convincing the masses that their time to act is on the verge of running out distracts them with their shortcomings, while the inevitability of the climate apocalypse further convinces people of the situation's futility. Those who subscribe to the idea of an apocalyptic future are too exhausted to consider the climate antagonists exacerbating an issue we still have time to mitigate. In other words, the climate apocalypse helps absolve the oil executives, politicians, and billionaires for causing this level of ecological collapse.

A recent example of climate change as the latest apocalyptic obsession and the failure of this archetype is seen in Adam Mckay's "Don't Look Up." The movie, a metaphor for climate disaster, follows two astronomers who go on a media tour to try and warm humanity of an approaching comet that will destroy Earth in six months. The film portrays the idiocy of a political and economic system that goes to absurd lengths to protect the wellbeing of a few — in the movie, the US government refuses to release a statement on the comet until after the midterm elections.

However, the apocalyptic conception of a comet that will destroy Earth instantaneously with humans powerless against its trajectory is not an accurate portrayal of the climate crisis. "Contrary to rhetoric popular with some progressive politicians and social media users, climate change provides us with neither a hard deadline nor a clean binary between success and failure" (Leitz, 2022). The film suggests that humans must immediately respond to an inevitable issue. This contradiction between necessary action and disaster beyond repair does not help spur action.

Apocalyptic imagery is doing the opposite — using fear to the point of causing paralysis and convincing readers of the futility of their mitigation efforts.

Chapter 3: News and Corporate Interests: Money versus Accuracy

A capitalist system is a detriment to the climate. Our economic models do not value environmental health. It is more profitable to extract and burn fossil fuels than to leave them in the ground, despite harmful GHG emissions. Likewise, trees are worth more dead than alive, again, despite the environmental harms of deforestation. Overconsumption of and degradation of natural resources are needed to support the endless growth of production required under capitalism. While these are perhaps the most direct and easy-to-understand intersections between our economic system and global warming, capitalism has more implicit impacts on the climate crisis.

Journalistic shortcomings and their subsequent effects on mental health are not a collection of individual faults but also indicative of systemic failure. The news media exists within a system of capitalism, and thus profits remain the top priority. As discussed previously, journalists use a variety of strategies to elicit emotion — in some cases leading to eco-anxiety — to attract viewers, advertisers, and a paycheck. This chapter first looks at two companies who have had, and continue to have, an outsized influence over the spread of climate misinformation — Exxon Mobile and Facebook. It then explores how the economic motivations within the journalism industry seek to create compulsive consumption of negative climate news and contribute to a lack of local environmental news coverage.

Climate Misinformation and Exxon Mobile. The fossil fuel industry has funded climate change disinformation campaigns, seeking to downplay their contribution to GHG emissions and

global warming. The same oil companies also funded much of the earlier research into the planet's warming and the subsequent impacts on humanity (Keane, 2020). To understand the extent of Exxon Mobile's knowledge, Inside Climate News conducted an eight-month-long investigation, analyzing hundreds of pages of internal documents and conducting interviews with former scientists and employees. According to the resulting exposé — a book titled "Exxon: The Road Not Taken" — Exxon's lead scientist, James Black, first warned executives about the ongoing climate issue in July of 1977. He reported that releasing carbon dioxide into the atmosphere through burning fossil fuels causes planetary warming. A year later, in a meeting with a larger audience, he warned that doubling the amount of CO2 in the atmosphere would increase average global temperatures by two or three degrees — which is on par with the current IPCC estimates discussed in the first chapter. He urged Exxon Mobile executives to act, predicting that there may only be five or ten more years before the situation could become critical (Banerjee, et al, 2015).

Following Black's presentations, Exxon funded ambitious research into global warming to better understand its severity and potential impacts to their business. In a million-dollar tanker project, Exxon looked into the rate at which the deep ocean could absorb excess atmospheric CO2. They hoped to determine how much time they had before a transition away from fossil fuels would be necessary. In addition, Exxon scientists and mathematicians created climate models to predict the impacts of continued or increased fossil fuel use. Their findings echoed Black's: a buildup of CO2 in the atmosphere would have dire consequences. Exxon initially embraced these scientists' findings. Memos detailing the workings and potential impacts of climate change circulated broadly within the company. Exxon also established a reputation for stellar climate research. Their scientists frequently participated in industry and government

panels to discuss the issue. However, as the 80s came to a close, Exxon, increasingly aware of the threat climate change awareness posed to their business, launched a deliberate campaign to sow uncertainty amongst the public.

They set up the Global Climate Coalition to defeat attempts to regulate GHG emissions. They achieved their goals with aggressive lobbying questioning the integrity of the IPCC's findings. Exxon also released ads that misrepresented climate science and argued that predictions about global warming's impacts held no weight. In an internal memo, top executives wrote, "Victory will be achieved when average citizens understand uncertainties in climate science" and when recognition of uncertainty becomes part of the 'conventional wisdom.'" According to Greenpeace, Exxon spent more than $30 million in funding climate denial (Greenpeace, 2021).

