A RHETORICAL INVESTIGATION OF PUBLIC DISBELIEF IN CLIMATE SCIENCE

BY

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Abstract

Global warming and climate change pose a significant threat to the livelihoods of future generations. Although there is a consensus of qualified climate scientists who believe that scientific evidence supports Anthropogenic Climate Change [ACC] theories, public belief in ACC theories has been much more limited. In this dissertation, I argue that this disjunction between climate scientists and public opinion is a fundamentally rhetorical problem, requiring rhetorical solutions. In four case studies, I analyze the Climategate scandal, discursive strategies of the Heartland Institute, President Obama's environmental arguments and the ozone debates of the 1970s and 1980s to develop a set of persuasive strategies that may help environmental advocates overcome public disbelief in climate science.

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Chapter 1 – Introduction

Introduction

Anthropogenic Climate Change (ACC) will likely be the defining environmental concern of the 21st century. The continued rise in fossil fuel consumption, and subsequent global warming, threatens "not only the other million species on the planet but also the survival of humanity itself" (Hansen, 2009, p. ix). Current temperature projections point to agricultural devastation, refugee crises, heightened resource shortages and an increased propensity for natural disasters throughout the next decade and beyond (Mazo, 2010, p. 110). Moreover, because of the close connection between climate and security, global warming will "magnify" (Mazo, 2010, p. 142) the root causes of conflict--water shortages, food insecurity and energy scarcity. Although the exact timing and magnitude of these events is uncertain, even "a small probability of catastrophic damage" should be enough to "err on the side of action" to prevent global warming (Scorse, 2010, p. 47).

Global warming will negatively influence the entire global population, but an "unequal burden" will unfortunately fall "on those who have not been primarily responsible for climate change" (Burkett, 2008, p. 187). Specifically, it is the vulnerable populations of the global South who are: ecologically vulnerable; least equipped to adapt to changing temperatures; and, least capable of sacrificing economic growth to limit emissions (Burkett, 2008, p. 187). In the case of indigenous communities and small Pacific-island states, the consequence of inaction by the United States may be "annihilation" (Gordon, 2007, p. 1562).

Because of this range of severe consequences, "no science issue has more obvious or urgent political and ethical significance today than climate change" (Spoel et al., 2009, p. 49).

Some of these trends are already visible. The first decade of the 21st century was the warmest since the keeping "of instrumental climate records" (World Meteorological Organization, 2011, para. 1) began in 1850. The World Meteorological Organization (2011) found that in 2010 alone, "Pakistan experienced the worst flooding in its history" (para. 6), Eurasia saw "record high" (para. 8) temperatures, the Amazon basin was "badly affected by drought" (para. 18) and Africa had its "warmest year on record" (para. 3).

Predictions influenced by the calamities of the last decade may seem exaggerated, but the science supporting them has widespread support among elite climate scientists. Anderegg, Prall, Harold & Schneider (2010) provided strong evidence for consensus supporting ACC theories, especially at the most current and highly qualified levels of climatology. These scholars developed a database of 1,372 climate scholars, and their works. Climate scholars were ranked based on their technical expertise: a method that looked at a variety of widely accepted standards for determining "quality, productivity and prominence" (p. 12109) of a scholar's work (e.g., number of publications, number of times cited, etc.) (p. 12109). Each of the 1,372 climate scholars was given a label: climate skeptics were labeled UE (unconvinced by the evidence) and supporters of the anthropogenic climate theory were labeled CE (convinced by the evidence). This study found that 98 percent of the top 50 climate researchers were labeled CE. Moreover, only three percent of the top two hundred climate scholars were labeled UE, while 97 percent of the top 200 scholars agreed with the basic tenets of ACC theories--that global warming is happening, anthropogenic and a potential danger (p. 12107). Interestingly, researchers with the fewest climate publications

comprised approximately 80 percent of the UE group (p. 12108). This independent investigation found that "top CE researchers have much stronger expertise in climate science than those in the top UE group" (p. 12108).

Another study found that of 928 randomly selected peer-reviewed articles in scientific journals, "none of the papers disagreed with the consensus position" (Oreskes, 2004, p. 1686) that global warming is real, human induced, and an environmental concern. A report from the Environmental Protection Agency (2010) looked at 22 indicators of climate change (e.g., emissions, atmospheric energy, precipitation, cyclone intensity, etc.) and found "indisputable evidence" (p. 1) to support the basic tenets of the global warming hypothesis. Although skeptics have pointed to several other possible causes, such as "solar activity, volcanic activity, cosmic rays" and "orbital cycles" each of these "do not show trends capable of explaining" global warming (Rahmstorf, 2008, p. 47). Prothero (2012), a professor of geological sciences, pointed to conclusive geological evidence that contemporary warming trends are greatly exacerbated by human influence:

> Geologists and paleoclimatologists know a lot about past greenhouse worlds, and the icehouse planet that has existed for the past 33 millions years…we know the variations in the earth's orbit (the Milankovitch cycles)…our pumping greenhouse gases into our atmosphere…has pushed the planet into a "super-interglacial," already warmer than any previous warming period…This is decidedly not within the normal range of 'climate variability,' but clearly unprecedented in human history. Anyone who says this is 'normal variability' has never seen the huge amount of paleoclimatic data that show otherwise. (p. 19)

Thus, whatever disagreement does exist among climate scientists, it occurs very much on the fringe of the field.

Despite this visible evidence of environmental harm and scientific consensus supporting ACC theories, the general public has not viewed global warming as a top priority. For example, a Pew (2011) poll found that only 38 percent of polled adults believe that "global warming is occurring mostly because of human activity, such as the burning of fossil fuels" (para. 4). Nine months before, Gallup found that "the percentage of Americans who now say reports of global warming are generally exaggerated is by a significant margin the highest such reading in the 13-year history of asking the question" (Newport, 2010, para. 3). For those who supported the global warming hypothesis, "the share of Americans who view dealing with global warming as a top priority has" (Pew, 2012, para. 8) declined to 25 percent. Of the 25 "top policy priorities for 2012" listed by the poll, "global warming" finished dead last (Pew, 2012, table 1). Importantly, a larger percentage of the US population agrees with the statement "there is a lot of disagreement among scientists about whether or not global warming is happening" (Leiserowtiz, et al., 2011, p. 18) than agree with the statement "most scientists think global warming is happening" (Leiserowtiz, et al., 2011, p. 18). And, for the first time in the 25-year period that Gallup has polled the issue, "a majority of Americans say economic growth should be given the priority, even if the environment suffers" (Newport, 2009, para. 1).

A recent Yale Project on Climate Change Communication report has found some evidence for optimism. The project determined that a majority of Americans polled believed that extreme weather events in 2011 were tied to global warming (Leiserowitz, 2012, para. 49). However, this finding is somewhat misleading because the same survey found that just

"12 percent" of those polled were "firmly convinced that [anthropogenic global warming is] happening, human caused" and "urgent" (Leiserowitz, 2012, para. 8). Thus, the newest available evidence indicates that public skepticism continues to pose problems for environmental advocates hoping to achieve progressive policy change through concerted public action.

There are several explanations for this divergence between climate science and public opinion, but overcoming this divergence is a fundamentally rhetorical problem. Protecting the environment requires persuading the public to change feelings of "indifference," "denial" and "resistance" toward environmental problems (Feygina et al., 2010, p. 326). In this chapter, I lay the groundwork for a study of contemporary rhetorical explanations of public disbelief in climate science and argue for rhetorical correctives that may help overcome public skepticism of ACC theories. In particular, I examine case studies on the Climategate controversy, anti-environmental think tanks, President Obama's environmental rhetoric, and the rhetoric of ozone scientists who served as public intellectuals in the 1970s and 1980s, to develop a multivariable illustration of public disbelief of well-grounded climate science. Although these case studies examine a broad period of time and reflect different contexts, each provides evidence that illuminates the causes of public disbelief in climate science and the failure to achieve environmental legislation that is consistent with scientific findings.

In the case of Climategate, the issue is how an accusation of conspiracy influenced public opinion far after climate scientists were exonerated of the charge by several independent investigations. In the case of anti- environmental think tanks, the issue is how members of conservative anti-environmental organizations co-opt environmental discourse to make their messages seem mainstream and reasonable. In the case of President Obama's

environmental rhetoric, the issue is how foregrounding of economic and national security arguments shifts policy debates away from environmental science and towards values that may not be consistent with environmental protection. Finally, in the case of ozone scientists in the 1970s and 1980s, the issue is how scientists fought back against public disbelief in climate scientists, influential industrial opposition and political inertia to achieve regulations on CFC production and use. These four case studies, although by no means exhaustive, combine to provide both a multivariable explanation for public disbelief in climate science and a set of rhetorical correctives that may remedy this problem for environmental advocates.

This chapter contains three sections: a review of literature; a rationale for this topic; and, a plan for development of the dissertation. The review of literature will include psychological, sociological and rhetorical scholarship investigating public disbelief in climate science and policy inertia. The rationale section will argue for the importance of scholarly attention on public opinion concerning global warming science. Achieving progressive environmental policy requires aligning public opinion with climate science, a goal that can only be achieved through persuasion. In particular, this section will emphasize the importance of motivating the public to change harmful consumption habits and using public opinion to achieve environmental regulations. The final section, focusing on the plan for further development, will explain the case study method and sketch the topics of the following chapters.

Review of Literature

Long-term global warming trends are "not easily detected by personal experience" (Swim et al., 2010, p. 6) and, even when detected, they are poorly understood. "Emotional reactions" mediated by "cultural values and beliefs" are more likely to influence perception of

risk than an objective read of scientific data (p. 6). Because science qua science has historically been an ineffective persuasive tool, a nuanced analysis of the mediators between science and the public is necessary. Academics have investigated a wide range of explanations for the failure of climate science to resonate widely with the U.S. public. In particular, psychologists, sociologists and communication scholars have provided substantive analyses of the relationship between climate science and public opinion. Because global climate change is a "complex and multifaceted phenomenon" that can only "be understood from a number of perspectives," I find this interdisciplinary scholarship helpful for building rhetorical theories concerning climate science (p. 11).

Psychological explanations for public disbelief in climate science are important for building "behavioral models" and "providing deeper understanding of individual" tendencies (Swim et al., 2010, p. 8). Feygina et al. (2010), a team of psychologists, use the System Justification Theory to contend that humans are psychologically driven to "deny environmental problems and resist meaningful attempts" (p. 328) to reform the status quo. According to this study, people who are asked to change their consumption habits are predisposed to "defend and bolster" (p. 328) the existing, polluting, system. Therefore, the desire to avoid change is a great source of cognitive dissonance, and produces "apathy, denial and resistance" among people who are "faced with evidence of environmental problems" (p. 326).

These psychological proclivities are even stronger when faced with evidence of unfair distribution of climate catastrophes. Feinberg and Willer (2010) found that the "just-world theory" shows that "individuals have a strong need to perceive the world as just" and, therefore, may have difficulty accepting the fact that impoverished nations will be forced to

suffer for pollution from industrially developed nations (p. 34). Clearly, psychological dispositions are substantial impediments to public belief in climate science. However, these tendencies are not determinative; and, devising "persuasive communication" can reverse this motivation and "channel it in a pro-environmental direction" (Feygina, 2010, p. 336). Based on this psychological evidence, it may be helpful to portray climate change as a great risk to the status quo, and therefore use the tendency to avoid change to advance a progressive environmental agenda.

Sociologists have a "valuable array of perspectives, theories, methods, and tools" (Nagel, Dietz and Broadbent, 2008, p. 9) to advance the understanding of the relationship between climate science and human behavior. Because there are "social causes," "social impacts" and "social dimensions of mitigation and adaptation," the field of sociology has seen prolific scholarship concerning global climate change (Nagel, Dietz and Broadbent, 2008, p. 11). Brechin (2003) found that "although the scientific community" speaks with a "unified voice concerning" climate change, members of the public "harbor considerable uncertainties" about the nature of the problem (p. 106). He found that although citizens of the U.S. are some of the most educated in the world, they are some of the least informed about the relationship between fossil fuel emissions and global climate change (p. 107).

Importantly, sociologists have expanded on psychological theories about individual behavior to examine the "interrelation of the collection of these forces" (Fisher, 2003, p. 8). By focusing on complex challenges faced by organizations and nation-states that serve as the foundation for the "global environmental system" (p. 8), sociologists have developed a theoretical framework for understanding the factors that mediate scientific data and public understanding. Seen from this perspective, environmental attitudes are not merely

psychological dispositions; instead, they are influenced by science, the media, civil society, the market and the state (p. 14). Therefore, "understanding the formation of a global climate change regime requires an appreciation of the roles of social actors" and the "role they play in affecting the global environmental system" (p. 18). This prescription for a study of interconnected factors demands a broad contextual analysis of a wide range of variables that influence public opinion about climate science and the development of progressive environmental policy (p. 23)--exactly the project fulfilled by the following chapters.

Communication scholars, taking a message-centered approach, are uniquely suited to explain public disbelief in climate science. Several barriers to public acceptance of climate science and subsequent changes in attitudes have been explored. The media has been the focus of much of this criticism. Zhao et al. (2011) found empirical evidence that the "inaccurate representation of the science of global warming in the U.S. media…contributed to the lack of urgency" (p. 714) among the U.S. public. The desire to portray both sides of every issue through balanced reporting has created "discursive and real political space for the U.S. government to shirk responsibility and delay action regarding global warming" (Boykoff & Boykoff, 2004, p. 134). Nisbet (2009) agreed: "by giving equal weight to contrarian views on climate science, journalists presented the false impression that there was limited expert agreement on the causes of climate change" (para. 27). "Confusion," "complexity" and a "lack of understanding among journalists" contribute to the perception that climate science is extremely uncertain (Zhao et al., 2011, p. 715). Moreover, the tendency to watch "political" news instead of "science/environment" news contributes to the belief that climate science is driven by partisan ideology (Zhao et al., 2011, p. 727). Kim (2011) determined that public anger towards news media made it an ineffective mediator between scientific data and public

consumption (p. 690). Ceccarelli (2011) found that global warming uncertainty is "manufactured" in the public sphere when media commentators announce "that there is an ongoing scientific debate in the technical sphere" when there is "actually an overwhelming scientific consensus" (p. 196).

Lakoff (2010) noted that cognitive frames shape reaction to environmental messages (p. 70). In particular, he found that concepts like "environment," (p. 76) "Nature" (p. 76) and "environmental action" (p. 77) all trigger cognitive responses that align with pre-determined ideology. Therefore, in order to develop an "effective long-term messaging" (p. 79) campaign, leaders should "frame issues in terms of moral values" (p. 79), "tell stories that exemplify your values and rouse emotions" (p. 79) and "address everyday concerns" (p. 80).

However, this media-centered approach has been criticized. Brulle (2010) argued: "the top-down messaging approach used by Lakoff" focuses too heavily on "mass advertizing [sic] techniques" instead of the "public debate" that is necessary to create truly informed opinions (p. 90). Brulle (2010) found that this "manufactured" approach creates "the need for continuous spin wars to maintain public support" instead of mobilizing a truly capable citizenry (p. 90). Moreover, relying solely on media-produced messages "will further the professionalization of the environmental movement and lessen its political mobilization capacity" (p. 91). Although Brulle's read of Lakoff uncharitably ignored his focus on non-advertising mediums, Brulle's argument is worthy of consideration.

It is indisputable that public understanding of climate science is mediated by popular news sources. Thus, in developing a successful rhetorical campaign to align public opinion with the findings of climate science, it is likely insufficient to focus solely on media-driven

messages. The media cannot be ignored, but news reporting of climate science is just one of the many factors that informs and influences public understanding of climate science.

Several other discursive variables have been examined as well. Peterson (2004) investigated how the rhetorical presidency shapes public beliefs concerning "social responsibility and the material world" (p. 3). She found that "symbolic and instrumental messages" are central to understanding the political practices found at the "intersection between the environmental movement and environmental policy" (p. 3). Walker and Walsh (2012) argued that the trope of "scientific uncertainty" (p. 4) can be appropriated by environmentalists to motivate concern among the public. Instead of being used to justify inaction, "invocations of scientific uncertainty" (Walker and Walsh, 2012, p. 4) can provide a warrant to avoid future possible disasters. And, Mellor (2009) found that the discourse about "inaccuracies" (p. 147) in *An Inconvenient Truth* provided ammunition for skeptics of climate science more broadly.

In sum, there is a strong foundation for a rhetorical investigation of public disbelief in climate science. There is ample discussion of environmental messages, media influence and public perception. However, there has been a tendency to underestimate the value of climate science as a salient motivator for progressive environmentalism. For example, Simpson (2011) argued that the "epistemological limits" (para. 3) of science and the "erosion of public trust in science" (para. 6) make climate science an ineffective rhetorical tool for environmental advocates. In concurrence, Furedi (2008) noted, "turning science into an arbiter of policy and behaviour only serves to confuse matters" (p. 33). According to this essay, science can provide "facts" but "it cannot say very much" about "what we should do about" environmental problems (Furedi, 2008, p. 33).

Although some skepticism towards science is surely warranted, I argue that a persuasive depiction of scientific findings concerning climate data, informed by the theories reviewed thus far, can positively influence public opinion. In fact, many of the contemporary failures of climate science to affect change can be traced to the *lack* of investment by scientists in public debate. The goal for environmental advocates should not be to merely convince the public that a scientific consensus exists; rather, it should be "mobilizing a relatively aware constituency" (Carvalho and Peterson, 2009, p. 141) to change its behavior. Instead of calling for a scientific retreat, this dissertation makes the case for a sustained commitment by climate scientists and other environmental advocates to defend scientific findings as one tool in their rhetorical arsenal.

Rationale

There is a need for scholarly attention to public disbelief in climate science. Every person contributes to global warming through consumption of fossil fuels, and global warming has the propensity to impose substantial harm across the world. Although a range of factors (e.g., influence of the fossil fuel industry, conservative media, economic decline moving the environment down the list of public priorities, widespread anti-intellectualism, extreme complexity of climate science, etc.) influence public opinion concerning the accuracy of ACC theories, successfully deployed environmental communication can overcome these barriers. In this section, I outline the importance of scholarly attention to environmental communication, particularly the relationship between climate science and rhetoric. In doing so, I argue that overcoming the rhetorical deficiencies outlined in each case study to align public opinion with the scientific agreement regarding the ACC hypothesis is necessary to

promote progressive environmental policy and motivate changes in individual consumption habits.

The field of environmental communication serves practical and ethical purposes. For example, Robert Perkowitz (2010), Founder and President of ecoAmerica, stated that environmental scholarship has "been used to refine and enhance the communications of" (p. 69) congressional representatives, non-governmental organizations, corporations and foundations. However, he noted that most communication studies on global warming "do not provide the kind of information" (p. 68) that environmental advocates need. In particular, he noted the lack of focus on "practical leverage points and obstacles involved in motivating" (p. 68) environmentally sustainable behavior. Therefore, practical and audience-centered environmental criticism may help advocates "find new ways of generating…support for effective climate action" (p. 69). The defeatist perception of the liberal public sphere as terminally stagnant is incorrect; change certainly can occur. The challenge is motivating the public to embrace attitudes and actions that improve environmental sustainability in an era of rampant consumerism (Rowland, 2006, p. 214). Practically, the goal of this dissertation is to add to the existing conversation concerning the relationship between climate science and rhetoric.

These practical goals rest on fundamental ethical assumptions that are intrinsic to the field of environmental communication. Cox (2007) argued for four ethical "tenets" (p. 15) of the field of environmental communication:

(1) Environmental communication seeks to enhance the ability of society to respond appropriately to environmental signals relevant to the well-being of both human civilization and natural biological systems

(2) On a societal level, representations of ‘‘environment’’--including governmental information, scientific advisory systems, and decision processes--should be transparent and accessible to members of the public. Relatedly, those affected by threats to environmental quality should have the resources and ability to participate in decisions affecting their individual or communities’ health and well-being

(3) Individual and societal opportunities and capacities to study, interact with, and share experiences of the natural world and to engage others’ communication about such experiences are inherently good and should be nurtured.

(4) Scholars, teachers, and practitioners have a duty to educate, question, critically evaluate, or otherwise speak in appropriate forums when social/symbolic representations of ‘‘environment,’’ knowledge claims, or other communication practices are constrained or suborned for harmful or unsustainable policies toward human communities and the natural world. (p. 15-16)

Seen this way, environmental communication scholarship can (practically) contribute to society’s environmental competence and (ethically) promote an agenda of environmental sustainability (Cox, 2007, p. 16). Therefore, exposing ideology, uncovering deceitful rhetorical tactics and prescribing tools to counter anti-environmental rhetoric fits squarely within the tenets endorsed by the field of environmental communication.