Under a capitalist system, the primary goal of a company is profits, almost always winning out over good-intentioned efforts to prioritize the wellbeing of humanity and the planet. Exxon mobile's fraught history of climate change research followed by calculated PR campaigns to promote denial is evidence of this phenomenon. While scientists and some executives fought for the company to be more transparent with their findings and work to be part of a solution, the fear of profit loss ultimately determined Exxon's actions. Over the past 40 years, Exxon has brought in billions. The administration siphons off Much of the profit for their salaries. The Chief Executive Officer is currently making around 20 million dollars a year (Kelly, 2020).

The Bias of Balance. While Exxon Mobile's deep pockets helped research the climate crisis and subsequently question its certainty, journalists widely publicized the debate over global warming. The reporting from major publications, adhering to journalistic norms that purported to voice both sides of an issue, helped legitimate climate denial. The fault lies with journalists failing to accurately simplify climate science for public consumption. Oil Executives

are also responsible for exploiting the media and spreading mistruths about the climate crisis for their financial benefit.

A key component of journalistic integrity has dictated that journalists take all measures to remove "bias" from their reporting. A journalist's beliefs should not influence their reporting. The best way to mitigate this influence is to talk to conflicting sides and discern the closest thing to the truth. However, in reporting on the climate crisis, many journalists have historically falsely conflated the "two sides" of the climate debate, offering validity to scientists and politicians who cast doubt on the climate crisis and its human causes.

In their paper "Balance as bias: global warming and the US prestige press," authors Maxwell Boykoffa and Jules Boykoff explore this phenomenon. They found that historically "popular discourse has significantly diverged from the scientific discourse" and that "this disconnection has played a significant role in the lack of concerted international action to curb practices that contribute to global warming." In examining articles from 1988 to 2002 in major newspaper publications, including The New York Times, Washington Post, Los Angeles Times, and Wall Street Journal, they found that more than half — 52.65% — gave equal attention to human activity and "natural" climate fluctuations as responsible for earth's temperature increase. These reports offered false equivalency to scientists who reported on anthropocentric climate change and those who doubted it (Boykoffa and Boykoff, 2004). In actuality, the vast majority of climate scientists at the time of the study and an even larger proportion now agree that global warming is human-caused.

Climate Misinformation and Facebook According to the Pew Research Center, about half of Americans — 48% — say they get their news from social media "often" or "sometimes." Facebook is the clear front runner of all social media sites, with 31% of Americans reporting

they regularly consume news on the platform (Matsa and Walker, 2022). However, unlike a newspaper, Facebook does not vet sources and information posted on the platform. For much of its history, Facebook has been a proponent of free speech, with Mark Zuckerburg advertising Facebook as a place where "all people have a voice to share their experiences, and when traditional gatekeepers like governments and media companies don't control what ideas can be expressed" (Zuckerburg, 2021). In recent years, they have come under fire for their lax policies, especially regarding their influence in the 2016 election of Donald Trump (Wattles, 2018).

Facebook is also a place where fake climate news thrives. According to Stop Funding Heat — a campaign platform dedicated to stopping media organizations from profiting off of climate denial — there is an estimated 818,000 to 1.36 million daily views of climate misinformation on Facebook. The number of reactions, likes, comments, and shares on these posts increased by 76.7% in 2021. Stop Funding Heat classifies climate disinformation as articles or posts overtly denying the existence of climate change or its anthropogenic causes. However, they also include subtler forms of climate misinformation in their surveys. The organization considers claims that clean energy is exceptionally unreliable or that green politicians and environmentalists are inherently corrupt/deluded as examples of climate disinformation.

One of the main reasons for the spread of climate denialism on the platform is loopholes in Facebook's fact-checking policies, including a major one that says politicians are exempt from fact checks. According to Facebook's policy, "words a politician says, as well as photos, videos, or other content that is clearly labeled as created by the politician or his or her campaign," are exempt from fact-checking. Facebook argues that fact-checking politicians would interfere with the democratic process and lessen politicians' accountability for their words. However, politicians are responsible for spreading climate misinformation to their followers on Facebook.

Prominent Republican politicians such as Marjorie Taylor Green and former President Donald Trump (before Facebook removed his accounts) boast hundreds of millions of followers and regularly share a denialist climate view.

Figure 3. Tweet From Majorie Taylor Greene

Another loophole in Facebook's fact-checking policies is the exemption of opinion articles. Facebook fact-checkers initially marked two opinion articles in the Washington Examiner and the Daily Wire as false. The Examiner article purported to disprove several climate change models; the Daily Wire piece made several claims "proving" that the climate crisis was not as severe as many people think. However, the company later removed the fact checks on both articles because they were "opinions" and not facts. After public outcry, the

company reformed its policies stating, "opinion content that has been created based on implied false information may qualify for a rating" (Facebook 2021). Facebook's commitment to this policy remains to be seen.

These "loopholes" in Facebook's fact-checking policy bring in millions of dollars for the social media giant. Political ads comprise about 3% of Facebook's total revenue (Levy, et al., 2020). It is unclear how much of this money comes from ads making false climate claims. However, the climate is increasingly political, and banning all ads that make false environmental claims would undoubtedly cut into Facebook's revenue (Cohan, 2016).

Media Conglomeration. Over the past several decades, the media industry in the U.S has experienced wide-scale changes from a diverse and crowded media landscape dominated by several small local publications to a handful of massive media corporations. Local newspapers relied on advertisement revenue from nearby companies and restaurants (Abernathy, 2018). However, with the advent of the internet, among other changes, this business model is no longer viable. Tech giants such as Facebook and Twitter have access to much wider audiences and dominate the advertisement industry.

Moreover, social networks can build algorithms and amass data on users because of their resources. With this information, they create ads targeting the most susceptible audiences and charge much higher premiums for ad space. (PEN America, 2019). Facebook reportedly charges, on average, eight times as much as print or other publications for an advertisement (Owens, 2019). Newspapers face an impossible choice: either keep their content off of Facebook and Twitter and lose out on a massive audience or share their content and allow tech conglomerates to collect the advertisement revenue from engagement they helped foster.

In this landscape, local newspapers either go out of business entirely or larger media conglomerates purchase the publication. Since 2005, 2,200 newspapers have gone out of business, a trend accelerated by the economic recession caused by COVID-19. Many Americans live in a news desert with inadequate access to local news sources (Joiner and McMahon, 2015). Conversely, six conglomerates now own 90% of the media in the United States. With efforts to make the news processes increasingly 'efficient' and optimize profits, newspapers have undergone relentless cost-cutting, decreasing the quality of journalism (Lutz, 2012).

These trends have broad-ranging implications for all news types, but especially so for environmental communications and the anxiety it frequently generates. Environmental news has never sustained a remarkably stable presence in the media cycle, a precariousness driven by economic concerns (Hansen, 2011). Sharon Friedman — author of "Reporting on the Environment: A Handbook for Journalists" — describes the economic and environmental considerations for journalists as conflicting, pointing to "the ever-increasing pressures on environmental journalists caught between a shrinking news hole/increased media competition and "a growing need to tell longer, complicated and more in-depth stories" (Friedman, 2004). In other words, as the number of journalists and local media resources declined, the environmental problem continued to worsen, necessitating a level of coverage that was increasingly difficult.

Importance of Local Climate News. A lack of resources means that more prominent newspapers and media organizations with access to a broader market are more likely to cover environmental issues, with local newspapers struggling. A lack of local environmental news coverage is problematic for several reasons, including a lack of monitoring of local polluters and increasing anxiety among newsreaders. A study investigating the impacts of media presence on corporate decisions regarding environmental issues found that a high density of newspapers in

the vicinity of a manufacturing plant increased the likelihood that the plant's adverse environmental impacts would receive coverage. In turn, local constituents were more likely to divest stocks from the company, demand regulation from their local government, and decrease demand for the plant's goods. According to the study, an absence of a local news source, a position an increasing number of communities find themselves in, correlates with higher pollution rates (Campa, 2018).

Contrastingly, there is little evidence of mass media performing the same responsibilities, and the economic models of larger media conglomerates might push journalists to paint corporations in a more favorable light when it comes to their economic policies:

> The pressures on journalists to increase productivity, via substantive growths in the pagination of national newspapers across the last two decades, achieved with relatively static numbers of journalists... have prompted desk-bound journalists to develop an increasing reliance on pre-packaged sources of news deriving from the PR industry and news agencies. (Lewis, et al., 2008)

Similarly, a pioneering study by David Sachsman found that over half of environmental news reports originated in or drew directly from source-generated press releases and public relations efforts (Sachsman, 1976). An awareness or perception of these influences has led to an erosion of trust in the mass media, while local news maintains a relatively high level of trust, with six in 10 Americans believing local news organizations accomplish most of the critical tasks of informing communities (Knight Foundation, 2019).

Local news is also essential for the agency it coveys to readers who have more influence over the environmental degradation in their local area than they do over national or international environmental harms. While mass media sources may frame the issue as a distant and abstract threat — such as the attachment of starving polar bear pictures to climate change articles discussed in chapter two — local news sources ground climate-related news with narratives and

individuals people can relate to, helping to spur action rather than paralysis (Howarth and Andrerson, 2019). The President of the Society of Environmental Journalists observed: "Climate coverage at local news organizations is critical to the public's understanding of how the changing climate affects them, where they live, and how they can adapt" (Colman, 2018).

A case study on the news coverage of ocean acidification in Washington and Oregon found that localizing the issue accelerated Washington State's response to acidification. Instead of exploring the environmental issue from a national, global, or strictly scientific standpoint, reporters at the Seattle Times centered their piece around Sue Cudd and her husband, Mark Weigard, who own and run the Whiskey Creek shellfish hatchery. They detailed ocean acidification's impacts on the couple's business and the implications for the local shellfish industry, which employs around 3,200 people and supplies the region with an estimated total economic benefit of $278M. The media attention sparked discussion about local-scale responses pursued independently of international agreements on CO2 emissions reductions (Kelly, et al., 2014).

While more prominent publications such as the New York Times and Washington post can also use human interest stories to frame their articles, local readership is essential to civic engagement. People can have a more significant role in changing environmental policies locally. Thus, local climate change communications may be more empowering than national or global media attention. Currently, state and local governments are leading the way on climate policy, especially after the election of Donald Trump and the rollback of federal regulations (Rosner, 2019). This sense of agency may mitigate the impacts of eco-anxiety as the feeling stems from hopelessness or lack of control. According to the APA, people's perceived control, an individual's belief about their capability of exerting influence on internal states and behaviors,

and one's external environment correlates with feelings of anxiety. The less control one perceives over their life, the more anxious they feel (Grupe and Nitschke, 2013).