This orientation is even more important given the *public* nature of environmental crises. There is “substantial empirical evidence that non-governmental” political opinions are “important determinants of public policy” (Lewis, 2005, p. 21). The ability for public opinion to apply “external pressure” holds “sway in policy-making decisions” at the highest levels of government (p 21). “Politicians” and “governmental officials” “pay attention to public

opinion reflected in polling data" (Sparrow, 2008, p. 579). Even more, "if public opinion is especially one sided, it may actually be controlling" (p. 579).

Longitudinal historical analysis supports the claim that "the government, as elected representatives of the people, is actually attentive to" (Pulia, 2001, p. 8) public opinion concerning the environment. For example, "support for environmental protection peaked in the early 1990s and the government responded with" (p. 8) a range of environmental legislation. However, as public support cooled, "the government responded in 1995 with a virtual shutdown in environmental legislation" (p. 8). Given this evidence, substantial public support for climate regulation may be the only way to overcome political inertia and industrial influence blocking progressive climate policy.

Even absent change in government policy, convincing the public that ACC theories are accurate has the potential to drastically change individual consumption habits. If members of the public believe that fossil fuel consumption has negative consequences, it "may increase the possibility of individual behavior change" (Oppenheimer and Todorov, 2006, p. 5). The anxiety produced by confronting one's own consumption habits has the propensity to be disabling. However, this confrontation can also allow consumers to "question underlying assumptions" and "stimulate thought" concerning new paths towards environmental sustainability (Princen, Maniates and Conca, 2002, p. 14). For example, individuals may reduce consumption by buying "high fuel-economy cars or compact fluorescent light bulbs" (Oppenheimer and Todrov, 2006, p. 5). Although these changes may seem superficial, if they were broadly implemented, they would have a significant cumulative effect.

There are substantial impediments to changing public opinion and achieving progressive environmental legislation. Psychological, sociological, political and ideological barriers work individually and collectively to promote inertia and inaction. However, each of these can be countered by an effective rhetorical campaign in defense of ACC theories and environmental regulation. The case studies examined in this dissertation provide evidence that although the barriers to effective environmental communication are formidable, they are not impenetrable.

Forthcoming Chapters

Each of the following chapters analyzes at a set of texts that help to explain public attitudes about climate science. Since each text operates as only one variable in a larger societal conversation, a case study approach is justified to "generate findings of relevance beyond the individual cases" (Fidel, 1984, p. 273).

First, a case study approach is warranted because each of the cases represents one of the aspects of public disbelief. Therefore, each chapter represents one avenue for understanding why climate science is disregarded by much of the public. Although "it is impossible for a case study to tell the whole story" (Runyan, 1982, p. 444), each new glimpse provides a "representative anecdote" (Burke, 1969, p. 59) of a multidimensional problem. Each acts as an "allegory" for reaching particular conclusions and "for formulating hypotheses for further" research (Schell, 1992, p. 2). In this way, each representative anecdote (complex deduction of the subject at hand) will provide an example with both "scope" and "simplicity" of the relationship between climate science, relevant texts and audience beliefs (Burke, 1969, p. 59). Because a representative anecdote develops and reinforces the norms of the broader symbol system, it is "especially valuable for a critical

analysis of the implicit assumptions and values held by a particular culture as manifested in that culture's mediated texts" (Harter and Japp, 2001, p. 413). By finding patterns of contemporary discourse, each case study exposes "values, concerns, and interests in regard to" "attitudes and understandings" of climate science (Brummett, 1984, p. 164).

Each case study works together to provide a cumulative explanation. Each study itself analyzes one representative anecdote, but including multiple case studies in one volume overcomes the common criticism of the case study method--that there is too much focus on a single cause, at the expense of other explanations (Runyan, 1982, p. 445). Although it may be possible to use case studies to distort facts through "selective presentation of the evidence" (Runyan, 1982, p. 445), the combination of multiple case studies serves to reduce the likelihood of distortion. The final chapter seeks to provide a solution that overcomes the diverse causes of public disbelief in climate science by finding a remedy that has the potential to address each of the problems found in the case studies.

Second, each case study builds upon and refines a range of contemporary rhetorical theories. Only a case study approach would allow a rich discussion of theories as diverse as conspiracy theory, definition, media criticism, framing, and counterpublics. This will provide contributions to the sub-discipline of environmental communication as well as providing refinement of other rhetorical theories. In what follows, I detail each of the proposed case studies.

Chapter two will consist of a case study of the Climategate controversy. I examine the hack and subsequent release of emails sent by climate scientists at the Climate Research Unit [CRU] at the University of East Anglia. The subjects of the emails pertained to climate research that was conducted between 1996 and 2009. Although most of the emails covered

highly technical climate jargon, a small subset of the emails became widely publicized by the blogosphere and news media for their supposed discordance with the Anthropogenic Climate Change (ACC) hypothesis and their suggestion that there had been interference with the independence of the peer-review process (Flam, 2009, para. 4-5). In particular, I trace the influence of the essay: *Climategate: Warmist conspiracy exposed?* (Bolt, 2009)--written just days after the release of the hacked CRU emails. I find that the accusations made in media reports, despite being entirely inaccurate, resonated widely because of the charge of *conspiracy*. This resonance was amplified by rampant anti-elitism; the charge's consistency with existing ideology; the perception of an accurate charge; and, the failure of scientists to effectively respond to the charge of conspiracy. I conclude that this incident demands a revision of contemporary rhetorical theories concerning conspiracy theory--namely those that rely heavily on Hofstadter's (1996) "paranoid style" (p. 4). Instead of merely looking at form and facticity to determine the power of a particular charge of conspiracy, rhetorical scholars must examine a broader set of contextual variables.

Chapter three will consist of a case study of the naming and definition strategies of organizations that promote anti-environmental and industrial propaganda. I examine two bodies of rhetoric: (1) the names of anti-environmental organizations; (2) the newsletters and op-eds published by conservative think tanks that define their interests, goals and membership. I find that these organizations have used naming and definition strategies to co-opt messages from the mainstream environmental movement, breeding perceptions of inconsistency, skepticism and contrarianism. More specifically, groups that align with the environmental countermovement have used names (e.g. The Heartland Institute, Citizens for the Environment, Global Climate Coalition, National Wetlands Coalition, Greening Earth

Society, etc.) that give the perception of environmental friendliness while subtly manipulating public and political opinion to trust anti-environmental messages. This re-defining strategy has allowed these organizations to more effectively question climate science, portray fringe environmental theories as mainstream, undermine widely supported scientific theories, and degrade support for progressive environmental regulation. I use the Heartland Institute as a representative anecdote.

Chapter four will consist of a rhetorical examination of the first 18 months of President Obama's environmental rhetoric. I examine the texts of President Obama's speeches and highlight the main rhetorical strategies that he used to frame his environmental agenda. In particular, I find that he foregrounded economic and national security frames, at the expense of frames that focused on environmental or climate science. For example, instead of arguing for the environmental benefits of his green jobs package or the scientific consensus supporting ACC theories, he consistently noted economic and national security justifications. I trace public opinion concerning climate science and support for climate policies and find that his messages did little to induce public support for either. I conclude that this approach of foregrounding non-environmental arguments backgrounded environmental science and subsequently undercut his environmental agenda.

The final chapter will consist of a case study of the rhetoric of climate scientists in the 1970s and 1980s who performed as public intellectuals to influence public policy. I examine how the public discourse of two climate scientists at the University of California-Irvine, Frank Sherwood Rowland and Mario Molina, served as the foundation for the development of a broader counterpublic of ozone scientists. In particular, I push the outer edges of the construct of counterpublic theory to find that, contrary to Warner (2002), climate scientists

who made their findings public *became* counterpublic by expressing opposition to a powerful public, opening discursive space by making their comments public and rhetorically participating in multiple publics (scientific and lay) simultaneously. I argue that this counterpublic role served a vital function that shaped public opinion to favor strict federal regulations and galvanized international support for the Montreal Protocol. I conclude that a new wave of public intellectualism by climate scientists may be one way to reverse public disbelief in climate science concerning global warming. Instead of merely taking refuge in peer review, environmental scientists who make their message public may overcome public skepticism and political inertia to achieve progressive environmental legislation.

Chapter 2 – Climategate: A Case Study in the Intersection of Facticity and Conspiracy Theory

Introduction

In November of 2009 over one thousand illegally obtained emails from the Climate Research Unit at the University of East Anglia were made public via the Internet. The subjects of the emails pertained to climate research that was conducted between 1996 and 2009. Although most of the emails covered highly technical climate jargon, a small subset of the emails became widely publicized by the blogosphere and news media for their supposed discordance with the Anthropogenic Climate Change (ACC) hypothesis and their suggestion that there had been interference with the independence of the peer-review process (Flam, 2009, para. 4-5). Within days, James Delingpole (2009b), a libertarian journalist at *The Telegraph*, coined the incident "Climategate" (para. 35)--analogizing the emails to the suppression and manipulation of evidence in the Watergate scandal of the Nixon administration in the United States. Although climate science had been under attack for quite some time, climate skeptics declared that the emails were the "final nail in the coffin" for the ACC "myth," because they showed the "*conspiracy* behind [italics added]" the evidence supporting the scientific consensus in favor of ACC theories (Delingpole, 2009b, para. 1).

Despite these charges of conspiracy and scientific inaccuracy, climate skeptics could not have been more incorrect. Six distinct and independent scientific investigations (Pennsylvania State University, House of Commons, University of East Anglia Scientific Assessment Panel, U.S. Environmental Protection Agency, U.S. Department of Commerce and National Science Foundation) were conducted over the allegations, and each of them found that no scientific misconduct occurred (Cook, 2010, para. 2). In many instances, the "American people were lied to about" (Romm, 2011, para. 6) the content of the emails,

because snippets were "taken completely out of context" (Romm, 2011, para. 25). However, public discontent was not ameliorated by these exonerations of the climate scientists. Although the "accusations thrown at the researchers involved [had] been proven baseless," and the evidence for ACC remained "as it was a year ago," "huge damage" had been done "to the reputation of climate science" (Nature, 2010a, para. 2). Specifically, the charge of conspiracy "really hurt" the "public perception" of climate science (Baker, 2010, para. 5).

Although simple disagreements over climate science have influenced public opinion by sending the signal of scientific uncertainty, the charge of conspiracy strongly influenced public opinion (Diethelm & McKee, 2009, p. 2-3). The immediate effect of the news media coverage of the emails on public opinion was substantial: "over half (53%) said that the stories had caused them to have much less (29%) or somewhat less (24%) trust in scientists" (Leiserowitz et al., 2009, p. 6). In particular, 69% of respondents in a nationally representative survey agreed with the statement: "scientists changed their results to make global warming appear worse than it is" (Leiserowitz et al., 2009, p. 6). The charge of conspiracy had a lasting negative effect. Independent investigations were virtually ignored by the news media and the United States public, and, consequently, the Climategate conspiracy undercut public "trust in climate science" (Ward, 2011, para. 7). Surveys taken throughout the year following the release found that "Climategate had a significant impact on belief and concern of climate change in the US," and as many as "1 in 4 Americans" were persuaded by the skeptical media coverage of the incident (Johnson, 2010, para. 6). It is striking that the charge of conspiracy stuck, even after the scientists were cleared of any suspicion of scientific misconduct.

In this essay, I argue that the lasting effect of Climategate on public opinion was primarily related to the charge of *conspiracy* by news commentators and conservative pundits. The resonance of the charge was amplified by rampant anti-elitism; the charge's consistency with existing ideology; the perception of an accurate charge; and, the failure of scientists to effectively respond to the charge of conspiracy. Given that the emails were selectively released and reported with the goal of undercutting the neutrality of the scientific method, scientific investigations proving innocence failed to counteract, and in fact, fell prey to the charge of conspiracy. In developing this case, I shed light on the power of conspiracy as a form of rhetoric, the interaction between rhetoric and science, and the importance of a well-crafted response to accusations of conspiracy.

The essay follows in three sections. First, I discuss the rhetorical power of the accusation of conspiracy. In particular, I look at historically recurring charges of conspiracy in several fields. Here, I extend contemporary theories of conspiracy, arguing that the scholarly focus on paranoid style and facticity of the charge (the claim that the accusation does not represent the facts of the case) is insufficient to explain the resonance of a charge of conspiracy. Second, I argue that the charge of conspiracy is particularly powerful when a specific set of factors is present: anti-elitism, ideology consistent with the charge, a perception of accuracy because of a well-crafted narrative and a poor rhetorical response by those charged. I map these four factors onto a variety of contemporary conspiracy theories related to the killing of Osama Bin Laden, the death of Princess Diana, the citizenship of President Obama and the moon landing. Next, I apply these factors to the Climategate incident. In particular, I analyze the text of the emails most commonly reported in the blogosphere and by the news media. I show how specific emails were used to manufacture a charge of conspiracy

in climate science. Finally, I argue that this case study reveals an inherent weakness of scientific argument when a conspiracy charge is made. It is difficult to respond to accusations of conspiracy within the conventions of science because of the impossibility of proving a negative. Thus, in order to effectively respond to such an accusation, scientists must expand their vocabulary and leave the scientific field, something that did not occur in this case. Climategate thus serves as an important example of "how not to respond to a crisis" (Pearce, 2009, para. 1).

The Power of Conspiracy

Scholars have studied conspiracy theories in a number of disciplines. In particular, Richard Hofstadter played a prominent role in theoretical development about the concept. Hofstadter (1996) traced charges of conspiracy from the fear of Illuminism in the late 18th century through McCarthyism of the mid-20th century. With each example, he noted that enemy creation, apocalypticism and imaginative leaps defined conspiracy theories (p. 37). He labeled the typical rhetoric found in conspiracy theories as the paranoid style. Those employing the paranoid style were most often "overheated, oversuspicious, overaggressive, grandiose and apocalyptic" (p. 4). They felt as if a "conspiratorial world" was "directed against a nation, culture" and "way of life" for millions of people (p. 4). For Hofstadter, the term "paranoid style" was intentionally "pejorative" and had "a greater affinity for bad causes than good" (p. 5). Although Hofstadter admitted that the paranoid style might be "ineradicable" (p. 6), elimination was clearly his goal.

Unfortunately, this influential essay "fixed scholarly attention" on "marginal men and women whose personality disorders caused them to project their problems, status grievances, and wounds into public affairs" (Goldberg, 2001, p. xi). For example, Pipes (1999) treated

the paranoid style as a "way of seeing life itself" and a "hidden-handed mentality" (p. 22). Similarly, Johnson (1983) argued that the charge of conspiracy is mostly derivative of a "twisted" "paranoia" (p. 52). Wood (1982) noted that Hofstadter's emphasis on psychological traits caused "most historians" to assume that such fears were "mainly rooted in nonrational sources" (p. 403). Although Hofstadter's work is insightful, his reliance on the term "paranoid" is unfortunate. Contrary to scholarship that conceives of conspiracy theories as irrational, most conspiracy theories are based on more than a pathological fear.

Conspiracy theories aren't crazy--sometimes they are correct (Austin, 1995; Goertzel, 1994; Keeley, 1999; Smith, 1997, p. 275). For example, it "is a matter of historical record that the Reagan administration illegally funded the Nicaraguan Contras," that "foreign covert actions" employed manipulation of revolutionary movements and assassination strategies, and that the Jim Crow era "required covert, conspiratorial acts" (Fenster, 2008, p. 10). Even Hofstadter (1996) noted the "frequent historical recurrence" (p. 7) of the paranoid style throughout political history in the United States. Given the historical precedent for collusion and conspiracy, it is not surprising that conspiracy accusations sometimes resonate. In fact, they can be found across a wide variety of popular genres in contemporary United States--literature, cinema, journalism and politics. In each of these genres, the charge of conspiracy is emotionally appealing because it motivates a "gravitational pull into a world of suspicion" (Fenster, 2008, p. viii). Because of the historical frequency of conspiracies, the current need is not to label the rhetoric as paranoid, but to understand its power.

Moreover, Hofstadter was primarily focused on locating the *form* of paranoid style. He carefully traced historical accounts of charges of conspiracy, but did little to explain why some conspiracy theories resonated while others did not. Taking a similarly formal approach,

Fenster (2008) presented a compelling case that influential conspiracy theories "share certain [formal] qualities:" (p. 9) an alleged truth hidden by existing order; a heroic investigative reporter; and, although the underlying truth remains hidden, anyone with enough fortitude can find the evidence. Looking only at form, however, might lead one to conclude that the charge of conspiracy alone has power to transform public opinion. A focus on form alone is clearly not adequate since many charges possessing the form of a typical conspiracy have failed to resonate. For example, the Clinton Body conspiracy accused President Clinton of murdering "colleagues, advisors and citizens" (Mikkelson & Mikkelson, 2007, para. 1) who were set to testify against him. Despite possessing all of the attributes of the paranoid style and the conspiratorial form, the charge did not stick. In fact, there are "thousands of conspiracies" (Schaeffer, 2007, p. 109) that exhibit these formal characteristics circulating in public discourse, yet very few are widely believed. Therefore, a formulaic approach to conspiracy theory, arguing that the rhetorical form of a charge of conspiracy will likely produce a specific audience response based on that factor alone, is insufficient. Instead, when analyzing a charge of conspiracy, rhetorical scholars may find greater insight in "identifying factors that *jointly* [italics added] shape these discourses" (Benoit, 1999, p. 265).

Attempting to account for more than form to explain resonance, scholars have focused on the accuracy of the charge of conspiracy. For example, Roeper (2008) critically analyzed a series of conspiracies, intending to "mock, lampoon and debunk" (p. xii) these phenomena. The overriding assumption in Roeper's (2008) approach was that "the conspiracies aren't real" (p. x); thus, merely highlighting their inaccuracies should be sufficient to undercut their resonance. Employing a similar strategy of debunking the rationale of 9/11 Truthers, Griffin (2007) focused almost entirely on the inaccuracy of the accusations that the government

colluded with the attackers (p. 309). For these scholars, explanations of resonance "start and end with the facts" (Dunbar & Reagan, 2006, p. xiv).

Merely focusing on accuracy, however, does not adequately explain why some conspiracies have great resonance and others do not. For example, Wood, Douglas and Sutton (2012) determined that conspiracy believers often draw their conclusions based on the central belief that "authorities and officials engage in mass deception of the public to achieve their malevolent goals" (p. 6). In fact, many conspiracy believers are willing to disregard evidence that contradicts their beliefs or believe two contradictory positions. For example, "believing that Osama bin Laden is still alive is apparently no obstacle to believing that he has been dead for years" (p. 6). Given these examples, it is clear that analyzing merely the form of the charge and its accuracy is insufficient.

The deficiencies of the above approaches are obvious. First, there is too great of a focus on the form of the charge. The various case studies fail to explain why some conspiracy charges resonate, and others that are similar in form do not. Second, there is too great of a focus on the accuracy of the charge. Historically, non-factual charges have often had great power. For example, conspiracies relating to UFO abductions, TWA flight 800, the Atlanta Olympic bombings and the arrest of Timothy McVeigh ignored substantial contrary evidence and violated basic conceptions of reality and common sense, but were believed by a large group (Dean, 1998, p. 8). As discussed below, conspiracies concerning the deaths of Osama Bin Laden and Princess Diana resonated despite the lack of accurate evidence to support the charge. Therefore, a theory that avoids a simple focus on merely form or facticity, but, rather, integrates a concern with form and other situational characteristics to explain resonance is necessary in order to explain the power of conspiracies.

A number of scholars have developed a more nuanced explanation of resonance based on a consideration of audience and situation, as well as form and facticity. For example, social psychologists point to a large number of possible causes for widespread belief in conspiracy: individuals are unable to use reason to understand complex situations; individuals seek confirmation with existing beliefs and reject information that contradicts already strongly held beliefs; individuals are easily persuaded by rumors and speculation; and, political group membership can skew beliefs in an extreme direction consistent with many conspiracy theories (Fenster, 2008, p. 18). Similarly, rhetorical scholars have focused on a variety of characteristics that help explain the resonance of a charge of conspiracy. Melley (2000) found the most pernicious conspiracy theories occurred in postwar cultures disenchanted with the government, and coinciding with widespread alienation (p. 185). Gil-White (2005) discovered that conspiracy theories almost universally "stipulate that the ruling elite is doing bad things in secret" (para. 33). Thus, the most powerful charges of conspiracy often tap into anti-elitism and thrive on fear. McGee (2011) argued that the propensity for public belief in conspiracy theory is dramatically increased by the quick spread of information through the Internet and news media (p. 63). These new media decrease the importance of facticity, because it is exceedingly difficult to distinguish between experts and non-experts on the Internet (Adamic et. al., 2008, p. 2). One result is that it is almost impossible for an average Internet user to determine whether a charge is true or false. Given the rapid spread of information through the blogosphere and the instant access to news, a contemporary charge of conspiracy has the propensity to spread quickly, and take on a life of its own. The choice by one writer to make an accusation of conspiracy creates a cascade effect, because "a lot of people will be directly influenced to use the term in precisely the same manner, and their

usages will influence others" (Gil-White, 2005, para. 3). In this case, the initial framing of Climategate as a conspiracy, particularly by sources cited in articles in widely read newspapers like the *New York Times*, shaped the way that the broader audience perceived the incident, because the content of these articles was "reproduced in many other news venues" (para. 3).

The primary deficiency of these rhetorical approaches is that they overlook the importance of the dialectic between accuser and accused for determining resonance. For example, each case study examines the dissemination and uptake of the charge, but ignores the response of those accused of committing conspiratorial acts. However, there are some cases when an effective response by the accused undercuts the resonance of the conspiracy charge. In *Rhetorical Criticism*, Black argued (1965) that one way to build theory is to identify underlying strategic characteristics that link genres, such as conspiracy rhetoric and audience response (p. 147). This insight suggests that previous case studies can be used to identify audience characteristics found in resonant conspiracy rhetoric. I have used such an approach to identify five strategic and functional characteristics defining resonant conspiracies. At first glance, it may seem as if social scientific methods offer the best approach for developing such a model. However, it is difficult with a purely social scientific approach to look at the underlying characteristics that link symbols and audience in a pragmatic fashion. In the case of conspiracy theory, where there is no recurrent situation, scholars must look at the complex relationship between audiences, symbols and environments. The goal is not to produce a theory, in the falsifiable sense; rather, it is to produce propositional anecdotal claims based on the problems, needs and constraints of conspiracy accusations (Simons, 1978, p. 26).

The existing literature suggests that several key factors should be considered in crafting a theory explaining the resonance of a charge of conspiracy. Specifically, an accusation of conspiracy is more likely to resonate if

(1) It fits with the form of conspiracy

(2) It taps into existing anti-elitism

(3) It is consistent with an existing ideology

(4) It is perceived as accurate and is based on a well-crafted narrative

(5) There is a poor rhetorical response from those implicated by the charge

This model is distinct from contemporary theories about conspiracy in two ways. First, its focus on the content of the accusation breaks from the Hofstadter tradition that was primarily concerned with formal characteristics of a conspiracy charge. Second, it emphasizes the multivariable and contextual nature of the resonance of conspiracy charges. Finally, it underscores the importance of the argumentative dialectic between accuser and accused.

In the next section I develop this model, focusing on the 4 non-formal factors as a starting point for outlining an emergent theory that explains why some conspiracy charges are likely to resonate while others are not.

Factors Present in Resonant Conspiracies

The pervasiveness of this Climategate charge was not a random occurrence; rather, the confluence of a constellation of factors added resonance to the charge. Climategate had all of the formal characteristics defining conspiracy, but also the situational characteristics that completed the constellation. In particular, it concerned an alleged truth hidden by elites, presented a narrative of an investigative reporter being punished by elites; and, suggested that any normal person with enough fortitude could uncover and interpret the evidence (Fenster,

2008, p. 9). However, unique interaction of anti-elitism, existing ideology, a well-crafted charge and a poor rhetorical response by those accused gave the charge of conspiracy in the case of Climategate particular resonance.

Anti-elitism

First, the accusation directly assaulted the elite establishment of climate science. The "day-to-day attacks on scientific integrity" (Young, 2011, p. 11) undercut the perceived neutrality of the scientific method and turned critical skepticism into the perception of outright fraud on the part of Climate Research Unit scientists. By framing climate science as "unassailable dogma" (Nerlich, 2010, p. 15), skeptics argued that elite scientists were not simply "ignoring scientific evidence" (Nerlich, 2010, p. 16), but also fraudulently manufacturing data to support ACC theories. "Intentionally illogical" (Young, 2011, p. 11) arguments against the ACC hypothesis (cold nights, large amounts of snowfall, etc.) that would have otherwise been viewed as mere personal commentary now were reported to call the whole scientific project into question. Climate deniers used the event as a justification to criticize and bypass peer review, while still attracting substantial media attention (Trenberth, 2011, p. 2). Representations of a corrupt cabal of climate scientists manipulating data to justify the ACC hypothesis consistently recurred. In the following months, the "links that [were] forged between climate change…and anti-elitism" were so outrageous that they "push[ed] the boundaries of acceptable journalism" (Young, 2011, p. 14).

Fenster (2008) presented a compelling case that influential conspiracy theories "share certain qualities" (p. 9), especially drawing on anti-elitist sentiments. Clarke (2002) agreed, noting, "conspiracy theorizing has long been favored by Populists, who are almost invariably anti-elitist" (p. 131). In concurrence, Vankin and Whalen (2004) chronicled the *80 Greatest*

Conspiracies of All Time, and found that, in nearly every instance, the most resonant conspiracy theories were based on suspicions about elites (p. 353).

A number of explanations for the power of anti-elitism have been developed. Goldberg (2001) found that conspiracies draw power by "reinforcing traditional American values" (p. 20) that are intimately skeptical of elite power. Wood, Douglas and Sutton (2012) claimed that anti-elitism acts as a "monological belief system" (p. 1) – a worldview so strong that it shapes other unrelated beliefs. For example, someone who believes in the 9/11 Truth conspiracy is also more likely to believe that elites covered-up the cause of Princess Diana's death because of a "view of authority as fundamentally deceptive" (p. 2). In some instances, this anti-elitism is so strong that it causes believers to agree with mutually contradictory conspiracy theories. One survey found that if a participant believed in the conspiracy theory that Princess Diana faked her death, the same participant was also likely to believe in the conspiracy theory that Princess Diana was killed by rogue British Intelligence – even though belief in both of these conspiracies is contradictory (p. 3). The same study found that if a participant believed in the conspiracy theory that Osama Bin Laden is still alive, the same participant was also likely to believe in the conspiracy theory that Osama Bind Laden had been dead for years (p. 3). The common thread supporting all of these "mutually incompatible" beliefs is "deception by officialdom" (p. 3). Corroborating these findings, Berlet (2009) identified a common thread among resonant conspiracy theories: an "individualistic populist anti-elitism which facilitates" (para. 40) the movement of conspiracy theories into the mainstream. Clearly, suspicion of elites adds to the resonance of many conspiracy theories. However, anti-elitism alone is not a sufficient condition for a powerful conspiracy theory.

Clearly, many anti-elitist conspiracy narratives fail to resonate. Moreover, some powerful conspiracies do not posit elites as corrupt or deceptive. For example, many anti-Semitic conspiracy theories are "notable and historically important" exceptions to the assumption that conspiracy theories are all based on "deceptive officialdom" (Wood, Douglas and Sutton, 2012, p. 6). Historically, theories of Jewish conspiracy have not focused on an elite or powerful group hiding information from the average citizen; instead, they have detailed attempts by a minority group to seize power from existing elites (p. 6). Given these counterexamples, it is important to consider additional factors that influence the resonance of a conspiracy charge.

Existing Ideology

Second, Climategate had the most significant effect on people who were already ideologically disposed to question the accuracy of climate science (Johnson, 2010, para. 7). The conspiracy charge was consistent with anti-science, anti-environment and conservative ideologies. Climategate took off precisely because of longstanding ideological differences (Leiserowitz et al., 2009, p. 10). Even prior to Climategate, issues surrounding global warming were intensely ideological (McWright & Dunlap, 2000, p. 499). The release of the emails, and the subsequent charge of conspiracy added fuel to the fire.

A conspiracy charge will be more likely to resonate if it is consistent with existing ideology. Melley (2008) hinted at this when he pointed to anti-Marxism in the United States as a possible explanation for the resonance of Chinese brainwashing conspiracies in the 1950's (p. 148). During this period, the cultural landscape of the United States was laden with anti-Chinese sentiment. Thus, the charge that the Chinese government was brainwashing civilians to support communism widely resonated because it was consistent with the

preconceived notion of Chinese as evil, corrupt and deceptive (Melley, 2008, p. 162). Pfau (2005) documented how "civic republican ideology" (p. 160) strongly supported the power of the individual to counter government structures, and thus shaped conspiracy discourse in the 19th Century. In each of these instances, conspiracies that were consistent with existing ideology were more likely to be believed than those that weren't.

There are several explanations for the resonance of a conspiracy charge that is consistent with existing beliefs. First, individuals expose themselves to information that "they tend to already agree with" (Fog, 1999, para. 4). Second, when individuals are faced with evidence that contradicts their beliefs, they often "rationalize their preformed opinions" (Fog, 1999, para. 4) in such a way that contrary evidence can be easily discarded. Just as anti-Chinese ideology helped support the salience of the brainwashing conspiracy theories of the 1950's, anti-science ideology makes the charge of conspiracy on behalf of climate scientists resonate much more powerfully (Gleick, 2011, para. 3,4). Political, national, cultural religious and economic ideologies all serve as powerful filters that limit the ability of individuals to process contradictory evidence and reach accurate conclusions based on the arguments presented.

Well-Crafted Narrative

Third, the conspiracy accusation was well crafted. At first glance, the emails seemed very damaging. The content of the emails seemed consistent with the charge of conspiracy (Nature, 2010b, para. 6). Claims of tricking and hiding were easily assumed to mean unscientific manipulation, while in fact this vocabulary was simply describing data manipulation consistent with the scientific process. The claims were particularly damaging to

perceptions of a non-scientific audience, unfamiliar with the exchanges typical in peer-reviewed science (para. 5).

Although ideology has a strong influence on the resonance of a conspiracy charge, a well-crafted narrative that portrays the charge as accurate is an important factor as well. In order to resonate, conspiracy theories must have a "kernel of fact" (Fenster, 2008, p. 33) that is often exaggerated to create a narrative of widespread collusion and conspiracy. For example, the fluttering of the flag on the moon was, for some, enough evidence to convince them that the moon landing never occurred (Wisnewski, 2007, p. 276). Based on this anecdote, conspiracy theorists crafted a narrative that portrayed the entire event as falsified. Other times, the lack of evidence is sufficient to create a believable narrative of conspiracy. For example, prior to the release of the long form birth certificate, one quarter of U.S. population had doubts about President Obama being "natural born" (Gallup, 2011, para. 4). In this instance, the absence of evidence was a primary factor motivating belief in the Birther conspiracy.

Rhetorical Response from Accused

Finally, the rhetorical response from climate scientists had a substantial effect on how the release and characterization of the emails was perceived by the public. The "sluggish" (Nature, 2010b, para. 3) response from researchers at East Anglia, as well as climate scientists more generally, failed to immediately contest the framing of the emails as conspiratorial. By the time the scientific community responded, the situation had been defined in the minds of many. Within a year, no longer was just the Climate Research Unit at East Anglia under attack, but the public was growing increasingly skeptical of the entire scientific process (para. 1). Once scientists did respond, they generally re-stated the accuracy of the data, in some

instances explaining the scientific jargon that was misquoted by the news media. For example, the University of East Anglia's (2010) official response emphasized that the temperature trends predicted by the CRU team "remained largely consistent" (para. 9) with data found by predictions made by other scientists. Similarly, the response noted that "temperature reconstruction from Tree Ring Analysis" (University of East Anglia, 2010, para. 10.1) and "Land Station Temperatures" (University of East Anglia, 2010, para. 10.2) were accurate. However, it wasn't "enough to explain the facts of climate change very, very clearly" (Nature, 2010a, para. 1), because those facts were perceived to be undercut by the conspiracy.

The resonance of a conspiracy ebbs and flows, and is greatly influenced not just by the charge of conspiracy, but also by the response that counters the claim. The Birther conspiracy is an important example. After a long period of "vocal criticism of Obama" for "withholding the document" (Morales, 2011, para. 3), Obama released his long-form birth certificate on April 27, 2011. Not only was the picture of the long-form certificate an effective rebuttal to the Birther conspiracy, but Obama crafted a rhetorically effective response by portraying the conspiracy narrative as an outgrowth of extreme partisanship:

> We're not going to be able to do it if we spend time vilifying each other. We're not going to be able to do it if we just make stuff up and pretend that facts are not facts. We're not going to be able to solve our problems if we get distracted by sideshows and carnival barkers. (Obama, 2011, para. 8)

A Gallup (2011) poll taken just eight days later found that "Obama's release of his long-form birth certificate…significantly reduced skepticism about his place of birth" (para. 5). This drastic change of opinion occurred across all political groups, regardless of pre-existing

ideology. In this instance, the charge lost resonance because the response effectively persuaded believers that the conspiracy was inaccurate.

Each of the aforementioned factors--anti-elitism, consistency with existing ideology, perceived accuracy of the narrative, and a poor rhetorical response from the accused--influence the resonance of a charge of conspiracy. However, all factors need not be present for a conspiracy theory to resonate to some degree. The five factors function alongside the paranoid style as what Campbell and Jamieson (1978) called a "constellation" of characteristics defining a genre. As the Bin Laden and Princess Diana conspiracies illustrate, some believers accept mutually contradictory positions if they have an extremely strong distrust of those in power. Therefore, anti-elitism is especially important. The stronger the anti-elitism, the *more likely* the narrative will be perceived as accurate. If the charge is consistent with existing ideology, then a believer may be *more likely* to view the response from the accused as a poor response, even if it is factually accurate. Similarly, the weaker the rhetorical response, the *more likely* the charge will be perceived as accurate. Moreover, this set of factors has a cumulative effect. If all factors are present, the charge of conspiracy can be especially powerful. Importantly, this model does not treat resonance of a particular charge as static. Rather, the resonance is largely contingent on the dialectic between accuser and accused. Although all of the factors need not be combined with the paranoid style in any case, the presence of all or most of them substantially increases the likelihood that the conspiracy charge will resonate. The goal is not merely classificatory; rather, "discourse formulations or constellations of strategies…provide us some security that an utterance will end in a predictable way" (Schryer, 2002, p. 95). In making this claim, this essay moves one

step closer to an understanding of conspiracy as a genre of rhetoric, not merely a rhetorical form.

The Leaks and Response

The Climategate scandal offers a particularly telling example of the rhetorical influence of the charge of conspiracy, because the accusation tapped into anti-elitism, was consistent with a strong ideology of skepticism towards climate science, was a well-crafted story and was met with a poor response from climate scientists. In this section, I first discuss the release of the Climate Research Unit emails. Second, I analyze the response in the news media and the blogosphere, emphasizing which emails consistently show up throughout different articles as so-called proof of widespread conspiracy and collusion. Finally, I trace the response of the climate science community to show why it was ineffective.

On November 19th, 2009, an anonymous hacker released over 1,000 emails exchanged between international climate scientists onto a server in Tomsk, Russia. Further analysis determined that these emails were selectively chosen and disseminated to give the "impression of impropriety" (Hickman, 2009, para. 3), conspiracy and collusion among climate scientists. Shortly after the post, the emails that negatively portrayed climate scientists became widely publicized, but the messages and works that established the integrity of the scientists were not reported (Revkin, 2009a, para. 9). On November 20th, only one day after the release, Andrew Bolt (2009), a conservative columnist at Melbourne's *Herald Sun* and Sydney's *Daily Telegraph* and author of the most widely-read political blog in Australia, published a selection of the emails that suggested "conspiracy, collusion in exaggerating warming data, possibly illegal destruction of embarrassing information, organised resistance to disclosure, manipulation of data, private admission of flaws" and "much more" (para. 2).

This article highlighted a select few of the large set of emails, which then became the most commonly cited by further reports by blogs and the news media.

For example, one email that was repeatedly cited in the news was sent by Phil Jones, a professor of Climatology. He noted a "trick of adding in the real temps" to "hide the decline" in temperatures (Bolt, 2009, para. 1). Another, sent by Kevin Trenbeth, the head of the Climate Analysis Section at the USA National Center for Atmospheric Research, asked:

> [W]here the heck is global warming ? We are asking that here in Boulder where we have broken records the past two days for the coldest days on record. We had 4 inches of snow...The low was about 18F and also a record low, well below the previous record low. (Bolt, 2009, para. 10)

Noting evidence of "conspiracy" and a "huge scandal," Bolt cited the following comment by Tom Wigley, a climate scientist at the University Corporation for Atmospheric Research (a nonprofit consortium of universities with graduate degrees in atmospheric sciences): "we probably need to say more about this. Land warming since 1980 has been twice the ocean warming — and skeptics might claim that this proves that urban warming is real and important" (Bolt, 2009, para. 13). In a subsequent email, Wigley hoped to "reduce the ocean blip" (para. 22)--a statement interpreted as a manipulation of climate data to meet ideological ends.

The charge of conspiracy extended farther than just manipulation of data within this single research unit. Bolt (2009) argued that an email by Jones implicated the entire peer-review process:

> The other paper by MM is just garbage – as you knew. De Freitas again. Pielke is also losing all credibility as well by replying to the mad Finn as well – frequently as I see

> it. I can't see either of these papers being in the next IPCC report. Kevin and I will keep them out somehow – even if we have to redefine what the peer-review literature is! (para. 24)

After further summarizing emails, Bolt (2009) concluded that these emails show clear evidence of the "largest" (para. 20), "most extraordinary" (para. 20) and "most disgraceful" (para. 20) "conspiracy" (para. 2) (a term used seven times throughout the article) in the history of modern science.

Since this article was one of the earliest and most widely read, Bolt's arguments significantly shaped the following public discussion. The snippets publicized and summarized by Bolt "went viral" (Trenbeth, 2011, p. 1) and became the "jewel in the crown for conspiracy theorists" (Pearce, 2009, para. 8), given that they were rhetorically powerful, ideologically driven, and largely devoid of context.

This ideologically driven expose gained public attention. On November 28th, Frank Furedi (2009) continued the charge of conspiracy theory in an article published in *The Australian*:

> Climate-change alarmists…live on conspiracy theories. They tell stories of hidden forces that are sinisterly subverting the real science. They use the language of the Inquisition to stigmatise their opponents, labelling [sic] them deniers, suggesting they are lying about something they actually know to be true. Climate-change alarmists always allude to the story behind the story and to the hidden agenda of allegedly oil-funded deniers rather than face up to substantive arguments about the politics of climate change. (para. 5)

A November 28th, 2009(b) article by Andrew Revkin in the *New York Times* noted "evidence of conspiracy to stifle dissenting views and withhold data from public scrutiny" (p. 8). The same day, an article in the *New Scientist* claimed that the "emails expose a conspiracy at work to make human-induced global warming a fact" (p. 5). An *Investor's Business Daily* (2009) article titled "Climate Con Job" claimed that the scientists appear "guilty of fraud" (p. A10) and that these emails show "attempts to conspire" (p. A10).

Within one month, a narrative of a "global conspiracy" (Radford, 2009, para. 1) based on fabricating the science supporting the ACC hypothesis had gained power. Emails that implicated a handful of climate scientists at the Climate Research Unit had been framed and re-defined to prove a vast and wide-reaching climate conspiracy. This conspiracy now threatened the public's perception of climate science in totality. Even Google was charged with conspiring to hide the buzz in the news and blogosphere surrounding the leaked emails (Delingpole, 2009a, para. 1). Although previous scientific disagreements over the ACC hypothesis had received some public attention, Climategate was unique in its lasting and pervasive impact on public opinion. The immediate effect of the media coverage left over half of polled viewers less trustworthy of climate scientists (Leiserowitz et al., 2009, p. 6). Leiserowitz (2012) found that 13% of on-the-fence Americans reduced trust in climate science, despite the fact that scientists were cleared of wrongdoing (as cited in Bagley, 2012, para. 9-10).

Equally as important as what *was* said by climate scientists, is what was *not* said in response. During the week following the release of the hacked emails, defenses of the Climate Research Unit research practices were few and far between. Although RealClimate.org (2009) published a criticism of the blogopshere for choosing "out-of-context

phrases" (para. 7), little was done to dismiss or answer the charge of conspiracy. Moreover, liberal and environmental websites had little success in spreading their messages outside of their reader base, the group of the public that was already least likely, because of ideological pre-dispositions, to be persuaded by charges of conspiracy on behalf of scientists (Pearce, 2009, para. 5). Consequently, the media ran with the charge of conspiracy theory, and the frame created in the immediate aftermath of the release was overwhelmingly skeptical of the entire project of climate science.