Chapter 4: Political Polarization and Climate Change Reception

Journalism is considered the fourth estate for its role as a watchdog to political and corporate wrongdoing. Thus, no discussion regarding journalism is complete without exploring the intimacies between the media and the political sphere. This connection is equally vital for environmental journalism, which informs readers about the government's environmental policies. Chapter Four explores the American political system's failure to support robust and effective environmental communication and how these failures impact readers' mental health and civic engagement. First, it looks at the political policies that made possible the trends in media conglomeration and climate disinformation campaigns. Next, it details an increasingly polarized media environment before examining the policies that make accessing mental health care for eco-anxiety difficult in America.

Failure of The Government to Protect Local News. The forced downsizing of the media landscape (detailed in Chapter Three) led to the near annihilation of local news sources. The consolidation primarily benefitted media corporations but would not have been possible without the backing of the U.S. government, which, in the 1980s, passed many media deregulation bills at the behest of lobbyists (Moyers, 2006).

Before this change in course, the federal government took an active role in protecting the competitive news media economy. In September 1914, Woodrow Wilson founded the Federal Trade Commission (FTC). The FTC regularly enforced the government's antitrust laws, preventing media corporations from seeking a more consolidated market. The short-lived Federal

Radio Commission (FRC) supplemented the FTC's role in the news market. The FRC, founded in 1927 by Calvin Coolidge, was replaced by Franklin Roosevelt in 1934 with his Federal Communications Commission (FCC). These agencies served as a defense for the thriving local news media.

In addition, the federal government continued its role as a regulator against media conglomeration with several policy developments. The Dual Television Rule of 1945 prohibited one major network from buying another. The Radio/TV Cross-Ownership Restriction prevented broadcasters from owning a radio station and a T.V. station in the same geographic market. The Newspaper/Broadcast Cross-Ownership Prohibition banned the ownership of both a newspaper and a television station in the same way (Moyers, 2006).

Ronald Regan's election to the presidency in the 1980s ushered in a wave of deregulatory policies. Regan appointed Michael Fowler as chairman of the FCC, who extended television licenses and abolished limits on how much networks can advertise per hour. In 1996, Bill Clinton passed the Telecommunications Act, widely considered the most detrimental piece of legislation regarding media ownership. The law dramatically reduced federal regulation on cross-ownership and allowed corporations to buy up thousands of media outlets worldwide (Corcoran, 2016). In light of these developments, media conglomeration accelerated, with local markets no longer able to compete. Many Americans were left in news deserts.

The federal government can fight against conglomeration and for a fair, competitive market; the economic forces discussed in Chapter Three are the result of an inactive, disinterested federal government. Moreover, the environmental harms of media conglomeration— lack of local environmental news — should not be overlooked in discourses on the intersection between federal regulations and ecological health. The deregulatory policies

that allowed for media conglomeration and the detriments to environmental communications are part of a broader trend where the government values corporate profits over ecological wellbeing.

Failure of the Government to Regulate Big Tech Chapter 3 also explored how tech giants such as Facebook, Twitter, and Instagram profit from climate disinformation campaigns. Unlike local newspapers — which had a robust business model and vital role in society before media conglomerates and deregulatory policies put them out of business — the internet and big tech underwent a rapid takeoff beginning in the 1990s before the government, weighed down by bureaucracy, could catch up. A failure of regulatory agencies like the FTC to react to the intensifying threat of big tech is partially responsible for the spread of climate disinformation online. The government is now engaging in antitrust lawsuits with Google and Facebook to limit their power. However, considering the wealth and influence of the respective companies, this challenge may prove unsuccessful.

In 2012, Facebook acquired Instagram, a similar social networking app that enables users to share photos and connect virtually. The tech conglomerate also bought WhatsApp in 2014, a messaging service that allows users to make calls and send texts from anywhere in the world for free. Facebook collects the data on user activity across all three platforms — and the many other tech companies Facebook owns — to target people with advertisements best suited to their consumption patterns, political ideologies, and general personalities. This mass of data and the algorithms it generates enable Facebook to charge high premiums for its advertisements. As discussed in Chapter Three, this business model has accelerated the decline of local news, which can no longer compete for a sustainable portion of advertisement revenue. Likewise, this data collection across multiple platforms ensures that users will be more inclined to interact with the advertisements on their social media feeds. Someone susceptible to climate denial might go

down a rabbit hole of disinformation as false climate change claims flood their feed. Initially only skeptical of climate science or resistant to ambitious policies to reduce GHG emissions, they may now believe that climate change is a complete hoax and support the deregulation of environmental protections (Zadrozny, 2021).