The lack of media coverage can be partially blamed on the non-response from the Climate Research Unit and their scientists. Indeed, the silence from the University of East Anglia was deafening. In the nearly three weeks following the release of the emails there was a "failure of the University of East Anglia to respond substantially to the avalanche of invective from climate skeptics" (Pearce, 2009, para. 15). Possibly because of the non-falsifiability of the charge, they found that the language of science was incapable of contesting the charge of conspiracy theory with statements of proof. Historically, scientists have been reticent to translate scientific findings into lay discourse, instead choosing the comfort of the laboratory over entering a public discourse sharply divided by anti-intellectualism and partisanship (Madsen, 2007, p. 166). Although there are notable counterexamples (e.g., the debates concerning the link between CFC consumption and ozone depletion in the 1970s and 1980s), scientists have found their discourse does not suit the public sphere. To make matters worse, "even environmental campaigners kept quiet – ostensibly because it was up to scientists to defend their own" (Pearce, 2009, para. 21). However, it was not just the East Anglia scientists whose reputations were at risk; the charge of conspiracy threatened to undercut the scientific consensus. "Noticeably absent" from the

response was a defense of the "scientific method (including reproducibility), research integrity and ethics, open minds and critical thinking" intrinsic to scientific endeavors (Hui, 2009, para. 5). This silence created a "PR disaster" (Pearce, 2009, para. 15) that "undermined the reputation" (Radowitz, 2010, para. 1) of both the institution and denied science more broadly.

Although the scientists continued their silence, assuming that the facts could stand up for themselves, the media director at Greenpeace UK stated that the "damage [was] being done in newsrooms" (Pearce, 2009, para. 31). Even when the scientific jargon was explained and defended, missing from these defenses was an explicit answer to the charge of conspiracy. The facts of the emails mattered, but the PR debate was decided. A spokesperson for a leading environmental organization, wishing to remain anonymous, stated that "the e-mails represented a seminal moment in the climate debate of the last five years, and it was a moment that broke decisively against us. I think the CRU leak is nothing less than catastrophic" (Pearce, 2009, para. 40). Although science qua science may be sufficient for environmental scientists, environmentalists were frantically concerned about the effect that the news reports of conspiracy would have on the upcoming Copenhagen negotiations and subsequent congressional legislation needed to limit emissions in the United States (Roug & Grieve, 2009, para. 1).

Ultimately, the widespread perception that the Climate Research Unit engaged in conspiratorial practices played "a role in the debate over global warming legislation, both in Congress and in California" (Baker, 2010, para. 8). Given that elected officials create environmental policy, public disbelief in climate science makes substantial regulation extremely unlikely. Myron Ebell, the director of energy and global warming policy for the

Competitive Enterprise Institute, posited that "the scandal" "made the opponents of energy-rationing legislation stronger and more confident," which undoubtedly had a negative effect on those hoping to achieve progressive environmental gains (para. 9).

This is not to imply that even a perfect response from the scientific community would have eliminated the resonance of the conspiracy charge among the broader public. Jamieson and Capella (2010) compellingly argued that conservative media insulate audiences from the evidence in ways that make "Democratic views seem alien and unpalatable" (p. xi). Thus, conservative media outlets may have ignored even the strongest rebuttals defending ACC theories. Moreover, Climategate was influenced by a larger historical-political context that was already calling climate science into question. During the previous three decades, industry and the conservative political movement had joined forces to sponsor "think tanks" (Buell, 2003, p. 299) that helped "midwife the creation of antienvironmental counterscience" (Buell, 2003, p. 300). Although Climategate was unique because of the narrative of conspiracy, it was consistent with the trend of skepticism of ACC theories in popular consciousness.

Climategate is a strong example supporting the view that an interaction of a few key factors makes a conspiracy charge more likely to resonate. This example should direct scholars away from solely looking at facticity or formal characteristics when analyzing conspiracy theories. Instead, a broader critical approach that accounts for anti-elitism, existing ideology, the perceived accuracy of the narrative and the rhetorical response in defense of the accused should be pursued. In the final section, I discuss the theoretical implications of these findings.

Conclusion

Climategate represented a uniquely difficult challenge for climate scientists. Although previous disagreement in the field had focused on scientific uncertainties, anti-global warming commentators used the release of the emails to make a much stronger charge: an accusation of conspiracy and collusion. Several scientific investigations found no wrongdoing by the climate scientists. However, because the Climategate accusation called into question the viability of the entire scientific method, a response of scientific certainty was insufficient to reverse public opinion. Consequently, the charge of conspiracy stuck, and continued to influence public opinion even after exoneration. Following the scandal, a large portion of the public altered their perspectives, viewing both climate science and climate scientists as less credible than before. Well over one year following the Climategate conspiracy accusation, Ray and Pugliese (2011) found that nearly half of polled U.S. adults continued to attribute "global warming to natural causes" (para. 2). Beyond illuminating this sequence of events, this case study has substantial theoretical implications for understanding the relationship between conspiracy theories and the public sphere, as well as practical implications for developing a rhetorical defense of climate science.

This essay suggests two conclusions concerning the relationship between conspiracy theory and the public sphere. First, Climategate reveals several core threats to the public sphere and democratic governance. Since Hofstadter, accusations of conspiracy have moved from the margins to the center of political discourse. Because conspiracy accusations are a regular component of public debate, it is unhelpful for rhetorical scholars to discard them as irrational or paranoid.

This conspiracy theory was particularly resonant because it had a potent mix of complex scientific information, conservative ideology, powerful interest groups that take a propagandistic approach to science, and anti-intellectualism. However, Climategate is just one example of the challenges facing advocates of rational deliberation in contemporary political discourse. Too often, especially given the rising influence of the Internet, the ideological nature of political discourse in the United States and enormous industrial influence of some media outlets, reasonable arguments fail to persuade. Because of the complex nature of scientific arguments, critics may influence public opinion by merely demonizing scientists instead of making rational arguments. Instead of inserting a level of healthy skepticism into a policy debate, contemporary conspiracy theories are often manufactured by anti-intellectuals to ignore well-established facts. These problems are magnified when ideological issues like climate change, health care and tax policy are debated publicly and filtered through media groups that have more fidelity to their political ideology than accuracy.

Despite these constraints on rational political discourse, scientists should not abandon the use of public argument to achieve policy change. Quite the contrary, it is precisely because of these constraints that climate scientists must publicize their specialized knowledge to counteract the uninformed dogmatism that carries such influence in the climate debate. By finding a way to break up the *constellation*, they may undercut the resonance of the conspiracy narrative. Second, Climategate offers compelling evidence that the resonance of a charge of conspiracy is tied to more than simply its relationship to facticity; rather, it is linked to a broader constellation of factors. As well as being perceived as accurate, successful charges of conspiracy often tap into anti-elitism, are consistent with an existing ideology, are

based on a well-crafted narrative that is perceived as accurate and are countered with an ineffective rhetorical response. Therefore, it is necessary to utilize more than just debunking strategies when countering an accusation of conspiracy. Groups charged with protecting the lives of citizens, and the environment of our planet, must be armed with not only fact, but with the rhetorical tools to explain and defend these facts.

In addition to highlighting the tension between conspiracy accusations and rational deliberation, this essay suggests a possible template for developing a rhetorical defense of climate science. Climate science itself is under attack, but scientists have been trained to not lend "false seriousness to far-fetched claims of research skullduggery and corruption" (Nature, 2010b, para. 3). This is unfortunate since the strategy of silence allows one side to frame the debate. An "intervention" is necessary to "redirect the lines of authority" influencing climate change communication in the public sphere (Cox, 2010, p. 130).

Solutions to global warming, "being mostly preventive innovations" present a particularly difficult "communication challenge" (Thakadu, Irani and Telg, 2011, p. 84). In response, scientists should craft an alternative narrative, or "new social vision" (Brulle, 2010, p. 93), to break up the constellation of generic traits defining ACC as a conspiracy. For example, engaged scientists can help overcome the assumption that the scientific community is elitist by translating esoteric academic discourse into lay terminology. Moreover, scientists can work to transform skeptical ideology by using "vivid, understandable, believable, interesting, and personally meaningful" (Moser & Dilling, 2004, p. 41) persuasive messages. In specific instances of conspiracy accusations, scientists can undercut the perceived accuracy of the charge with a well-crafted rhetorical response in defense of those implicated by the charge.

Preparation is the key; rhetorically trained scientists will be essential in combating future potentially lethal conspiracy theories. Scientific discourse, which relies on falsifiable proof to argue, may be incapable of disproving the charge of conspiracy absent a more rhetorically centered approach. Therefore, a response to the charge of conspiracy based on a fusion of scientific and rhetorical theories may be much more effective than a focus on scientific accuracy alone. In other words, scientists need to be better rhetoricians.

Scientists must be willing to not just let the facts stand for themselves. ACC theories must be defended rhetorical and criticisms must be combatted. Producing an inducement to action among the public will require more than just engagement on the part of scientists, but will demand a rigorous examination of which rhetorical tactics are the most effective in persuading the public. In fact, "more effective communication of climate change's urgency…can help bring about…public understanding of, and civic engagement with, the issue" (Moser & Dilling, 2004, p. 34). Unfortunately, the scientific community has avoided persuasive rhetoric in favor of descriptive and neutral language because scientific training emphasizes sticking strictly to the facts. An effective response must be immediate, because the charge may develop a resonance absent a response; and, focused not merely on facticity, but also on the underlying conspiracy narrative. These requirements for an effective response have become even more important in the Internet age because of the speed with which accusations can spread, and the decreased importance of who makes the charge. Although not every accusation of conspiracy will induce such a substantial public reaction, scientists should approach future situations with a radically different response than was used in this case. Climate scientists must understand that although facticity does influence the resonance of

conspiracy theories, proving the accuracy of science is necessary but insufficient to influence public opinion.

Chapter 3 – Feigning Environmentalism: Anti-Environmental Organizations, Strategic Naming and Definitional Argument

Introduction

Following *Silent Spring*, Rachel Carson's 1962 treatise against the use of harmful pollutants, the US public developed stronger support for general environmental values, trust in environmental science and support for environmental regulation (Lutts, 1985, p. 211). These attitudes facilitated the growth of grassroots environmental organizations, the development of not-in-my-backyard [NIMBY] protests, anti-globalization sentiment and a wilderness movement devoted to protection and conservation of natural resources (Dunlap & Mertig, 1992, p. xi). However, this pro-environmental majority faced a powerful opposition. Anti-environmental[1] think tanks, with strong industrial ties, were created to diffuse burgeoning demands for regulations and reverse the "support for environmental protection" (Jacques, Dunlap & Freeman, 2008, p. 351).

Faced with these pro-environmental attitudes, anti-environmental groups believed that they could not visibly attack the environmental movement per se, but still needed to develop persuasive strategies to prevent environmental regulations. One such strategy was to pretend to support the environment by *naming* themselves with terms that are commonly associated with environmental causes. A second strategy was to *define* their message as mainstream and driven by scientific consensus. By defining limited government intervention and de-regulation as mainstream and re-defining pro-environmental policies as unscientific and anti-growth, anti-environmentalists muddied the divide between progressive environmentalism and conservative opposition. These mutually supportive strategies enjoyed great success--as scientific consensus supporting anthropogenic climate change [ACC] theories became

[1] The term "anti-environmental" is chosen to acknowledge the environmental implications of the beliefs held by these organizations. It is not meant to imply a hatred for the environment.

stronger, the public's belief that climate science was uncertain and fractured increased as well. Moreover, as the case for environmental regulations became stronger, public support for stringent environmental regulations declined.

In this essay, I argue that one explanation for declining support for ACC theories and progressive environmental regulation is that industrial interests used persuasive strategies of naming and argument by definition to co-opt the mainstream environmental message, breeding perceptions of inconsistency, skepticism and contrarianism. More specifically, anti-environmental think tanks used names (e.g., The Heartland Institute, Citizens for the Environment, Global Climate Coalition, National Wetlands Coalition, Greening Earth Society, etc.) that created the perception of environmental friendliness while subtly manipulating public and political opinion to endorse anti-environmental messages. Moreover, these anti-environmental think tanks redefined mainstream environmentalism to be consistent with their goals. These strategies of naming and definition allowed anti-environmentalists to question climate science, portray fringe environmental theories as mainstream, undermine widely supported scientific theories and degrade support for progressive environmental regulations.

I develop this argument in three sections. First, I discuss rhetorical theories of how naming and definition influence audiences. Second, I examine the naming strategies of industrially funded anti-environmental think tanks. I attempt to evaluate the validity of the definition by exposing the motives influencing the definition and linking the definition to anti-environmental publications and reports. In particular, I use the Heartland Institute as a representative anecdote for analyzing the strategies of subtle co-optation used by broader

opponents of environmental regulation. Finally, I conclude by discussing the implications of this rhetorical strategy.

Naming and Definition – What's at Stake?

Central to understanding the effectiveness of persuasive strategies used by anti-environmental organizations is a broader analysis of theories of naming and definition. Although there is substantial overlap in these two bodies of literature, I use them to make two distinct arguments. First, the act of organizational *naming* can be extremely powerful. I argue that this single act does not merely create a neutral label, but plays an integral part in shaping and broadening the meaning of subsequent anti-environmental messages. Second, argument by *definition* amplifies the power of naming and directs the audience to believe that anti-environmental organizations actually support environmental sustainability. Definitional strategies create frames that foreground specific messages, while intentionally backgrounding others. For anti-environmental organizations, understanding the combination of these two strategies is uniquely revealing.

Naming plays an epistemologically important societal function. The act of naming is both a representation of attitude and an attempt to change "the attitudes of others" (Burke, 1937, p. 4). Thus, a name is not a neutral or objective simplification of "reality" (p. 4), nor is it merely a categorization. Rather, it suggests what the named is "for or against" (Burke, 1937, p. 4). It is a necessary condition for "relational thinking" (Rueckert, 1994, p. 12)--differentiating and placing. Cameron (1999) agreed, "names are a culture's way of fixing what will actually count as reality in a universe of overwhelming, chaotic sensations, all pregnant with a multitude of possible meanings" (p. 10). Although the "magical decree is

implicit in all language," the "strategic name" exhibits particularly powerful persuasive capacity (Burke, 1973, p. 4). Moreover, the act of naming is often a "political exercise" (Martin, 1991, p. 83) with implications for public policy that are worthy of both practical and ethical considerations. For corporations, naming is a "highly strategic undertaking to drive the…name as a weapon in the marketplace" (Javed, 1997, para. 10).

Although it has long been accepted that the act of naming serves a strategic purpose, names are often times assumed to be benign. For example, Sharer (2001) began her investigation of organizational names from the presumption that they were "proper names" that were "synecdochic structures" that stood "in for the larger arguments informing the collective identification of the group" (p. 234). Seen from this perspective, an environmentally friendly name would label an organization that supported a pro-environmental agenda. In agreement, Stewart, Smith and Denton (1984) and Mottl (1980) argued that names are used to represent the goals of organizations. However, these assumptions ignore that the act of naming can be a deceptive practice as well. Fearing this deception, Burke (1973) noted that the job of the rhetorical critic is to discuss and test whether the "naming" is "the closest possible approximation" to the object being named (p. 4). Therefore, the rhetorical critic must examine ideological differences between name and discourse.

It should be clear that the act of naming has substantial influence on the image of a particular organization. However, this act is just one part of a broader persuasive strategy used by anti-environmental organizations. In addition to using names that hid their anti-environmental message, several organizations defined themselves as mainstream, and redefined existing mainstream environmentalism to be alarmist and based on fringe scientific

beliefs. The theoretical support for the influence of argument by definition is discussed below.

Burke (1935) introduced the concept of argument by definition by criticizing the supposed distinction between rhetoric, which was seen as "synonymous with falsity," and definition, which was conventionally viewed as "strict," "ideal" and more representative of the truth (p. 55). To Burke, this distinction was futile; instead, the attempt to proclaim "scientific" (p. 58) definition as objective language was the source of much discontent. Using this foundation, theories of argument by definition have significantly developed in the last two decades.

Argumentation and Advocacy's special edition (1999) on "Definitional Argument" provided substantial theoretical revision and progress to an already rich tradition. Titsworth (1999) found that Clinton's definition of "disability" (p. 171) in the Individuals with Disabilities in Education Act exemplified how ideology can influence definition even when such naming is seemingly benign. Broda-Bahm (1999) argued that defining environmental problems as security concerns is not a neutral or objective truth claim, but rather manipulates and directs the audience to a specific mindset. Placing primary influence on the role of the definer, Zarefsky (2006) centered the debate on persuasive intent by stating that by using definition, rhetoricians are really providing an "implicit argument" (p. 404) through "strategic maneuvering" (p. 409).

These studies, generally, focused on definitions as frames for arguments. For example, Titsworth (1999) stated that definition is a "starting point for arguments" (p. 171), and Mcgee (1999) agreed, noting that definitions are "the points at which many arguments begin" (p. 141). Zarefsky (2006) pointed to specific instances in which persuasive

definitions were created: social insurance as "Social Security," the blockade of Cuba as "quarantine," Reagan's choice to name the MX missile the "Peace-keeper," etc. (p. 404). Schiappa (2003) noted the "domestication" (p. 132) of objectionable terms like "nuclear weapons, strategy and war" (p. 135) through metaphorical definition, as particularly capable of manipulating an audience.

Given the propensity for sophistry in argument through definition, two correctives have been proposed that endeavor to reveal and elucidate such tactics. First, Zarefsky (2006) proposed that rhetorical scholars should attempt to evaluate the *validity* of arguments made in definitions. Thus, in order to determine whether a definition produces "fallacious" (Zarefsky, 2006, p. 415) argument, a scholar must look past the definition itself, to the arguments made or frames supported by that definition. In this way, rhetorical scholars integrate both descriptive and normative tools into definitional theory, and empower the public to perceive the "strategic maneuvering" (Zarefsky, p. 409) present in all definitional strategies. Second, Walton (2001) argued that rhetorical scholars should link definitional strategies to motive, and center analysis on whether that motive is *ethical* (p. 123, 126). In practice, these two correctives are extremely similar. For example, a definition that is intentionally deceptive under Walton's model would also be flagged under Zarefsky's approach as being invalid, insofar as the definition does not align accurately with the resultant frames or argumentative strategies. In this essay, I use a combination of these two methods, focusing *both* on the motive determining the naming of anti-environmental organizations, and on the validity of the arguments made in their publications and reports.

The growth of industrially funded anti-environmental organizations was "central to the reversal of US support for environmental protection" (Jacques, Dunlap & Freeman, 2008, p.

351). Strategic naming and argument by definition greatly increased the influence of anti-environmental messages used by industrially funded organizations. Importantly, these two strategies worked effectively in combination. For anti-environmental organizations, the initial act of naming co-opted the environmental message. Subsequent arguments by definition, particularly defining industrial demands as "mainstream" environmentalism, reinforced the co-optation strategy and eliminated the distinction between progressive environmentalism and environmentally harmful industry. Even when espousing anti-environmental messages, this act of definition directed the attention away from their unpopular arguments.

In the next section, I focus on the specific strategies of the anti-environmental organizations, analyzing closely the naming strategies and definitional arguments made by The Heartland Institute. Finally, applying an interwoven theory of naming and definition scholarship, I discuss the implications of these strategies.

Rhetorical Strategies of Anti-Environmental Organizations

Following *Silent Spring*, a "significant shift occurred in the American perception of nature and the environment: ecological health became directly linked to human health, and a broad public sentiment arose that government" should "actively enforce environmental regulations" (Levy, 2010, p. 1). In the face of the support for environmental protection, industrial interests were forced to respond:

> Corporate America formed unprecedented alliances and set up industry groups and disguised front groups to regain its lost legitimacy and to ensure that its viewpoint dominated discussions of and action about environmental issues…Corporate strategies for regaining lost ground…included a host of subtler, indirect media tactics to

> influence public opinion, tactics which received the name 'greenwashing.' (Buell, 2003, p. 297).

Industry and the conservative political movement joined forces to sponsor "think tanks" (Buell, 2003, p. 299) that helped "midwife the creation of antienvironmental counterscience" (Buell, 2003, p. 300). These "fake grassroots movements" (Johnson, 2009, para. 1) were developed to manufacture mail campaigns and fake crowd protests to oppose environmental regulations (Johnson, 2009, para. 7).

Upon inception, these anti-environmental think tanks were faced with an important naming decision: on one hand they needed to distinguish themselves from the progressive environmental movement, but on the other hand they could not explicitly attack environmental values, because that would cut too hard against the grain of public sentiment. Thus, many chose to adopt the language of the environmental movement in their names, hoping to simultaneously subvert the environmental cause and to not be identified as overtly anti-environment (Zald & Useem, 1987, p. 259).

Several industrial organizations strategically named, or renamed, their think tanks. The American Petroleum Institute, the lobbying arm of many large fossil fuel companies, organized rallies under the name "Energy Citizens" to oppose progressive climate regulation. It "claimed to be made up of tens of thousands of 'grassroots activists'" (Jerving, 2012, para. 14) and defined itself as a movement of the "general public" (Jerving, 2012, para. 16). However, this "faux-grassroots" group, despite its name, "curiously lacked many citizens" and consistently lobbied against progressive environmental regulations (Hacker & Pierson, 2010, p. 144).

The Citizens for the Environment (also referred to as Concerned Citizens for the Environment) was created, not by an indigenous grassroots uprising, but with "lavish corporate funding" (Press, 2012, p. 187) from Koch Industries (Diamond, 1996, p. 168). It was developed to actively oppose the federal Clean Air Act and regulations at the state level as well. To do so, it published research advocating free-market environmentalism, considering acid rain a myth and supporting the "total deregulation of business" (Weinberger, 2005, p. 114). Despite its name, an investigation by the *Pittsburgh Post-Gazette* found that it had "no citizen membership of its own" (as cited in Press, 2012, p. 187).

In another act of "corporate camouflage" (Hightower, 1996, para. 1), "oil drillers, developers and other corporations that want[ed] to drain America's wetlands" (Hightower, 1996, para. 2) created The National Wetlands Coalition. This Wise Use organization "appropriated green discourse" to "*fight* the Endangered Species Act--unquestionably one of the greatest legislative victories of the environmental movement" (Peeples, 2005, p. 2). The National Wetlands Coalition "mimicked" the "mainstream" environmental organizations to hide that it was a client of anti-wetlands corporations (Bantjes, 2007, p. 260).

Specifically developed to oppose climate regulations, The Global Climate Coalition was "financed by fees from large corporations and trade groups representing the oil, coal and auto industries" (Revkin, 2009a, para. 5) to breed perceptions of uncertainty about climate science. For "more than a decade" (Revkin, 2009a, para. 1), the Global Climate Coalition "conducted a multimillion-dollar advertising campaign challenging" (Revkin, 2009a, para. 6) the Kyoto Protocol. Similarly, The Western Fuels Association underwrote The Greening Earth Society to promote the idea that there was significant scientific doubt about the link between carbon pollution and climate change.

Examples of this strategy abound: The Environmental Conservation Organization, The Wilderness Impact Research Foundation, The Alliance for Environment and Resources, The Alliance for a Responsible CFC Policy, etc.--all environmental sounding groups that in fact served industrial interests. Conservative anti-environmentalism is filled with organizations funded by anti-environmental interests that deceptively name themselves as green sounding. This naming strategy allowed industry to "attribute their own lobbying successes to the 'grass-roots' groups," providing them with an opportunity to falsely claim that their anti-environmental messages were supported by the broader public (Helvarg, 1995, para. 9). However, "pull back the drapes on this movement" and you will find "backers from the corporate sector and the political right," hoping to question environmental science, limit governmental environmental regulation and shed skepticism on even the *existence* of any environmental problems (para. 2).

This approach of strategic naming was supplemented with a redefinition of environmentalism and acceptable environmental science. After naming themselves with environmentally friendly terms, anti-environmental organizations often took subsequent steps to co-opt the environmental message. In particular, they "packaged and repackaged [themselves] in different forms for different audiences and plugged into a complex infrastructure developed for effective public presentation" (Buell, 2003, p. 300). By defining themselves as mainstream and based on sound environmental science, anti-environmental organizations "obscur[ed] several crucial differences" (p. 300) between themselves and legitimate climate science. By adding "the appearance of objectivity" (p. 302) anti-environmental think tanks provided the necessary ammunition to refute scientific consensus on a range of environmental concerns.

In the remainder of this essay, I analyze The Heartland Institute as a representative anecdote for strategic naming decisions and arguments by definition employed by this group of anti-environmental organizations. I focus on The Heartland Institute because it offers a window to "the political upheaval taking place in the United States" (Tollefson, 2011, p. 440) and helps to explain how global warming skeptics are winning over the public. First, I trace the history and composition of The Heartland Institute, centering on its choice to define itself using the trope of the heartland. Second, I look at its argumentative strategies, determining its influence on public opinion and environmental policy. In this way, I link definition with argument – endeavoring to determine the validity of the propositions forwarded by the environmental countermovement.

The Heartland Institute as Representative Anecdote

The Heartland Institute was founded and has been operating continuously since 1984 (Heartland, n.d.b, para. 1). Since 1984, The Heartland Institute has served as a conservative education organization, publishing on a wide variety of topics: tobacco, health care, education and the environment. During the 1990s, it was the central source of information for Phillip Morris' pro-tobacco campaign (Vance, 2009). It currently maintains over twenty websites, sends members to testify before Congress, hosts conferences and produces six monthly publications. Although the Heartland Institute has historically written on a plethora of social and political issues, much of its scholarship in the early 21st century has focused on environmental de-regulation and questioning the science behind ACC theories. It has produced millions of documents questioning climate science and has widely disseminated them to people of political importance across the United States (Tollefson, 2011, p. 441).

Despite repeated attempts at personal correspondence with its Communications Director, it has not disclosed the factors that went into its naming decision. However, context provides some clues. The Institute was founded during the end of Reagan's first term, as there was a burgeoning "backlash from the general public" to Reagan's rollback of environmental protections (Jacques, Dunlap & Freeman, 2008, p. 353). At this time, "conservative activists learned it was unwise to attack environmental protection directly" given that Americans were "supportive of environmental protection and [saw] it as a governmental responsibility" (McCright & Dunlap, 2000, p. 108). Thus, anti-environmental groups developing during this period were constrained by public sentiment, and often chose to subtly name themselves so as not to be perceived as openly anti-environmental. The choice of the term "Heartland" fits as a response to these limitations.

The term "Heartland" originates from European texts produced in the early 1900s, and represents the geographical space between watersheds (Rundstrom, 2006, p. 71). Once in wide use in the United States, the term began to carry the connotation of pristine landscape, "the location of enduring American traits" (Rundstrom, 2006, p. 72), the breadbasket of the United States. The term "Heartland" is both a geographical space at the center of the United States, and a "psychological" space where the "bullion of the American dream lies" (Jackson, 2009, p. 38). The term evokes imagery of untouched and pristine environmental landscapes that are central to the region or nation, thus deserving of protection.

Importantly, the term heartland is closely linked to rural America. The "pastoral ideal" has historically been used as a "powerful metaphor" in both literary and public spheres (Marx, 1964, p. 4). It has retained "significant force" (p. 4) because of its appeal to native imagination, sentimental values and natural environmentalism:

> Movement toward such a symbolic landscape also may be understood as a movement away from an 'artificial' world…this impulse gives rise to a symbolic motion away from centers of civilization toward their opposite, nature, away from sophistication toward simplicity, or, to introduce the cardinal metaphor of the literary mode, away from the city toward the country. (p. 9-10)

The term "heartland" fits with this desire for the natural, pristine and uniquely American environment. A passive observer would likely assume that an organization named as in support of the "heartland" would support the protection of the environment. However, for the Institute, the choice to incorporate the term "Heartland" hid its anti-environmentalism and allowed it to camouflage itself with the discourse of the environmental movement. In doing so, it avoided public backlash, while achieving status as a reputable and non-biased source of environmental information.

Although the naming allowed The Heartland Institute to remain perceived as environmentally supportive, subsequent definitional arguments made this strategy extremely effective. In what follows, I analyze newsletters and policy documents from the Heartland website to determine the strategies the Institute used to define itself. In particular, I find three definitional arguments that were used by The Heartland Institute to add legitimacy to its environmental name: (1) self-definition as a grassroots movement, (2) definition of its scientific findings as mainstream and consistent with a broader consensus, (3) re-definition of legitimate environmental organizations as manufactured and in the scientific minority.

First, The Heartland Institute defined itself as a grassroots movement. Bast (2011b), the President of the Institute, argued that The Heartland Institute played "an essential role in the national (and increasingly in the international) movement" (p. 2) for limited government

intervention and de-regulation. The Institute defined itself as, "building a social movement in favor of building a realistic perspective on climate change" (Bast, 2011b, p. 11). This movement has a widely influential reach. Nearly three thousand state and local officials "consider *Environment & Climate News* [the Institute's monthly environmental publication] a useful source of information" (Bast, 2011b, p. 4). In 2010, Heartland's reports on climate and environmental regulation reached a "print audience of 41.3 million readers" (Bast, 2011b, p. 11). *The Heartlander* (2002), The Heartland Institute's newspaper, praised a plethora of victories by "grassroots activists" (para. 14) over "anti-private property environmental groups" (para. 14).

In one news report, Russin (2010) noted Heartland's "grassroots opposition to laws" (para. 10) to combat global warming, based on "commonsense perspectives" (para. 11) that "the winter we have had" (para. 11) proves the alarmist nature of ACC science. Taylor (2012), the managing editor of *Environment & Climate News*, cited "grassroots" (para. 1) concerns over wind power development. Samuel (1995), a senior fellow at The Heartland Institute, described the environmental goals of the Institute as deriving from an "alliance of farmers, ranchers, individual landowners, and companies collectively known as 'the property rights movement'" (p. 1). Why is this "movement" (p. 1) noteworthy, asks Samuel (1995)? Because its formulation represented "American liberty" -- "a group of citizens joining together to fix what they view as an intrusion on a Constitutionally [sic] guaranteed right" (Samuel, 1995, p. 1).

This strategy of self-defining as a grassroots movement was integral to countering accusations of industrial influence. When such criticisms arose, The Heartland Institute was able to point to "widespread localized backlash against the impact of environmental

regulation" as the impetus for its "grassroots movement" (Samuel, 1995, p. 6). Thus, the Institute made it much more difficult for politicians to ignore its concerns, because there was a manufactured public supposedly driving their demands. However, its development was not driven by grassroots activism. Although Heartland no longer makes its funding sources publicly available, it received direct funding from Exxon Mobile every year between 1998 and 2006, totaling over half a million dollars. Such a substantial of influx of corporate funding was an "inherent contradiction" to its claim of "grassroots support" (Press, 2012, p. 187). Importantly, their use of the term "grassroots" and "grassroots movement" "disguises the very real differences" between The Heartland Institute and organizations rooted and organized from people within a specific community (Taylor, 2004, p. 67).

The second strategy used by The Heartland Institute was to define its scientific findings as mainstream and consistent with a broader consensus. In one policy document, Bast (2011a) argued that "mainstream science" shifted away from alarmism because of "cherry-picking data, oversights, and errors of the IPCC" (para. 17). In the "Reply to Critics" section of its website, The Heartland Institute (n.d.b) defined itself as "firmly within the 'mainstream' of expert opinion on global warming" (Question 10). In particular, it noted that its spokespersons were "credible and respected in the national and international debate" (The Heartland Institute, n.d.b, Question 10). It posited internationally recognized scientific climate projections as mere "politics," while depicting its viewpoints as "reality" (Oplas, 2009, p. 1).

To add credibility to this approach, it has widely cited data produced by three ACC skeptics – Tim Ball, Keith Idso and Fred Singer. There is ample evidence for skepticism of these so-called climate scientists. Despite the "doctor" preceding each of their names, none

are academically trained in the field of climatology. In fact, The Heartland Institute's research on climate change does not rely on findings from the field of climatology; instead, it cites extreme minority opinions to support its scientific publications. In this way, it hyperbolizes the disagreement among actual climate scientists to undercut the justifications for progressive environmental regulation.

Ball (2009), who holds a doctorate in historical geography, argued on the Heartland website that "the argument that global warming is due to humans, known as anthropogenic global warming theory (AGW) is a deliberate fraud" (para. 1). In concurrent skepticism, Idso (1999), who holds a doctorate in botany, maintained that: "carbon dioxide is not a pollutant. It is a colorless, odorless trace gas that actually sustains life on this planet" (para. 1). He also pointed to scientific "confusion about the biological benefits of elevated CO2," and criticized the hyperbolic "doomsday scenarios" of global warming scientists (Idso, 1999, para. 12). Singer (2008), who holds a doctorate in physics, agreed, finding "overwhelming" evidence that human emissions are an "insignificant" factor in global warming trends, greatly outweighed by "natural climate influences" (para. 2).

Ball, Idso and Singer avoid (or are denied) peer-review in the field of climatology, and have had much of their research funded by partisan interest groups like Exxon Mobile (Montgomery, 2006; Union of Concerned Scientists, 2007; Gelbspan, 2011). Andrew Weaver, "Canada's preeminent climate science professor" (Elshof, 2010, p. 89) argued that Ball "says stuff that is just plan wrong. But when you are talking to crowds, when you are talking on TV, there is no challenge, there is no peer-review…what Ball is doing is not about science…it is about politics" (Montgomery, 2006, p. 31). Idso's theory that increased carbon emissions will have a net-positive effect on the environment is widely discredited (Monbiot,

2007, p. 7). Singer publicly denied "receiving funding from energy industry sources" (de Granados, 2007, para. 12), but recanted after investigative journalists uncovered that Exxon was one of the sponsors of his climate scholarship. Top climate scientists have described Heartland's scholarship as picking "a big fat bowl of cherries," implying that writers hand-pick its data to support its argument, while ignoring evidence to the contrary – a claim "happily acknowledged" by Joe Bast, the founder of the Institute, as accurate and consistent with individualistic ideology purported by libertarianism (Tollefson, 2011, p. 441). In this way, The Heartland Institute magnifies the extremely limited scientific disagreement over the exact results of climactic changes to portray the whole global warming hypothesis as hanging by a thread.

Using a similar strategy of portraying its minority opinions as widely supported, The Heartland Institute (2011) pointed to a long list of "endorsements" (p. 3) to enhance credibility. The "About" page on its website stated that these supporters were "some of the top scholars, thinkers and politicians in the world" (Heartland, n.d.b, para. 1). This 12-page list of names included several Republican congresspeople, conservative economists and leaders of notoriously conservative think tanks (e.g., CATO, The Heritage Foundation, Americans for Tax Reform, Pacific Research Institute and the Competitive Enterprise Institute). For Heartland, the longer the list of individuals, the harder it is to for critics to portray them as an ideologically extreme think tank. Noticeably lacking from this list was any climate scientist, or any statements supporting the credibility of its hand picked scientists' environmental scholarship. However, by defining themselves as mainstream, The Heartland Institute created the perception that its environmental findings were reasonable, thoughtful and scientifically accurate.

The final definitional argument used by The Heartland Institute redefined opposing scientific opinions as manufactured, and in the scientific minority. Facing criticisms of undue industrial influence over Heartland's publications, DeWeese (2000) turned the tables, arguing that "the green propaganda machine" is manufactured by "big business" (p. 1). An "investigation of financial reports of the leading environmental organizations" showed a "tangled web connecting environmental groups with big businesses" (DeWeese, 2000, p. 1). In another Heartland document, Ferguson (2009) posited that attacks on Exxon-Mobil for paying 23 million dollars to climate skeptics were a "distracting sideshow" from the "powerful alliance of self-serving interests" supporting climate "alarmism" (p. 1). Advancing this criticism further, Ferguson (2009) claimed:

> By pouring so much money into pushing a single, scientifically-baseless agenda, the Government has created not an unbiased investigation but a self-fulfilling prophecy…Sound science cannot easily survive the vice-like grip of politics and finance. (p. 1)

Nova (2009) agreed, arguing that the scientific beliefs of The Heartland Institute are based on "a dedicated but largely uncoordinated grassroots movement of scientists" who are merely "unpaid volunteers" competing "with a well funded highly organized climate monopoly" (para. 2). Similarly, Taylor (2011) argued that Heartland's climate findings are based on "hard scientific facts, not" "scare-mongering" found at other research sites (para. 7). In agreement, Samuel (1995) determined greens, more than anti-greens, were receiving substantial industrial backing (p. 6). Seen from this perspective, the most common argument against greenwashers, that they were too heavily influenced by industry, was equally true of

the environmental organizations forwarding the criticism. This was also addressed on its website.

In the "Reply to Critics" section of its website, it pointed to the "alleged" consensus favoring "alarmist visions of future global warming" as less supported than its more skeptical view (The Heartland Institute, n.d.b, Question 10). For example, Heartland attacked Greenpeace by exaggerating its environmental stances, and portraying the organization's goals and tactics as inconsistent with public sentiment. Here, it stated that Greenpeace is a "radical environmental group" that seeks to "ban all…cars and trucks in the U.S." (The Heartland Institute, n.d.b, para. 28). Moreover, it argued that Greenpeace was "fueling alarmism about global warming by exaggerating the human role and the consequences of warming" (para. 28). Avery (2008), writing for Heartland, stated that there is a "long line of claims by the organization [Greenpeace] that have proven unwise and incorrect " (para. 1).

Using a similar strategy, *The Heartlander* (2001) portrayed the environmental movement as lacking consensus by citing former Greenpeace activist Bjorn Lomborg as an example of a "left-wing guy" (para. 21) who disagreed with the global warming hypothesis. Castles (2008) stated that the United Nations Intergovernmental Panel on Climate Change (IPCC) overstated warming trends "by a large measure" (para. 2) and was not a product of science, but mere "conjecture" (para. 16). In the same report, Castles (2008) stated that the IPCC ignored scientific consensus by stating the opposite, and did little to prove itself valid in the face of criticism. This strategy of defining conventional environmental beliefs as *outside* the mainstream is central to re-defining the environmental message, and capturing public opinion in support of conservative and industrial goals.

These three definitional arguments: (1) self-definition as a grassroots movement, (2) definition of its scientific findings as mainstream and consistent with a broader consensus, (3) re-definition of environmental organizations as manufactured and in the scientific minority were integral to manipulating public opinion to subvert mainstream environmental goals. The first two approaches worked to deflect criticism of The Heartland Institute as a manufactured industrial front. Moreover, these definitions helped undercut the argument that climate contrarianism was a fringe theory. The final strategy redefined mainstream environmentalism as anti-regulation and skeptical of ACC global warming science. In combination, these definitional arguments muddied the distinction between progressive environmentalism and conservative opposition. In what follows, I discuss the implications of strategic naming and definitional arguments in the context of conservative anti-environmental organizations.

Conclusion

Faced with strong public support for environmental protection, The Heartland Institute was forced to modify its anti-environmental messages to hide its true intent to avoid backlash. Its current influence--illuminated by its numerous publications, time spent testifying before Congress and wide popular support--speaks to the success of this persuasive strategy. Although The Heartland Institute is just one of many organizations that employed similar naming and definition strategies, they serve as a representative anecdote for anti-environmental organizations seeking to blend in with mainstream environmentalism.

By strategically naming and defining themselves as pro-environment, these organizations achieved great influence. Each act of naming fixed attention towards environmentally friendly terms, hiding these organizations' blatant inconsistencies with the mainstream environmental movement. Subsequent definitional strategies provided even

greater credence to the environmentally friendly names. By defining themselves as grassroots movements, consistent with mainstream environmentalism and redefining legitimate environmental organizations as manufactured, these organizations blurred the distinction between environmental and anti-environmental attitudes. What would have otherwise been detected as pseudoscientific and industrially influenced propaganda, so-called scientific findings denying environmental problems, questioning global warming and portraying scientific consensus as alarmist, were taken seriously.

This strategy succeeded. One study found that progressive think tanks were cited less than 15 percent as frequently in the broadcast media as centrist or conservative think tanks (Buell, 2003, p. 302). These manufactured think tanks "extended their influence" even further; they did not "just educate politicians but also suppl[ied] conservative Republican administrations with many of their administrative, judicial and executive-branch appointees" (Buell, 2003, p. 302). Importantly, "even when politicians knew that a grassroots coalition had been created artificially from the top down" (Buell, 2003, p. 304), it often times remained extremely influential. Beyond the implications for public policy, naming strategies of the anti-environmental organizations are "really something to worry about" (Walton, 2001, p. 129) given the propensity for public deception and coercion.

Public belief in global warming science, instead of centering on scientific data and predictions, is being driven by competing interest groups that do not have the public's interests at heart (Walton, 2001, p. 121). In that debate, "green-sounding names" are used to manipulate public opinion to make "anti-environmental messages" more salient (Helvarg, 1995, para. 1). However, "most people would be stunned to discover that their money was

going to support…these backlash groups" that "hide behind green masks" (Helvarg, 1995, para. 1).

Therefore, it is important for rhetorical scholars to emphasize the power of naming and argument by definition. In some instances, naming is the act that, through terminology, makes *clear* the goals and ideals of a specific organization. However, as shown in this case study, naming, and subsequent definition, can also be a manipulative strategy that *co-opts* the opposition's terminology in order to create confusion in, or outright deception of, the audience. Naming and definition theory provide a strong explanation for why fringe environmental theories are perceived as mainstream, and for why the environmental movement is viewed as split on theories of global warming, a debate that is widely considered over among the expert community.