Facebook's data collection and lack of robust privacy protection came to a head in 2018 when the tech giant and Cambridge Analytica were implicated in a data breach that impacted the outcome of the 2016 election. Mark Zuckerberg spoke to both the Senate and House of representatives after the scandal broke, trying to defend Facebook's policies. While Cambridge Analytica thrust Facebook under intense public and government scrutiny, it wasn't the first time the government questioned Facebook's practices. A Forbes Op-ed writer sounded the alarm in 2012 before Facebook's Instagram acquisition. He argued that Facebook buying Instagram for 1 Billion (the photo-sharing is now worth 100 billion) prevented the two social media sites from competing and improving their platforms in ways best suited to consumer needs. The FTC pledged to "look into the acquisition," although "most people assumed Facebook's purchase was a foregone conclusion," and Instagram and Facebook proponents criticized the government for requesting additional info (Jackson, 2012). After two rounds of questioning and examination, the government approved the deal, and Facebook bought Instagram. The app has proved hugely successful and contributed significantly to Facebook's wealth, power, and influence. Because of the acquisition, climate disinformation can be more user-specific and prolific across the internet.

Again, the connection between failed government regulation and environmental degradation may not be explicit in the same way deforestation and oil leases on federal land are. However, as tech giants continue to grow, people spend an increasing number of hours on social media, and our political life moves online, the discourse happening in these places will determine

the future of our environment. Allowing Facebook and other tech companies to conglomerate and ignore the pandemic of climate disinformation online will have real-world consequences for our governments and the people they seek to govern.

Climate Change and Political Polarization. Politicians and political parties benefit from a polarizing media landscape. Alarmist views and apocalyptic climate imagery garner support for the Democratic party, consistently ranking higher in their environmental voting records than the Republicans. Conversely, climate change misinformation both supports and sometimes stems from the Republican party; Donald Trump called climate change a "Chinese hoax" and regularly derided climate scientists (Cheung, 2020).

According to the Pew Research Center, "Polarized views about climate issues stretch from the causes and cures for climate change to trust in climate scientists and their research." These views are the most disparate between liberal Democrats and conservative Republicans. A reasonably close 32% of moderate Republicans and 45% of moderate Democrats believe that climate scientists are trustworthy to give complete and accurate information on the causes of climate change. However, 15% of conservative Republicans and the majority — 70% — of liberal Democrats agree. Similarly, 31% and 24% of moderate democrats and moderate Republications, respectively, say climate scientists understand 'very well' whether climate change is occurring. 68% of liberal Democrats agree, and only 18% of conservative Republicans (Pew Research Center, 2016).

Like most political issues today, climate change and other environmental policies have only recently reached this level of partisanship. In 2008, John McCain, the Republican nominee for president, ran a political ad about his plans to address climate change. McCain celebrated his ability to stand up to former president George Bush and "sound the alarm on global warming."

He pledged to cut greenhouse gas emissions with a clean energy plan (Davenport and Lipton, 2017). Likewise, 2012 Republican nominee Mitt Romney worked to combat climate change as governor, helping implement carbon dioxide limits on Massachusetts's six largest power plants (Banerjee, 2012).

Now, climate change policy is almost strictly ideological. Many Republican politicians refuse to support environmental regulations and use inflammatory speech regarding climate science and green energy. Trump regularly claimed that climate change was a foreign "hoax" aimed at dismantling the U.S. economy and benefiting our competitors. He used President Joe Biden's climate policies as a point of attack during the 2020 election, asserting that Biden was refusing to "boost oil production in the U.S." (Metzger, 2022). Similarly, many Republican politicians have attacked climate plans such as the Green New Deal for "destroying" America's energy industry and granting the government a level of power seen in Communist nations (Zak, 2019).

The media is responsible for informing the public about the environmental policies and beliefs of their candidates and elected officials. The hope remains that concerned citizens may realize their favored candidate spews climate disinformation or supports deregulatory policies and vote for a more eco-conscious individual. In an ideal world, the media would help galvanize a concerned public and make climate change a bipartisan issue. However, many media sources today do not simply reflect the polarizing nature of climate change and mitigation strategies; they inflame the divisions.

The disparate nature of climate coverage is immediately evident when perusing mainstream media publications. The New York times — traditionally viewed as a left-wing publication — has a section of its website dedicated to climate change-related content, regularly

reporting on the causes and consequences of global warming. Fox News's climate section covers climate change mitigation policies they consider "catastrophic" to America's economy (Shimkus, 2021).

According to the Pew Research Center, "when it comes to getting news about politics and government, liberals and conservatives inhabit different worlds. There is little overlap in the news sources they turn to and trust." Consistent conservatives, people who responded to a ten-question survey with consistently conservative opinions, are tightly clustered around a single news source, Fox News, and express greater distrust of the 36 news sources cited in the study. In contrast, consistent liberals have more varied media loyalty, naming The New York Times, NPR, CNN, and MSNBC their most trusted news sources. Overall, consistent liberals expressed more media trust in the 36 news sources. The study notes that while no person is entirely free of political dissent, consistent conservatives are more likely to exist in an ideological bubble (Mitchell, et al., 2014).

The news sources consistent conservatives and mostly conservatives turn to not only generate skepticism of climate science and promote economic growth over environmental wellbeing, they discourage their audiences from viewing other outlets that provide more accurate information. Fox News frequently attacks the "mainstream media's" reporting, which it views as unnecessarily hostile towards GOP stars like Donald Trump and Matt Gaetz. Fox News executives justify their editorial decisions as protecting free inquiry and controversial opinions (Confessore, 2022). A Tucker Carlson segment in September 2020, following a string of particularly deadly fires in Oregon, illustrates these dynamics. In the segment, Carlson criticizes the media for not "pausing and putting aside their self-interests." Instead, he alleges journalists and politicians used human suffering to advance their political agendas, specifically the

"partisan" talking point that climate change is responsible for the fires. Carlson claims, "there is not a single scientist on earth who knows whether or by how much these fires may have been exacerbated by climate change" (Fox, 2020).