Chapter 4 – Salience Over Sustainability: Environmental Rhetoric of President Barack Obama

Introduction

On November 4, 2008, Barack Obama was elected on a mandate of change. On issues of both domestic and foreign policy, Obama represented a significant break from the previous eight years of the George W. Bush presidency. This change was well received by environmental advocates and non-governmental organizations devoted to environmental sustainability. The day following the election, the Sierra Club issued a statement proclaiming that the environmental future of the country is in "very capable hands" (as cited in Environmental News Service [ENS], 2008, para. 2). The same day, the president of Environmental Defense Fund echoed this sentiment in a public statement that "this election offers us the greatest opportunity we have ever had to change course on global warming" (as cited in ENS, 2008, para. 6). Similarly, the President of the Defenders of Wildlife Action publicly announced, "for the first time in nearly a decade, we can look to the future with a sense of hope that the enormous environmental challenges we face will begin to be addressed" (Burkhalter, 2008, para. 14). One month after the election, environmentalists excitedly professed, "change really is here" (Jiwatram, 2008, para. 1).

Despite this excitement among environmentalists, the public at large did not share this view of environmental policy as a top priority. In a post-election 2008 poll, *Washington Post-ABC* pollsters asked 1,003 respondents: "What would you say is the one most important problem you would like to see Obama and the Congress deal with next year" (para. 7)? Less than one percent responded "environment" (para. 7) and even fewer responded "global warming" (para. 7). An overwhelming majority wanted economic prosperity, a policy shift in the war in Iraq, unemployment legislation or a new health care policy (para. 7). In the face of

this division between the public and environmentalists, and against the backdrop of a failed G8 climate change summit, Obama made a strategic political decision to emphasize economic and national security justifications for environmental policies. To this end, Obama participated in at least two strategy sessions with "a cross section of experts" (Mufson & Eilperin, 2009, para. 2) to determine the best way to define his environmental policy. Obama asked his advisors to best determine "how he could sell a low-carbon future to the American public" (para. 4), because he wanted his environmental policy to "pop more" (para. 5) for the public. These strategy sessions encouraged Obama to turn from moral and environmental suasion grounded in environmental science to pragmatic arguments concerning national and economic security. Obama's strategy of using non-environmental appeals remained consistent because of the plethora of constraints encountered by Obama throughout his first term (e.g. Climategate, the emergence of the Tea Party, economic woes and international climate negotiations). In fact, the dual forces of domestic economic problems and widespread skepticism of climate science strengthened Obama's resolve to avoid scientific arguments, in favor of noting the economic benefits of his environmental policies. By 2011, it was clear that Obama's strategies had not succeeded. Not only did his rhetoric not "pop more," but environmental issues had also receded from public consciousness.

In this essay, I argue that by advocating environmental policy with primarily economic and national security justifications, Obama sidelined environmental values and concerns. Consequently, Obama's arguments did little to motivate public concern for the environment proper; rather, so-called environmental policy was judged (accepted and discarded) primarily on economic and national security grounds. Although Obama's foregrounding of non-environmental arguments may have been politically necessary at the time, the backgrounding

of environmental concerns, including arguments based in climate science, limited long-term environmental support. I develop this argument in three sections. First, I discuss relevant rhetorical theories that underscore the backgrounding argument. Theories of definition support the conclusion that even seemingly insignificant acts of defining have substantial effect on argument. Second, I analyze a set of forty speeches from the first year and a half of the Obama administration. Finally, I show how Obama's economic and national security arguments limited his environmental policies, and discuss the implications of privileging salience over sustainability in presidential environmental rhetoric.

Analysis of Obama's Environmental Approach

In order to understand the implications of Obama's rhetorical choice to justify his environmental policy with non-environmental arguments, theories of definition provide insight. Specifically, understanding the process of definition as both a foregrounding of an argument, and a backgrounding of alternative explanation is uniquely discerning.

Theories of argument by definition have significantly developed in the last two decades. *Argumentation and Advocacy's* special edition (1999) on "Definitional Argument" provided substantial theoretical revision and progress to an already rich tradition. Titsworth (1999) found that Clinton's definition of "disability" (p. 171) in the Individuals with Disabilities in Education Act exemplified how ideology can influence definition even when such naming is seemingly benign. Broda-Bahm (1999) argued that defining environmental problems as security concerns is not a neutral or objective truth claim, but rather manipulates and directs the audience to a specific mindset. Placing primary influence on the role of the definer, Zarefsky (2006) centered the debate on persuasive intent by stating that through

definition, rhetoricians are really providing an "implicit argument"(p. 404) with "strategic maneuvering" (409).

These studies, generally, focus on definition as *foregrounding* a specific argument. For example, Titsworth (1999) stated that definition is a "starting point for arguments" (p. 171), and McGee (1999) agreed, noting that definitions are "the points at which many arguments begin" (p. 141). Zarefsky (2006) pointed to specific instances in which persuasive definitions were created: social insurance as "Social Security" (p. 404), the blockade of Cuba as "quarantine" (p. 404), Reagan's choice to name the MX missile the "Peace-keeper" (p. 404), etc. Schiappa (2003) noted the "domestication" (p. 132) of objectionable terms like "nuclear weapons, strategy and war" (p. 135) through metaphorical definition, as particularly capable of manipulating an audience.

Each of these examples elucidates how a rhetorician uses a specific definition, or naming strategy, to foreground an argument or ideology. In this regard, rhetorical scholars have explained the process by which a definition shapes the interpretation of a situation. However, rhetorical scholars, thus far, have deemphasized what is not said and what is left behind – the *backgrounding* of alternative definitions. By highlighting a particular definition, or argument, a rhetor shields distinct interpretations from the public's consciousness. Although many have written about the role of definition, they have largely focused on the foregrounding of definitions. The obvious corollary is that when one definition is foregrounded, others are backgrounded. Titsworth (1999) was hinting at this point when he used the Burkean concept of Scene (background) to explain the disciplinary nature of disability discourse. In this essay, Titsworth argued that the background can drastically shape the way a definition functions, but did not explicitly recognize the rhetor's role in shaping that

background. Similarly, Walton (2001) pointed in this direction in his discussion of the dialectic between definition and counter-definition in argumentative strategies (p. 131). Here, Walton argued that the background and foreground are in constant flux as competing parties define and redefine arguments in the public consciousness (p. 117). This essay draws from the theoretical foundation started by Titsworth, Walton and others to build a more nuanced interpretation of definition that focuses primarily on backgrounded values and arguments – what is forgotten or discarded in the process of definitional argument.

Definitions impose frames that organize reality in such a way that alternative depictions of a situation are either deemphasized or forgotten. Thus, valuable insight can be derived from asking not only "what is foregrounded?" but also "what is deemphasized?" Given the explicit choice made by the Obama campaign to foreground economic and national security arguments, and background environmental justifications, this case study is valuable for answering both questions.

There are two ways in which the backgrounding of a definition influences the evolution of environmental arguments. First, it privileges an alternative thematic construction. In this case, the primary message is shifted from environmental sustainability to producing jobs and reducing dependence on oil. Thus, the backgrounded definition of environmental policy to prevent environmental harm becomes unimportant. Second, the foregrounded definition emphasizes an alternative criterion for assessment. Debates about environmental policy are no longer to be decided on environmental grounds, but economic and national security counter-arguments are given added salience because of the values supported by the foregrounded definition. When a different approach is taken, and environmental values are foregrounded, economic and national security values are defined as

secondary, or tertiary concerns. In this alternative approach, counterarguments concerning economics and national security are given less salience and credibility because the environmental benefit is the primary argument used to define policy.

For Obama, facing an environmentally unexcited public, there were strong pressures to background environmental justifications in favor of more salient approaches. While his environmental campaign rhetoric was defined by moral suasion (e.g., appeals to environmental values and biodiversity), the evolution of the rhetorical situation caused Obama to foreground non-environmental issues when arguing for environmental policy. Definitions of his environmental policy evolved from environmental justifications, to a "green jobs" argument for the stimulus, to an "energy independence" argument in the post-BP oil spill climate. Similar to previous examples of definition, each of Obama's new definitions commanded "wide adherence and hegemonically exclude[d] alternative frames of reference" (Zarefsky, 1997, p. 6) because of the salient nature of economic and national security arguments. At the same time, the audience's perception of the economic and national security issues as the primary focus of Obama's environmental policy limited its environmental concerns.

By re-defining his environmental policy in non-environmental terms, Obama allowed other justifications to become "dominant frame[s]" (Conca, 2001, p. 67). This rhetorical construction made "visible" (Zarefsky, 1997, p. 2) the economic and national security arguments that were previously "invisible" (p. 2), a result that backgrounded environmentalism. Thus, the audience dissociated environmentalism from environmental policy because the definition of the situation left little concern for environmental valuations per se (Zarefsky, 1997, p. 8). Because economics and national security became the

definitions that "dominate [the] debate" (Miller & Riechert, 2003, p. 113) environmental arguments were either backgrounded, or were forced to "withdraw from the policy debate" (p. 113). As Miller & Riechert predicted, when environmental justifications were given less "credence in the media and public discourse" (p. 113), economic and national security benefits became the "prevailing definition of the situation" (p. 113). Obama's repeated reliance on appeals to economic and national security created a salient frame, one that overshadowed and backgrounded his brief mentions of the environmental benefits of his policies. In this way, debates about environmental policy focused on economic and national security values, which failed to promote concern for the environmental impact of the administration's policies.

Two likely criticisms of this thesis are important. First, several policy scholars (e.g., Fletcher, 2009, p. 811; Lehrer & Becker, 2010, p. 651; Best, 1999, p. 159; de Vreese, 2004, p. 36; Shen, 2009, p. 374) believe that foregrounding economics and national security is a promising path to pro-environmental policies due to the wide appeal of these positive frames. In this view, politicians that would othwerise "not typically prioritise" (Fletcher, 2009, p. 811) environmental issues start to "take climate change seriously" (p. 811). This criticism is addressed in the final section of the essay.

Second, some in the environmental far-left (e.g., Thiele, 1995, p. 195; Luke, 1995, p. 62; McWhorter, 1992, p. 6; Darier, 1999, p. 7) question the ability of any pragmatic, anthropocentric or statist argument to succeed in promoting a truly healthy environment. Instead, they argue that a more radical change in the relationship between humanity and nature is necessary. Seen this way, Obama's approach was doomed from the start. While rebutting this argument is beyond the scope of this essay, and has been sufficiently covered

elsewhere (e.g., Lewis, 1992, p. 17; Bradley, 2009, p. 103; Hirokawa, 2002, p. 279), it is important to note that this concern does not call into question the theoretical accuracy of the backgrounding theory of definition. Even if Obama's pragmatic, anthropocentric and statist environmental agenda would have been in some way environmentally debilitating, the backgrounding theory of definition explains why he was unable to change the status quo, and why his rhetorical strategy failed to motivate the public to support said agenda.

In what follows I examine Obama's presidential environmental rhetoric. Specifically, I analyze a large set of Obama's speeches that contained environmental policy proposals or references to the environment in general. I then use the theory of definitional backgrounding laid out above to determine the likely implications of Obama's rhetorical strategy.

Obama's Environmental Rhetoric

The first eighteen months of Obama's presidency contain well over five hundred public addresses. In order to identify the core strategies Obama used in supporting his environmental policy, it is helpful to draw from a *Washington Post* database that categorizes Obama's addresses based on issues of concern. For example, there are separate sections devoted to education, health care, homeland security, social issues, energy and environment, etc. Some speeches, such as the State of the Union addresses, can be found in nearly all categories. For this study, I limited the texts analyzed to domestic speeches concerning the environment, because I am primarily concerned with the strategies Obama used to support environmentalism among the United States public.

In order to connect Obama's environmental advocacy with public, or congressional response, it is first necessary to identify primary arguments and themes that Obama used to support his arguments. I chose the first forty speeches in the "energy and environment"

category. In doing so, I recognize that this sample is not wholly representative, but it is large enough to get a sense of the major themes and emphases of President Obama's environmental discourse. I used this sample to identify Obama's rhetorical strategies and justifications for his environmental agenda. In order to determine Obama's primary arguments, I used an open-ended search for environmental vocabulary and arguments within these texts. I located the components of Obama's speeches where he advocates changes in environmental policy or describes the inadequacies of the status quo approach to the environment. To do this, I used key term searches for pivotal terms: environment, global warming, climate change, species, biodiversity, energy and oil. I then mapped the themes and topoi that emerged from the text and attempted to discern Obama's strategy. This method helped to illuminate the most consistently used arguments.

Upon examination, the two major themes advocated at the campaign strategy meeting emerged from Obama's arguments: economics and national security. When arguing for economic benefits, Obama posited his environmental policy as necessary for the United States to (1) remain competitive in the global race for technology and (2) promote job creation. Just weeks after taking the oath of office and in the middle of an early presidency arguably outmatched by only Roosevelt in pace and energy, Obama (2009b) addressed the Department of Energy and made the case for both economic prosperity and competitiveness. He did so by arguing that new environmental policy could reverse the failure "to compete in the global economy" (para. 30) and stimulate growth "at a time when the economy urgently needs action" (para. 30). These themes – economic growth and international competitiveness – permeated Obama's public address throughout the next eighteen months.

Comparing United States policy to international energy development, Obama touted the ability of U.S. ingenuity to lead the race towards technological leadership. Ironically, just days prior to the 2009 cooperative G-20 summit, Obama framed environmental policy as a zero-sum race, stating that that innovation is "how we'll build the clean energy economy that's the key to our competitiveness in the 21st century" (Obama, 2009c, para. 4). Instead of allowing "Germany," "Spain" or "Japan" to "lead in these industries of the future," Obama proposed that the United States must attain primacy in the energy arena (para. 5). To add political salience, Obama noted immediate economic and competitiveness benefits, but failed to emphasize the environmental benefits of the policies.

An analogous prioritization of economics over environmental justifications is found in Obama's arguments for green jobs. For example, three weeks before signing the Health Care Reconciliation Act into law, Obama (2010b) touted the economic benefit of the stimulus package by arguing, "to spur hiring and sustain growth we've placed a big emphasis on energy" (para. 10). A major component of Obama's (2010b) rhetorical support for the stimulus package focused on the "700,000 jobs" (para. 10) created for building "advanced batteries for hybrid cars, and modernizing our electric grid, and doubling our capacity to generate clean energy" (para. 10). Noticeably missing from this statement was any argument about protecting the environment. The reason to support clean energy development was defined as job growth and prosperity, benefits unassociated with any environmental impact.

In the midst of climate hearings in the Senate Environment and Public Works Committee, Obama (2009e) echoed this economic sentiment to Florida solar energy manufacturers:

> The creation of such an [clean energy] economy is going to require nothing less than the sustained effort of an entire nation; an all-hands-on-deck approach, similar to the mobilization that preceded World War II or the Apollo Project. (para. 46)

In this speech, Obama (2009e) also cited "biofuels" as the platform for "profitable" green energy (para. 47). Obama repeated the call for biofuels four months later, in an April address in Macon, Missouri. Using similar economic strategies, Obama (2010f) argued that biofuel investments had the potential to "help us reach the goal" he set to "more than triple America's biofuels production" and "create or save up to 700,000 jobs across America" (para. 18). However, Obama's strategy of emphasizing job creation and economic growth was not solely predicated on biofuel expansion. This theme of the job-creating potential of the stimulus was repeated throughout over twenty of the forty texts analyzed. In these addresses, wind, solar and nuclear power were also cited as necessary to improve the economy (Obama, 2009e, para. 46). Rarely discussed, however, were the environmental benefits of these technologies.

Environmental justifications are limited, but can be found scattered throughout Obama's texts. For example, in a speech in support of expanded offshore oil drilling, one month before the BP spill, Obama (2010c) argued that comprehensive climate legislation "will foster new industries and millions of new jobs protecting our planet" (para. 18). Similarly, Obama (2010a) argued that a transition to clean coal would allow the United States to use its "most bountiful natural resource" without "polluting our planet" (para. 6). However, Obama clearly treated support for economics and job creation as the primary justification. Stating, "*the reason we're here* [italics added] is because it also means igniting a new, clean-energy economy that generates good jobs right here in the United States" (Obama, 2010e, para. 8), Obama (2009d, 2010d, 2010h) placed a priority on job creation and

economic prosperity. Notice, Obama does not say "one of the reasons we are here"; rather, he backgrounded environmental values by creating an explicit and sole association with economics.

This prioritization of economics as the leading justification is prevalent in Obama's remarks on offshore drilling. Obama (2010c) stated:

> *The bottom line* [italics added] is this: given our energy needs, in order to sustain economic growth, produce jobs, and keep our businesses competitive, we're going to need to harness traditional sources of fuel even as we ramp up production of new sources of renewable, homegrown energy. (para. 7)

The "bottom line" is a reference to the last line of an audit that lists profit or loss. It epitomizes the decisive point or most important place to look; in this case, that most important places were prosperity, job growth and competitiveness.

While economics dominated as the primary concern, national security benefits were certainly the secondary justification. The argument for environmental policy based on national security emerged from consistent references to national security crises that could be addressed by environmental policy. Two subcomponents of the national security strategy are clear. First, Obama (2009a), in his first six days in office, foregrounded justifications for environmental policy by noting security threats in the form of dangers from "terrorism" (para. 12), "nuclear proliferation" (para. 12) and national "security" (para. 13). Second, Obama, immediately following the BP oil spill, used metaphorical references to national security by arguing that environmental threats required a "battle plan" (2010i, para. 7) that would require the United States to "fight each and every day" (2010j, para. 10).

In his first presidential address related to the environment, Obama (2009a) pointed to legislative delay over environmental policy as the reason that the United States was "held hostage to . . . hostile regimes" (para. 40). He argued that ending oil dependence was a necessary step to "deny leverage to dictators and dollars to terrorists" (2009a, para. 36). In support of the green energy components of his first stimulus package, Obama (2009a) claimed that oil dependence was "one of the most serious threats that our nation has faced," (para. 12) because it bankrolled "dictators" (para. 11), countries promoting "nuclear proliferation" (para. 11) and "terrorism" (para. 11). The United States' involvement in two wars in the Middle East added salience to Obama's plea to limit support of dictators and enact legislation that made the war on terrorism more winnable. Throughout the next eighteen months, Obama emphasized dependence on foreign oil as a danger to national security forty-five times, in over thirty public addresses.

Importantly, Obama used national security as a justification for environmental policy that could be supported even absent belief in the science supporting the global warming hypothesis. For example, one day after publicly acknowledging the unlikelihood of achieving a climate bill in the Senate, he stated: "even if you don't believe in the severity of climate change, as I do, you still should want to pursue this agenda. It's good for our national security" (Obama, 2010a, para. 3). In this way, Obama backgrounded global warming science as a justification for policy change. Because Obama's policy proposals could be supported on non-environmental grounds, the environmental impact lost value in the policy debate. Perhaps the most important example of this strategic pattern can be found in Obama's addresses concerning the BP Oil Spill. In these addresses, Obama supported a quick and

effective reaction to the spill; however, he argued for this response by primarily using references, both literal and metaphorical, to national security.

All of these rhetorical strategies were evident in what was Obama's most important environmental address of his first two years. On June 15, 2010, Obama delivered an address concerning the BP Oil Spill--his first address from the Oval Office. This address was intended to convince the public that the Obama administration understood the magnitude of the threat and was responding in an appropriate manner. In this address, Obama (2010i) used a military metaphor to analogize the government response to the war on terrorism:

> As we speak, our nation faces a multitude of challenges. At home, our top priority is to recover and rebuild from a recession that has touched the lives of nearly every American. Abroad, our brave men and women in uniform are taking the fight to al Qaeda wherever it exists. And tonight, I've returned from a trip to the Gulf Coast to speak with you about the battle we're waging against an oil spill that is assaulting our shores and our citizens. (para. 1)

Obama (2010i) promised that the government was already "fighting" (para. 5) the "epidemic" (para. 5) of oil dependence, and argued that the administration would continue to "fight this spill with everything we've got for as long as it takes" (para. 6). The address laid out the "battle plan" (para. 7) for going forward against the spread of oil. Obama (2010i) emphasized the military response to the crisis by stating that "over 17,000 National Guard members" (para. 8) were "ready to help stop the oil from coming ashore" (para. 8).

Throughout the next month, Obama used similar battle references when discussing the BP crisis (2010j, 2010k, 2010l). In the days following the BP Oval Office address, Obama (2010j) stated that he wanted "all Americans to know that [he] will continue to fight each and

every day until the oil is contained" (para. 10). Obama (2010k) used the "context of the oil spill" to argue that oil independence was necessary for the United States to achieve "national security," but did not mention the environmental ramifications of oil dependence (para. 8).