Figure 3, Tucker Carlson Segment

Fox News politically silos its viewers, convincing them that Democrats are consistently lying about climate change and they are the only media source who will tell you the truth. Climate change can never be a bipartisan issue in this ideological arena because believing in climate change and supporting mitigation policies is to give up fundamental aspects of your political identity. Carlson uses a slippery slope logic to hammer this point home to viewers. He says conservatives provide altruistic assistance to those suffering from the fire's aftereffects while those detailing the exacerbating role of climate change are pressing forward for political advantage; to believe in climate change is to be a selfish liberal. This emotional pandering

closely mirrors that discussed in Chapter Two. However, Carlson's use of fear and anxiety is more effective because of political forces and a need to belong.

Governments Failure to Treat Eco Anxiety. Government failures regarding tech giants and media conglomerates and a polarized media environment may produce anxiety for individuals. As previously discussed in Chapter Three, anxiety can arise if one feels they do not possess sufficient control over their surroundings. Any one individual cannot dismantle these sophisticated systems of power and influence; it is the government's job to regulate American industry. When the government fails to perform this duty, citizens can feel powerless. The lack of affordable mental health resources to deal with these feelings intensifies this dilemma.

Currently, the United States has a private health care system. Many liberal politicians have tried to institute public health care in the United States, similar to those in many European nations. In March of 2010, then-President Barak Obama signed the Affordable Care Act (ACA) into law, known colloquially as Obamacare. However during Trump's presidency, he altered the ACA to cheapen the quality of insurance offered and reduce outreach opportunities for enrollment. These changes, along with the continued failure of the United States to implement a more affordable health care system, mean many lack mental health care. Private therapy without insurance can cost upwards of hundreds of dollars per session. Policy changes to amend this deficiency are essential for dealing with feelings of anxiety and galvanizing the public to respond to the climate crisis

Chapter 5: Wide Scale Implementation: Informing the Informers

This paper established a link between climate change communications and increasing levels of anxiety — specifically eco-anxiety and eco-paralysis — inhibiting the ability of many

media consumers to react to and respond appropriately to the threat of climate change. Chapter two explored how environmental communications often use emotional pleas to attract readership — eliciting fear with apocalyptic imagery or stoking political divides to spread misinformation — helping to explain the sensitive viewer response. Chapters three and four investigated the deeply interconnected political and economic forces behind these media trends. Corporations have pushed for deregulation policies that have gutted local news sources and led to increased polarization surrounding climate change, caused by and reflected in climate change communications. There are a variety of policy recommendations that could make environmental journalism more effective or help mitigate the impacts of eco-anxiety. However, it is crucial to recognize that my proposed policies will stop short of "curing" eco-anxiety as the climate crisis has dire consequences for society. I intend only to make suggestions that will lessen the severity of this collective anxiety and help people act despite it.

Reviving Local Climate News. As discussed in Chapter Three, local environmental news better prompts environmental action than mass media sources. This difference may be due to an increased sense of agency and decreased anxiety level when exposed to climate-related issues in their community. The U.S government should help to revive local news sources after the media conglomeration they supported gutted small newspapers' business model. President Biden's Build Back Better Plan includes a payroll tax credit for "local news sources," providing 1.67 billion dollars over the next five years for websites, radio, TV stations, and other outlets that primarily cover local news. However, with the level of conglomeration currently underway, many local news sources eligible for federal funding under the Build Back Better plan are owned by large private equity firms or have close ties to Wall Street Hedge funds. For example, Gannet, the country's largest newspaper chain, which owns about 250 local newspapers (including my local

newspaper, Worcester's The Telegram and Gazette), could receive $37.5 million in the first year following the plan's enactment and tens of millions in the years following (Tracy, 2021).

Biden's plan acknowledges the importance of local journalism to a healthy democracy. Aid to local reporters in his broader plans to revive the country's economy and address climate change is essential, leading to future policy decisions that may amend media issues. However, evidenced by the eligibility of conglomerates for the tax credits, his plan stops short of the needed systemic changes to the media landscape. The money may temporarily support local news companies and journalists. But, the concern remains that much of the federal funds would go to overhead costs at the more prominent media corporations. Similarly, the money will stop short of reviving the industry's business model and giving it a lasting chance of success. Local journalism needs a way to sustain itself outside of government assistance.

To bring about this change, the government needs to look into the causes of media conglomeration and more robust policies to combat it. I recommend needed updates to the FCC to grant them increased regulatory power. Ideally, the government would open investigations into the six media conglomerates that currently own 90% of all American media and explore how they have inhibited competition before bringing lawsuits against these corporations. "Trust Busting" is not unprecedented in American History. In 1938, President Franklin D. Roosevelt led a broad and bipartisan attack on monopolies. More recently, the U.S Department of Justice and 11 other states have brought a lawsuit against Google for practices they alleged inhibited competition.