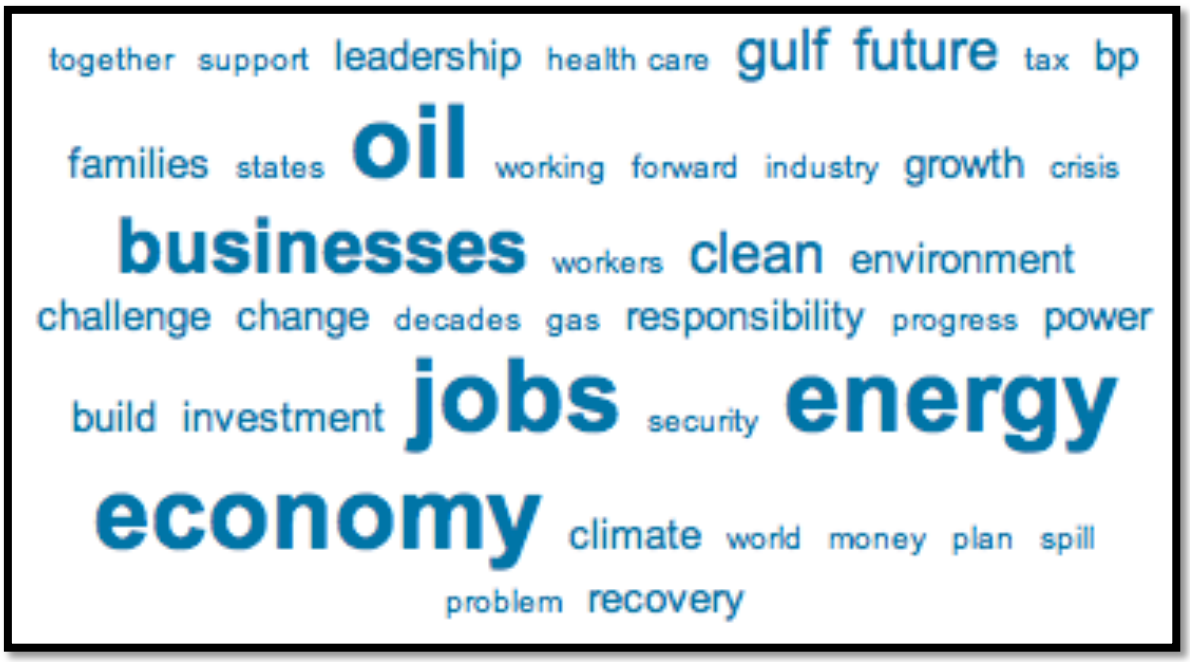
There are certainly differences among Obama's environmental arguments; however, two consistent themes emerge. First, the dominant argumentative justification for governmental environmental policy was that it would have a positive effect on the economy. In particular, two strands of economic benefits were emphasized: competitiveness and job creation. Second, national security benefits were prioritized as complimentary to economic benefits. Within the argument for national security, Obama utilized two approaches: literal descriptions of military security and militarized metaphors representing environmental policy.

Equally as important as what Obama said, is what he did not say. In the eighteen months, forty speeches and over 63,000 words of Obama's presidential environmental rhetoric analyzed here, Obama never once used the phrase "global warming" to a domestic audience. Obama did reference climate change a limited number of times; however, this phrase has been shown to be less effective at creating public enthusiasm than "global warming" (Whitmarsh, 2009, p. 416) because it is "more readily associated with natural causes" (p. 416) and thus evokes significantly less concern. Six days into his presidency he argued that "rigid ideology has overruled sound science" (Obama, 2009a, para. 14), but at no point did he foreground his environmental arguments with a defense of the science supporting the global warming hypothesis.

Similarly, Obama chose not to emphasize the risk to the environment, biodiversity or species posed by environmental crises. Instead, economic and national security benefits were portrayed as independent benefits, not associated with the environmental impact of his

policies. In doing so, Obama backgrounded environmental values to more salient definitions of economics and national security.

In the eighteen months of environmental public address, the five most commonly used terms were jobs, energy, economy, oil and business. This graphical representation (word cloud) represents the number of times each word pictured was said during the sampled period. In this figure, words used more often, often non-environmental, are larger, while words that are used less frequently are smaller.



The terms "jobs," "economy" and "businesses" were each used well over three-times as frequently as "environment" or "climate." Importantly, the use of the term "environment" only became prevalent during the last two months of the set analyzed, largely in response to the BP crisis. Removing these two months from the cloud analysis shows that the economic terms (jobs, economy and businesses) were used over ten-times as frequently as environmental terms (environment and climate) in Obama's non-BP environmental addresses. Because Obama's choice to use economic and national security concerns as primary

justifications for environmental policy was a politically pragmatic strategy developed to make environmental policy "pop more" (Mufson & Eiplerin, 2009, para. 5), its short-term advantage came at a cost, an argument I develop in the next section.

Implications

While there certainly are limits on the power of the presidential bully pulpit, it is difficult to deny the importance of a president's rhetorical support for a policy (Edwards, 2006, p. 6). Lawrence (2004) found that test subjects who were exposed to a presidential "speech were approximately 4.6 times more likely to identify an issue mentioned in the speech as the most important problem than respondents who did not watch the speech" (p. 15). And, while a presidential mandate may not be necessary to achieve legislative policy (for example, on widely popular issues), "when [the president] decides to become involved, his influence can be decisive indeed" (Baumgartner & Jones, 2009, p. 241). Given this unique influence, a close examination of the possible advantages and disadvantages of Obama's definitions can prove useful.

Economic Justifications

There are two reasons why some believe that foregrounding an economic definition could be useful for Obama. First, economic prosperity and job creation are extremely salient issues. Therefore, appealing to the public's primary concerns with economic justifications could produce an increase in public support and provide a sense of immediate relevance to the audience (de Vreese, 2004, p. 36). Economic justifications are particularly salient because they tie macrosocial issues (economic growth) to microindividual actions (support for environmental policy) (Shen, 2009, 374). This is especially true in times of limited growth and unemployment. Given that some traditional environmental arguments portray

environmental policy as mutually exclusive with economic growth, Obama's rhetorical choices, it was argued, could have shown how environmental policy can successfully promote prosperity and job creation, while simultaneously protecting the environment.

Second, the economic justification emphasizes the importance of technological innovation as a necessary tool for limiting environmental degradation. Green energy is at the forefront of environmental solutions, and new technology provides some hope for environmental sustainability (Carcasson, 2004, p. 276). The choice to define environmental regulation as an avenue of promoting technological innovation could arguably serve to offset opponents' arguments concerning economic cost. This strategy may be effective when combined with patriotic appeals defining innovation as a way for the United States to get ahead. In this way, Obama's use of the innovation justification mirrors the rhetoric of Johnson and Kennedy, who similarly used the trope of U.S. exceptionalism to stimulate environmentalism. Such approaches appealed to the myth of America as a "chosen people" (p. 280) who may also profit by disseminating this technology on a global level.

With these benefits in mind, it is clear that "the economic frame . . . is not likely to be sufficient in the long run and on a large enough scale" (Carcasson, 2004, p. 277) because it foregrounds economic definitions, and backgrounds environmental values. There are three possible drawbacks to foregrounding economics as the primary justification for environmental policy. First, Obama's use of economic justifications did not successfully motivate (even short-term) public environmentalism. The historical tradition of foregrounding non-environmental justifications, while backgrounding environmentalism, has molded a public sentiment that is unwilling to sacrifice unrestrained and unregulated growth for environmentalism. For example, for the first time in the 25-year period that Gallup has polled

the issue, "a majority of Americans say economic growth should be given the priority, even if the environment suffers" (Newport, 2009, para. 1).

This decline in public support for growth-limiting environmental policy mirrors an overall decline in public environmentalism. For the first sixteen months of the Obama presidency, the public saw no urgent environmental exigence--not even global warming, despite scientific consensus on the threat it poses to humanity (Dyer, 2008, p. 6). Despite this scientific consensus and Obama's framing of the environment in terms of national security and economics, a 2009 Pew poll found a sharp decline of over 15 percent from 2008 to late 2009 of individuals who believed there was solid evidence the earth is warming (Newport, 2010). For those who supported the global warming hypothesis, there was a nine percent drop during Obama's first year as president in those who believed it was a serious problem (Newport, 2010, table 1). As of March 2010, Gallup found that "the percentage of Americans who now say reports of global warming are generally exaggerated is by a significant margin the highest such reading in the 13-year history of asking the question" (Newport, 2010, para. 3). One explanation for this declining support was the failure to place the environment in the foreground of any policy discussion. The decline in public support for strict environmental policy, in turn, makes congressional action less likely, because absent public support, overcoming special interest groups and big business opposition is much more difficult. For Obama, a change in public opinion in favor of environmental policy was crucial.

The second possible disadvantage of foregrounding economics is that any environmental policy that limits growth, or can be negatively portrayed as limiting growth, will fail. Economic prioritization creates a policy environment in which positive incentives and voluntary measures become the only possible approaches, because regulations may

impose "unnecessary" costs on businesses. Environmental and rhetorical scholars have described this definition as the "we can have it all theme" (Cannon & Riehl, 2004, p. 222) that "works to meld environmental quality with economic prosperity" (p. 226). Historically, this strategy has been a politically "attractive theme," because it has allowed environmental advocates to "declare a win-win on environmental issues" (p. 228). This definition foregrounds the argument that environmental policy will induce no economic cost. However, this politically expedient definition is problematic, because new regulations inevitably impose some cost. Moreover, this definition backgrounds the core arguments for environmental improvement.

Obama's rhetorical plea for "green jobs" is an example of the failure of environmentalism supported primarily by arguments for economic prosperity. Green jobs were originally depicted as having "no downside" (Morriss et al., 2009, p. 4) because they would help the environment and the economy. However, foregrounding economic arguments meant that, over time, the *green* part of green jobs lost importance. For example, the Labor Department developed an extremely broad definition of "green jobs" that allowed virtually any job to be defined as environmentally beneficial (Morriss et al., 2009, p. 18). Because of this broad definition, stimulus money designated to legitimately green jobs was diverted to environmentally harmful companies (York, 2010, para. 1). Given the prioritization of economic values, this result is unsurprising.

Third, Obama's choice to emphasize economic competitiveness foregrounded a definition that was easily co-opted by anti-environmentalist factions. Less than a decade ago, George W. Bush used the *exact* same economic justification as Obama to oppose signing the Kyoto Protocol, arguing that it would unfairly hinder the competitiveness of businesses inside

of the United States. Under the foregrounded economic definition, any regulation that could hinder United States' industrial competitiveness should be discarded. Because economic performance is often subjective and uncertain, "a politician would always be able to find some distressing sign of economic trouble to justify reducing environmental activism" (Carcasson, 2004, p. 276).

National Security Justifications

Using national security justifications for environmental reform similarly adds political salience, but at a cost. The main benefit of foregrounding this definition is that the cultural resonance of national security arguments is much greater than environmental justifications alone (Lehrer & Becker, 2010, p. 651). Because no one can "come out against national security" (Lehrer, 2010, p. 155), opponents of environmental policy can be portrayed as treasonous and dangerous.

However, there are two risks associated with foregrounding national security justifications. First, the national security justification dissociates the value of the environment from discussions about environmental policy. Similar to the drawbacks of foregrounding economics, the rhetorical decision to emphasize national security benefits backgrounded the *environmental* impact of his environmental policy. Corn-based ethanol is a tangible example of the risks associated with this approach.

The ethanol boom of the late 1990s and early 2000s was a political boon for both President Clinton and President George W. Bush. Ethanol had the advantages of being produced in the politically important agricultural Midwest and was rhetorically framed to appeal to the public's national security concerns. Clinton supported both the tax credit and the federal excise tax exemption at the pump and argued that "ethanol production" was

necessary to reduce "American reliance on foreign oil" (as cited in Hagel, 2002, p. 4428). George W. Bush, while generally holding dissimilar environmental views, also avidly supported corn-based ethanol, stating that biofuels were "gentle on the environment, and they are made in America so they cannot be threatened by any foreign power" (p. 4428). With the Renewables Fuels Mandates of 2005 and 2007, government support jumpstarted 124 new ethanol plants, with "most located in corn-growing states" (Graham, 2010, p. 151).

This support continued into the Obama administration and, in October of 2009, Obama (2009e) stated the importance of developing biofuels for both economic and national security gains. Four months later, Obama lobbied for an increase in the Congressional mandate for corn-based ethanol by over two billion gallons per year (Fahey, 2010, para. 3). While this mandate also included new incentives for second-generation cellulosic ethanol, the new incentives for corn made it extremely difficult for other renewable sources to compete. The net effect on the environment was negative. Comprehensive environmental studies indicate that corn-based ethanol has harmed United States farmland sustainability, increased emissions that contribute to climate change, and actually increased the United States' oil dependence (Scharlemann & Laurance, 2008, p. 43). A group of agricultural scientists reported that government subsides for corn-based ethanol encourage farming practices that degrade the soil at an unrecoverable rate, and do not decrease fossil fuel use because of the petrochemical inputs required to create and transport corn-based ethanol (Patzek et al., n.d., p. 1). In order to displace domestic oil consumption, corn-based ethanol would require "5 times" (p. 2) the amount of land available for agriculture in the United States.

Why did public and political support continue for an energy source that, as early as 1997, was understood to have largely negative effects on both oil consumption and the

environment? Corn-based ethanol gained mythic force largely because foregrounded arguments for national security overshadowed backgrounded environmental arguments. Similarly, arguments in support of biofuels mandates often appealed to economic concerns because they would help farmers in politically important states. Despite the fact that there were "real and concrete" (Lehrer, 2010, p. 151) differences among environmentalists over the effectiveness of corn-based ethanol, the "shared national security discourses" and economic arguments "helped create a sense of commonality among their perspectives" and placed actual environmental impact of the policies firmly in the background (p. 151).

Patriotic discourses, both economic and security-based, "were in fact a more powerful driver of biofuels' influence on farm and energy policies than the substantive benefits of the biofuels themselves" (Lehrer, 2010, p. 151-152). Thus, the debate about environmental policy shifted to a debate about national security and energy, which allowed powerful interest groups whose interests were non-environmental, or even anti-environmental, to control the discourse of the debate. Absent a debate where environmental sustainability is a core concern, environmental policy risks cooptation that may worsen the state of the environment. In this way, ethanol acts as a representative example for possible future policy failure in the environmental arena.

Given these risks, a reframing of environmental policy holds significant potential for supporting environmentalism in the 21st century. The study of the foregrounding and backgrounding of definitions provides theorists and practitioners with an important avenue to enhance civic engagement on environmental issues. Understanding the complex dynamics of definitional argument may make evident new argumentative approaches. One approach that may re-invigorate public environmentalism is to foreground environmental values as the

primary justification for environmental policy. However, even this strategy may not succeed. Because of the complexity of the rhetorical situation faced by environmentalists, any alternative definition undoubtedly introduces a new set of rhetorical constraints. The choice to foreground environmental values may be incompatible with conservative ideology, or may background other salient arguments for environmental policy. The conclusions drawn from this case study show the importance of evaluating and assessing the plethora of variables found in any rhetorical situation. Thus, those hoping to enhance civic engagement through environmental communication must account for the inherent tension between rhetorical salience and sustainability.

A second approach may foreground scientific consensus concerning anthropogenic climate change as the primary argument for environmental sustainability. To date, most pro-environmental presidents have largely avoided the scientific debate about global warming, and in doing so they have ceded the discussion to the countermovement's misrepresentations of climate science as confused and unproved. Moreover, no president has yet made scientific justifications for environmental policy a priority in public discourse. For example, there are only two references to climate science in the first eighteen months of Obama's administration, and in both cases the President failed to represent the scientific consensus in support of human-induced climate change (Obama, 2010a). Scientific arguments have not failed; instead, environmentalist presidents have chosen not to participate in the scientific debate at all. However, this passivity on the part of the President should not discourage those hoping to enhance civic engagement on environmental issues from using climate science to support their arguments.

The fact that climatologists have reached consensus regarding the global warming hypothesis should make environmental advocate's rhetorical job much easier. This consensus is quite real. One study found that of 928 randomly selected peer-reviewed articles in scientific journals, "none of the papers disagreed with the consensus position" (Oreskes, 2004, p. 1686) that global warming is real, human induced and an environmental concern. A 2010 report from the Environmental Protection Agency looked at twenty-two indicators of climate change (e.g., emissions, atmospheric energy, precipitation, cyclone intensity, etc.) and found "indisputable evidence" (p. 1) to support the basic tenets of the global warming hypothesis. Thus, the subjectivities and uncertainties that anti-environmental scholars have previously cited are largely absent in real debate about how to best confront global warming.

Despite the certain difficulties in explaining the complicated concepts of global warming science, avoiding this debate hampered President Obama's environmental agenda. Conservative think tanks, pundits and politicians have attacked the best tool that environmental advocates have at their disposal: near scientific certainty concerning the anthropogenic nature of global warming. Science supporting the global warming hypothesis should be at the forefront of the rhetorical campaign in support of environmentalism because the evidence supporting the science is overwhelming.

Conclusion

Presidential environmental rhetoric functions to define environmental policy. This defining process creates inherent associations and dissociations, which work to screen out alternate definitions and representations of reality. Obama's choice to prioritize economic and national security justifications for his environmental policy undercut efforts to build

public support for strong environmental policy by placing environmental priorities in the background of public concern.

The argument is not that Obama failed as an environmental president. Obama replaced a president who actively questioned climate science and censored data from NASA and the NOAA that supported the anthropogenic global warming hypothesis (Daynes & Sussman, 2010, p. 206- 207). It is possible that the lack of public enthusiasm during the early years of the Obama administration was simply a hangover from Bush-era anti-science messages. Therefore, it could be argued that Obama advanced progressive environmentalism by using economics and security as wedge issues to activate an environmental discussion. However, there is little evidence to support even short-term gains for the environment.

Obama was given an historic opportunity to drastically reshape public understanding of climate science and boost environmentalism, yet chose to background these issues by appealing to ideologies of economic growth and national security. Although foregrounding one definition is not necessarily mutually exclusive with alternative definitions (in fact, the foreground of both national security and economic arguments proves that multiple foregrounded definitions can co-exist), in this instance, economic growth and national security became dominant frames that crowded out environmental concerns. In this way, environmental arguments, when made, lost "presence" (Perelman & Olbrechts-Tyteca, 1969, p. 116) and the economic and security benefits were "overestimated" (p. 117). Thus, when developing rhetorical strategies intended to instill environmental values, rhetoricians should be careful to foreground environmental values as their primary argument, and avoid alternative definitions that may suppress the presence of environmental concerns (p. 118).

Assuredly, other political issues--health care, the economy, immigration, Afghanistan, etc.--made a substantial investment in political capital much more difficult, but his own rhetorical choices did not help. His use of economic and national security arguments for environmental policy were unsuccessful. Numerous constraints shaped these rhetorical choices. For example, the re-emergence of climate skeptics, the growth of the Tea Party, economic woes, international climate negotiations and the BP Oil Spill all influenced an already complex rhetorical situation. However, this case study should provide hesitation for those hoping to incite civic environmental engagement through a strategy that backgrounds environmental arguments.

Chapter 5 – Scientific Counterpublics: In Defense of the Environmental Scientist as Public Intellectual

Introduction

The environmental and human health effects of stratospheric ozone depletion emerged as an issue of public concern in the United States in the early 1970s. Not surprisingly, "the initial public debate was polarized between those who predicted catastrophe and those who thought" that scientific predictions of the threat to human health were "absurd" (Morrisette, 1989, p. 803). A wide and diverse range of parties influenced the debate concerning both the link between chlorofluorocarbons (CFCs) and ozone depletion, and the arguments for regulation. Manufacturers of CFCs "opposed any effort to regulate" (p. 803) and argued that there was insufficient evidence to be certain that humans were negatively influencing the stratosphere. In opposition, a large majority of the public was concerned with the effects of a growing ozone hole; and, even before regulations were in place, "the sale of aerosol products fell sharply" (p. 804). Politicians were torn between powerful constituencies – a general population fearful of the harmful effects of CFC pollution and an extremely influential group of businesses standing in opposition to costly regulations.

A corps of scientists, let by Frank Sherwood Rowland and Mario Molina, believed that strict regulations of harmful substances were necessary to reverse the growth of the hole in the ozone. These scientists, then at the University of California Irvine, determined that CFC emissions broke down stratospheric ozone and led to an increase in dangerous radiation. Rowland and Molina dedicated themselves to making these concerns public by founding a Task Force on Inadvertent Modification of the Stratosphere to "develop a coordinated plan of action for federal agencies" (p. 804).