If successful, the suit — which has garnered rare bipartisan support — would force Google to pay a hefty fine and break up the tech giant (Cellen-Jones, 2020). Because there is precedent for such action, it is not outside the realm of possibility for the government to make

similar attacks on media conglomerates. However, as evidenced by the Google case, these lawsuits take years and will likely prove challenging. In the meantime, I recommend the passage of the tax credit included in the Build Back Better Plan. However, with increased oversight.

While media chains such as Gannet can still be eligible for federal funds as they own several newspapers supplying local coverage, they cannot siphon off more than 15% for administrative costs. The money must be allocated directly to their newspapers to help them hire more journalists, specifically environmental journalists who can detail the impact of climate change in their communities. With the additional funds, reporters may no longer be "desk-bound" and forced to publish news packages from PR companies, as discussed in Chapter Three. Similarly, if not strapped for cash, reporters will be less likely to use apocalyptic imagery and language to attract viewership, lessening anxiety levels amongst their readership.

Addressing Fake Climate News on Social Media. As discussed in chapter 3*,* Social media sites like Facebook are a place where fake climate news thrives. In some ways, "news" questioning the validity of climate models or suggesting environmental changes are natural may mitigate eco-anxiety for some readers. For many others, the continued inaction spurred by this disinformation is a source of great anxiety. To address climate change and its negative emotional responses, the government needs to take action against social media sites that profit off the spread of climate denialism.

Social media sites are currently free of responsibility for the posts made on their sites under Section 230 of the Communications Decency Act, which states, "No provider or user of an interactive computer service shall be treated as the publisher or speaker of any information provided by another information content provider." In essence, Facebook, Twitter, YouTube, and all other social media sites are protected against a range of laws that might otherwise hold them

legally responsible for what people say and do on their sites. Section 230 does not protect against copyright law, some sex work material, and violations of federal criminal law. Furthermore, section 230 of the Communications Decency Act protects social media companies from being prosecuted for choosing to moderate content. For example, many social media sites have banned hate speech and are legally permitted to remove hate speech from their sites despite its legality in the U.S.

However, while section 230 frees online platforms from the legal ramifications of misinformation, repealing or modifying it would prove difficult. Former President Donald Trump was a proponent of narrowing the legal protections offered under the Communications Decency and released an executive order targeting social media sites. However, Trump's motivation was not to curb the proliferation of fake news. Instead, he wanted to limit the ability of social media sites to censor his speech or add fact-checking labels to his posts — many of which have advanced falsehoods about the climate crisis. Current president Joe Biden has also been a fan of revoking Section 230, although he has not yet advanced official legislation. Unlike Trump, Biden wants to prevent social media companies from having an outsized impact on elections and global health crisis. In essence, Section 230 can be used or abused by politicians on both sides of the aisle to advance their agendas. Furthermore, a repeal or modifications of Section 230 would apply to tech giants and all third-party platforms, potentially placing an undue burden on small businesses and limiting free speech.

I propose that the government takes a more pointed approach, targeting the tech companies Facebook, Twitter, and YouTube, who have had the most outsized role in spreading climate misinformation. First, social media platforms need to be more transparent about how they profit from fake news. The government should mandate the publication of all internal

investigations about how fake climate news spreads on these platforms and how much ad revenue is associated with fake news. A third-party committee hired by the government can help write a definition of what constitutes climate disinformation with tiers differentiating between the most egregious examples and more subtle forms of denialism.

Currently, social media algorithms place companies' ads to maximize engagement with little care for what posts are generating that engagement (often click bate fake news stories). Companies should dictate posts they don't want next to their ads. While making blanket requests such as no fake climate news may be difficult, companies can blocklist repeat offenders or submit a list of words.

Consumers should see which businesses choose not to advertise next to fake climate stories. This transparency will pressure organizations to be more responsible in their ad placement and make the digital ecosystem a more prominent part of companies' climate plans. Additionally, social media companies should add climate denialism to their community standards, creating a plan to address this type of fake news with either blanket removal or warning labels. While it can be challenging to ensure that users meet all community guidelines with internet traffic on these sights, having a formulated plan is undoubtedly a start. It is also vital for tech companies to acknowledge that climate denialism can be deadly, like the hate speech, sexual exploitation, and promotion of crime that Facebook currently bans from their site.

Finally, tech companies need to identify and prosecute repeat offenders. Individuals, "activist" groups, and companies that regularly make posts denying the severity of climate change and its human causes should face an increasingly severe list of consequences that may end with their removal from the site. Politicians should be exempt from removal for posts

containing climate misinformation because the public must be aware of their stance. However, public figures should not be immune from content moderation that warns users a post contains misinformation.

Dealing with fake news is challenging. The government has limited options because of the first amendment; overreaching government action could mean dangerous limits on free speech. For this reason, I do not recommend changes to Section 230 of the Communications Decency Act. However, it is essential that various actions — like the ones listed above — are taken to demonstrate the responsibility tech giants have in perpetuating climate inaction and anxiety.

Further Research and Response into Eco Anxiety. The concept of eco-anxiety is still relatively new. Varying definitions of the phenomenon have complicated research into the topic — some referring exclusively to anxiety in response to climate change information and others to a broader emotional response to natural disasters and loss of familiar habitats. It has proved similarly challenging to bridge the gap between the many disciplines exploring the issue — philosophy, psychology, environmental studies, etc. (Pihkala, 2020). I recommend that the APA release an official definition of eco-anxiety. They may choose to have varying terms and descriptions for different emotional reactions to climate change. The APA's definitions would enable researchers to be more focused in their future studies and more precisely track the proliferation of this phenomenon. Additionally, mental health professionals could more easily access information relevant to their patients with these changes.

I also recommend the APA release a guide exclusively dedicated to eco-anxiety that describes the phenomenon, its causes, and potential "treatment" options. As discussed in the first chapter, there are dangers associated with over pathologizing the phenomenon. The APA should

be careful not to suggest that anxiety or stress related to the state of the environment is irrational or that a cure exists outside of a severe reduction in our GHG emissions. However, they should provide insights into how climate anxiety can interfere with environmental action and suggest coping strategies for feelings of despair, guilt, and anguish. These recommendations might include that people take breaks from reading environmental news or alter their media consumption habits to include articles about potential solutions and activist groups they can get involved in.

Guidelines for Environmental Journalists. This guide should also have a specific section devoted to environmental communicators with advice on how their reporting can mitigate the impacts of eco-anxiety and paralysis and better prompt climate change action. These recommendations could include that journalists more closely mirror the language of the IPCC and other climate scientists in their reporting. Journalists should avoid unnecessary vocabulary like "shocking" and "terrifying" that the IPCC report they are summarizing does not include. Moreover, environmental journalists should pick headlines that best encapsulate the IPCC report. Instead of misleading and simplified headlines that we have "12 years to fix climate change," journalists should focus on the report's recommendations to make their titles. Climate models and the potential impacts of climate change on agriculture, migration, and health speak to the severity of the problem without sensationalized language and headlines.

The APA may also recommend that journalists carefully select the multimedia elements that accompany their reporting. Images and videos should directly reflect the article's subject instead of explicitly emotional pictures of polar bears and climate disasters. Images associated with climate change and its impacts are still likely distressing readers. However, journalists

should avoid eliciting fear and despair solely for views and contemplate when multimedia elements add value to their reporting.

Finally, environmental reporters should increase their coverage of individuals combating the climate crisis. This coverage should go way beyond recommending changes to eating habits and retail consumption; these suggestions, while important, often place undue pressure on consumers instead of corporations. Instead, journalists should cover grassroots action against climate change and how readers can get involved in these movements. To combat the ephemeral nature of the news cycle, a constantly updating article of recommendations should be ever-present and easily visible on all media organization's websites. This way, when someone reads environmental news, they will both see the anxiety-inducing headlines and ways to get involved. Hopefully, these recommendations will become more intuitive with increased local media funding and free journalists from a purely clicks-driven rat race. Newspapers, TV stations, and other prominent media sources can tell consumers that they aligned their coverage with the APA's recommendations. This will help readers choose which media outlets they frequent and place increased responsibility on the media to combat climate paralysis and inaction.

Educational Measures. To create meaningful and lasting solutions to climate change misinformation, lack of local environmental reporting, and eco-anxiety, more people need to be aware of these issues and how they affect their lives. I propose that the government launch a comprehensive climate literacy campaign. This campaign would teach young people how to differentiate between factual climate reporting and climate misinformation and give them coping strategies for handling eco-anxiety that arises with media consumption. While it is illegal for the federal government to determine the curriculum for state-run public schools, it can use other resources to educate the nation's youth. Like Michelle Obama's "Let's Move" campaign, a

climate literacy task force could utilize celebrities, an interactive website, and advertisements during popular youth programming to reinforce its message.

All students must be aware of the basics of climate change and the impacts it will have on human life. The campaign's website should include definitions for the greenhouse effect, carbon cycle, fossil fuels, and greenhouse gases. Interactive videos can help further explain these terms and how they are interconnected. All lessons should stress the near scientific certainty of the climate crisis and that human activity is its cause, as these are some of the most commonly refuted facts in fake climate news.

Other promotional videos can help normalize anxiety in response to this knowledge and inform young people that taking action against climate change can combat this stress. Online articles or media personalities that promise easy solutions or "disprove" climate science cannot offer real solutions to climate change or the anxiety it often elicits. On the campaign's website, there can also be links to other mental health resources if the fear begins to interfere with tasks of daily life. Young people need to know the difference between "normal" stress and anxiety levels in response to climate change and when eco-anxiety may be coupled with a more severe anxiety disorder. The program should also discuss the media's role in solving or perpetuating the climate crisis. The website can direct the youth to accurate local environmental news. Students can juxtapose these media outlets with fake news sources to learn how to spot climate denialism online.

Because of the increasingly polarizing role climate change plays in American politics, only a Democratic administration would spearhead this campaign. It would most certainly sustain attacks from the Right that children are being indoctrinated or brained washed with liberal ideas. To be successful despite this vitriol, the campaign can use celebrity endorsements

to help spread its message. Professional athletes, TikTok stars, and actors may be especially successful at imparting climate change knowledge to teens. Furthermore, while educating children may be more likely to anger conservative politicians, conveying this information to young people is essential for establishing lasting media literacy and coping mechanisms for eco-anxiety.

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