In December 1978, the U.S. Environmental Protection Agency banned the nonessential use of CFCs under the authority of the Toxic Substances Control Act. Amazingly, in fewer than five years, a major environmental problem was discovered and debated, regulations were designed and federal action was taken--despite the best efforts of influential business interests. Just ten years later, the Montreal Protocol, an international treaty designed to limit ozone depletion, was implemented. Compared to other environmental problems, the speed and scope of the response to ozone depletion was remarkable.

In this essay, I argue that environmental scientists who made their findings *public* played a critical role in convincing the government to regulate CFCs despite a widespread campaign by CFC manufacturers. In particular, these scientists functioned as *counterpublic* intellectuals: by standing in opposition to a public of well funded and powerful industrial lobbyists; by constituting a public discourse through task forces and government testimony; and, by rhetorically participating in multiple (scientific and lay) publics.

I develop this argument in three sections. First, I discuss relevant scholarship that traces the historical development and constitution of counterpublics. This scholarship, in large part, has focused on minority populations marginalized based on race, class, gender or sexuality. However, I push the outer edges of the counterpublic construct and find that marginalized opinions in the polity share important similarities that may advance the theoretical accuracy of counterpublic scholarship. Second, I analyze the role of atmospheric and environmental scientists in the ozone debates of the 1970s and 1980s. Their enormous influence demonstrates the critical importance of the environmental intellectual for convincing the public and politicians that environmental regulations are necessary when faced with grave environmental harm. Finally, I argue that the role of public intellectual played by

scientists in winning over public opinion may serve as an important example in contemporary debates over global warming and climate policy.

Locating Counterpublicity

In this section, I, first, examine the evolution of counterpublic scholarship. Although each scholar treats the concept somewhat differently, there are important shared commonalities that make clear the shape and function of a counterpublic. Second, I argue that this definition of counterpublic, with few exceptions, has guided scholars towards groups of people that are historically oppressed based on race, class, gender or sexuality. Importantly, this focus has generated a rich theoretical tradition that can now be expanded and applied to other identity categories that may not be so visibly subaltern. Finally, I contend that climate intellectuals who opposed powerful business interests, opened discursive space by penetrating new rhetorical outlets and participated in multiple publics simultaneously, served a critical counterpublic function.

Contemporary public sphere theory can be traced to the influential works of Jurgen Habermas. For Habermas (1989), the public sphere was a single realm founded on the "principle of universal access" (p. 85) that limited the power of the state through formation of public opinion. Each individual, given certain educational and financial status, was given the privilege to make his or her private interests public through "rational-critical debate" (p. 142, p. 178). Importantly, Habermas did not concern himself with identity differences of members within the public sphere, and instead assumed that "general interest" (p. 87) applied universally and equally throughout "bourgeois society" (p. 79). Because of these criteria, Habermas's interpretation of the public sphere left little room for competing publics.

In response to Habermas's monolithic definition of public, a wide variety of competing interpretations have developed. One decade following the German publication of *Structural Transformation*, Negt and Kluge (1993) popularized the term "proletarian public sphere" as a place where workers resist "their bourgeois opponent" through development of competing public opinions (p. 93). Negt and Kluge imagined multiple competing publics based on class difference--an important transition in the development of counterpublic theory. They characterize the proletarian public as *counter* to bourgeois interests, emphasizing "autonomous communication of the proletariat," "an expression of the self-organization and unfolding interests of the workers," and a "self-defence organization of the working class" (Fuchs, 2011, p. 296). The members of the proletarian public produced counter-ideas, counter-products and counter-media (Fuchs, 2011, p. 296-297).

Fraser (1990) similarly criticized Habermas for failing to examine "other, nonliberal, nonbourgeois, competing public spheres" (p. 75). She found multiple "counter" (p. 75) civil societies based on exclusions intrinsic to Habermas's conception of publicity. In particular, she challenged the "bourgeois, masculinist" (p. 76) conception of Habermas's public sphere--both because of its false claim to universal access and its exclusive reliance on rational-critical discourse. Her criticism of the singular, universally accessible, rational public sphere centered on "the fact that it [was] exclusionary toward subordinated social groups such as women, workers, people of color, and gays and lesbians" (Zuidervaart, 2011, p. 102). Fraser's attention to historically oppressed peoples was foundational to the rich development of a liberatory counterpublic theory.

For example, Dawson (1994) identified a subaltern "Black counterpublic" (p. 197) in historical communities attempting to achieve Black advancement. Levitt (2001) extended

Fraser's analysis to migratory communities (p. 197). Stephenson (2000) analyzed "contestatory indigenous movements" (p. 2) in Bolivia through the lens of Fraser's counterpublic. Porrovecchio (2007) studied testimonies from participants in the WTO protests in Seattle in 1999. Consistent with much of counterpublic scholarship, each of these scholars analyzed a "subaltern" (Sassoon, 1982, p. 16)--a term used to describe a population that does not possess hegemonic status--population as counterpublic. Asen (2009) extended this critical tradition by excluding the ideological conservative William E. Simon from status as counterpublic, instead arguing that textual markers of conservativism have empirically been more closely tied to oppressive publics (p. 265). In doing so, he argued that counterpublic scholarship is most useful "when contributing to a critical-theory project (Asen, 2009, p. 265).

Breaking from Habermas, these advocates of counterpublics emphasized the existence of multiple competing publics; the need to move beyond rational-critical debate as the sole discourse of public participants; and, the importance of analyzing historically disadvantaged populations when developing counterpublic theory. This rich tradition that has overwhelmingly emphasized historically oppressed populations as constituting counterpublics can now be applied to similar populations that may not face oppression based on race, class, gender or sexuality.

This extension and application has already begun. Hess (2011) broke from this tradition in his description of scientific minority opinions as "scientific counterpublics" (p. 5). In doing so, he broadened the definition of "subaltern" (Hess, 2011, p. 3) to include minority opinions in any social field. "Rather than assuming that the counterpublic is limited to a social category marked by race, class, gender, or sexuality as an historically dominated or

oppressed social category" (Hess, 2011, p. 3), Hess found that oppositional counterpublics may also arise in the "problematization of scientific authority" (Hess, 2011, p. 4). A scientific counterpublic, for Hess, arose when a group of scientists who were "located in subordinate positions in their respective research fields" (p. 4) made their findings public to a broader audience. Warner (2002) agreed, "it is not clear that all counterpublics are composed of people otherwise dominated as subaltern…some…operate as counterpublics, even though many who participate in them are 'subalterns' in no other sense" (p. 57).

Extending Hess' interpretation of scientific counterpublics, I argue that environmental scientists who participated in the ozone debates the 1970s and 1980s constituted an influential counterpublic. Instead of simply *being* counterpublic because of a specific set of demographic markers, they *performed* the "key communication dimensions" (Brouwer, 2006, p. 195) of counterpublicity by:

(1) Expressing opposition to a powerful public--in this instance, influential business interests disseminating anti-science propaganda

(2) Opening discursive space by making their comments public through task forces and government testimony

(3) Rhetorically participating in multiple publics simultaneously--the scientific public demanded by their profession, and the lay public demanded by their participation in activities of the public sphere.

The term "powerful public" in Brouwer's definition requires a critical judgment concerning legitimacy. My goal is not to deny that the aerosol industry also made claims to counterpublicity. However, given their commitment to "laissez-faire economic thought," reliance on "conservative think tanks" and "strong financial and political connections," there

is ample evidence that their claims were primarily made to support their economic agenda (Asen, 2009, p. 266). Because this public debate pitted powerful industry with strong ties to the media versus a group of scientists who were rhetorically constructed as representing the minority opinion, analyzing scientific public intellectuals as counterpublic provides important practical and theoretical insight.

Practically, counterpublic scholarship may help explain how scientists overcame a dominant industrial public in the ozone debates of the 1970s and 1980s. Thus, the model of counterpublicity may be applied to other opinions that are viewed as minority by a dominant public--for example, in debates over climate. Theoretically, this essay extends contemporary counterpublic scholarship in two ways. First, it moves beyond the focus on minorities traditionally marked as subaltern. Many of these individuals were White, well-educated, economically privileged and tenured faculty at major universities. However, "we cannot simply dismiss" them "because of their privileged socio-economic standing" (Asen, 2009, p. 265). Rather, their choice to perform the key dimensions of counterpublicity sheds light on how the rich development of counterpublic scholarship that focuses on subaltern populations may be applied in new and intriguing arenas. Second, it breaks from Warner's (2002) contention that public intellectuals, particularly those representing universities, sacrifice their claim to counterpublicity by directing their attention towards policy change (p. 124, 147). Instead, I find that it is precisely because of their desire to change government policy that this group of climate scientists performed counterpublicity.

Ozone Debates and Policy Formulation

In this section, I analyze the debates over stratospheric ozone depletion in the 1970s and 1980s. First, I discuss the campaign by influential business interests that attempted to call

into question the link between CFCs and ozone depletion and denounce the call for federal regulations. I claim that because of their public, economic and political influence, these businesses functioned as a dominant public. Second, I discuss the rhetorical response by environmental scientists. In particular, I analyze how these scientists functioned as counterpublic intellectuals. Finally, I argue that this counterpublic served a vital function that shaped public opinion to favor strict federal regulations and galvanized international support for the Montreal Protocol.

A brief introduction to the science linking CFCs and ozone destruction is helpful for understanding the rhetorical campaign by business interests that opposed limits on CFC consumption. In late 1973, Rowland and Molina, found a possible connection between CFCs and ozone depletion, despite the lack of visible evidence of actual stratospheric depletion (Mullin, 2002, p. 208). In laboratory tests, these chemists found that chlorine upset the atmospheric balance by creating "free radicals" (p. 208) that destroyed ozone.

Despite these important findings, the historical development of CFC-ozone science was far from public. The two scientists were torn between their scientific commitments and their desire to make their findings public: "recognizing the grave significance of their results, Molina and Rowland waited for the paper to appear before discussing it publicly" (Parson, 2003, p. 31). Even after Rowland and Molina published their initial hypothesis tying CFC emissions to ozone destruction in *Nature*, "there was no response from the scientific world" (Royal Society of Chemistry, No Date, p. 2). This was troublesome because, as Rowland (1995) noted, once they "realized that this was not just a scientific question…but a potentially grave environmental problem" (para. 21) the need to be heard at higher levels of the government became evident. Rowland and Molina targeted a "strong, hard-working group of

postdoctoral and graduate student research associates" to advance their research and build a base of "specialists" (para. 22) that could expose the CFC-ozone link. Fearing that their findings would go unheard, they made their theory "public" (p. 2) at the American Chemical Society meeting in September 1974. From this research at UC-Irvine, an international discourse about the link between CFCs and ozone started to circulate. By 1976, the link between CFCs and ozone depletion was confirmed elsewhere. A "major study" (Mullin, 2002, p. 209) done by the National Academy of Sciences found that 6-7 percent of the ozone would soon deplete without further regulation. These two independent findings helped this theory find "wide support" (Masters, 2004, p. 1) in the scientific community.

Rowland, in particular, took an "unusually public stance" (Rowland, 1995, p. 21l) for scientists at the time: attending and speaking at legislative hearings, being the subject of extensive media coverage and undergoing a "much heavier travel schedule" (Telegraph, 2012, para. 4) than his previously private scientific life demanded. After countless trips from Irvine to Washington D.C., he became a true "citizen-scientist, in that it seemed to come quite naturally to him to report on the results of his work out in the public sphere" (Shahan, 2012, para. 6).

However, Rowland "found himself targeted by a $28-billion-a-year industry" that "spared no effort to rubbish his hypothesis" (para. 5). Rowland was met by a skeptical public at press conferences, and "found himself peppered with hostile questions by industry representatives" in public settings (para. 5). The industry campaign questioned his sanity, and even tied his campaign against CFCs to the Ministry of Disinformation of the KGB (para. 5). Other scientists, hoping to avoid public criticism, were intentionally silent. Members of the CFC research team at NASA's Goddard laboratory "hoped to chart out a small inconspicuous

research project" (Haas, 1992, p. 192) and, according to physicist Richard Stolarski, find a "quiet" area of study where "nobody would bother" them (as cited Haas, 1992, p. 192). However, Rowland and Molina, by standing in opposition to the dominant public of the CFC industry, created the foundation for a counterpublic of environmental public intellectuals.

Based on Rowland's findings being made public, transnational environmental scientists formed an epistemic community that stood in opposition to industrial interests in maintaining widespread use of CFCs (Haas, 1992, p. 189). Individual members that "worked in universities and government laboratories which were affiliated with the National Aeronautics and Space Administration (NASA) and the National Oceanic and Atmospheric Administration (NOAA)" (p. 192) were now making their voices heard. This group of scientists had shared understandings, they were committed to reflexive scientific accuracy, agreed that the accumulation of contaminants in the ozone posed significant environmental risks and were in frequent contact (p. 189-190). As well as standing in opposition to a larger dominant public, these scientists opened discursive space and participated in multiple publics simultaneously. This counterpublic of environmental scientists made their findings public through a "variety of channels" (Haas, 1992, p. 194). In particular, environmental scientists became counterpublic intellectuals by participating in conferences and task forces, providing policy advice to government officials and approaching major media outlets.

In the decade following the public release of Rowland and Molina's findings, the federal government created the interagency Task Force on Inadvertent Modification of the Stratosphere, chaired by Dr. Guyford Stever (Ph.D., physics) and Dr. Russell Peterson (Ph.D., chemistry and environmental advisor to President Ford). The task force found that the release of CFCs posed a substantial risk to the ozone, and that ozone depletion would cause increases

in skin cancer globally (Peterson, 1999, p. 243). Peterson presented the findings at a press conference, and his statements about the worldwide nature of the problem, and the need for individual action were "quoted widely" (p. 243). These public statements were not filled with scientific jargon; instead, Peterson presented CFC-ozone science in a fashion that was accessible to the wider public. For example, Peterson stated, "it is difficult to perceive that when you are spraying an antiperspirant under your arm in the privacy of your bathroom, you are endangering the health of everyone in the world" (p. 243). His call for action was clear, concise and precise:

> Industry should start voluntarily phasing-out such CFCs in favor of environmentally acceptable substitutes…consumers should stop using all aerosol sprays…manufacturers should stop selling them voluntarily. (p. 245)

Peterson participated simultaneously in multiple publics. Although he spent his work-days laboring over complex chemical equations, he was also tasked with publicly representing scientific findings in a manner that was accessible to policy-makers and the general public. In doing so, Peterson found himself in the "front" of the "environmental revolution," a position that required him to "forgo the comfort" of the secluded laboratory (p. 251).

A large group of environmental scientists chose to join this community by taking a similarly public position. The epistemic community "drafted documents and reports" and "organized scientific panels" while simultaneously pressuring policy-makers to apply these scientific findings to policies (Haas, 1992, p. 194). In Congressional testimony about the Montreal Protocol, Michael McElroy (Ph.D., applied mathematics) and Rowland argued for a substantial reduction CFC use. The *Boston Globe* (1987) covered this testimony, and published particularly accessible quotations. For example, McElroy argued, "there is no

longer reason to doubt that industrial gases containing chlorine are responsible in large measure for dramatic, large-scale change in the stratosphere" (p. 3). In agreement, the article cited Rowland's claim that "we have to reduce emissions drastically and soon" (p. 3). By publishing researching findings in accessible language, testifying at Congressional hearings, circulating findings at large international conferences and publishing bulletins, ozone scientists found "national and international media coverage" (p. 194-195). Scientists, in a sense, were speaking two languages. They were asked to simplify their scientific discourse and sacrifice their scientific identity when faced with a lay public. However, this sacrifice was necessary to achieve public influence.

Environmental scientists, by forming an epistemic community in opposition to industrial power, opening discursive space by making their findings public and participating in multiple publics simultaneously, were instrumental in convincing policy-makers and the public that strict reductions in CFC emissions were an immediate necessity. Scientists who "articulated what scientific developments implied for policy" were a "potent political resource" for motivating domestic regulation and encouraging international cooperation for the Montreal Protocol (Haas, 1992, p. 196). Dr. Richard Benedick argued that CFC regulation "couldn't have occurred without" modern scientific methods, models and projections being applied to policy (as cited in Haas, 1992, p. 196). Environmental scientists played a significant role in predicting the effect of CFC emissions on stratospheric ozone levels, convincing the public that environmental harms outweighed economic costs, developing regulations and enforcement of global controls applied by the Montreal Protocol. Without their involvement, regulations would have taken longer to enact and would have been much weaker; and, in the absence of this group of professionals with the ability to "interpret"

scientific evidence into lay terms, "there would have been little incentive" for strict enforcement of CFC regulations (p. 222). Although their academic background may not have qualified environmental scientists to participate in the battles of changing public opinion and drafting environmental policy, many chose to leave the laboratory and join the *public* discourse.

Despite their significant successes, this community of scientists fought significant opposition. During this period, "the connection between CFCs and ozone depletion was based on theory and computer models rather than on observation and empirical data" (Mullin, 2002, p. 209). Despite a consensus on the basic linkage between CFCs and stratospheric ozone depletion, scientists were not unanimous, and several dismissed these findings as mere "speculation" (Mullin, 2002, p. 209). These two weaknesses (the use of computer models instead of empirical evidence and the fact that *some* scientists disagreed with the hypothesis) were magnified and hyperbolized by conservative government officials and industrial interests who were confronted with a financial loss to portray ozone science as extremely uncertain, and regulations as wholly unnecessary.

In the years following the initial reports, the science supporting the CFC-ozone hypothesis was publicly met with extreme skepticism. John Ehrlichmann, Nixon's chief of staff, rhetorically constructed Rowland and Molina's scientific findings as inconsistent with the rest of the scientific community. In particular, he argued that the White House was under no obligation to take the findings seriously, because even the scientists were in widespread disagreement (Mullin, 2002, p. 210). Industrial backlash fed this opposition as well.

E.I. du Pont de Nemours and Company (DuPont) was the "worldwide leading producer and marketer" of CFCs, "controlling over 45% of the CFC market" (Risciotti, 1989,

p. 42). DuPont faced the loss of a substantial market share, and thus publicly opposed domestic environmental regulations and the Montreal Protocol. DuPont engaged the scientific debate, claiming that "no ozone depletion has been detected despite the most sophisticated analysis…all ozone depletion figures to date are computer projections based on a series of uncertain assumptions" (Rowlands, 1995, p. 50). This strategy was well-funded contrarianism; Dupont "spent millions of dollars running full-page newspaper advertisements defending CFCs in 1975, claiming there was no proof that CFCs were harming the ozone layer" (Masters, 2004, p. 2). Dupont joined the larger aerosol industry, and:

> Launched a PR blitz, issuing a press release stating that the ozone destruction by CFCs was a theory, and not fact. This press release, and many other 'news stories' favorable to industry, were generated by the aerosol industry and printed by the New York Times, Wall Street Journal, Fortune, and the London Observer. (Masters, 2004, p. 2)

DuPont's (1975) full-page *New York Times* advertisement stated, "You want the ozone question answered one way or another. So does DuPont…Before a valuable industry is hypothesized out of existence, more facts are needed." This statement not only posited DuPont and the larger population on the same side of the debate, but also co-opted the term *hypothesis* that had been consistently repeated by advocates of regulation.

In a similar *Chicago Tribune* advertisement, DuPont's chairman Irving Shapiro (1975) deplored the "'ban now-find out later' approach" as a "disturbing trend" (p. C9). He argued, "there is no experimental evidence to support the contention that FREON and other similar compounds have caused a depletion of the ozone layer (Shapiro, 1975, p. C9). Emphasizing the uncertainty of the scientific conclusions, he stated, "assumptions are challenged on both sides. And nothing is settled. Nor will there be any hard answers until some hard facts are

produced" (Shapiro, 1975, p. C9). In this advertisement, Shapiro called into question what should count as legitimate science, evidence and facts. Although he did not cite Rowland and Molina, he noted that those in support of the CFC-ozone linkage were merely "theorists" while there were "scientists" and "researchers" supporting DuPont's arguments (Shapiro, 1975, p. C9). In the trade magazine *Chemical Week*, Shapiro stated that the theory linking ozone depletion to CFCs was "a science fiction tale…a load of rubbish…utter nonsense" (as cited in Masters, 2004, p. 2).

DuPont testified to congress at least 8 times in congressional debates over domestic regulation and the Montreal Protocol (Glyphis, 1995, para. 6). One senior DuPont official argued before a U.S. Senate panel that the "chlorine-ozone hypothesis is…purely speculative with no concrete evidence…to support it" (as cited in Benedick, 1998, p. 12). The demand for "concrete" evidence was one that could not be easily met, because Rowland and Molina's hypothesis was based on lab experiments. Moreover, DuPont founded the Alliance for Responsible CFC Policy (quite the benign sounding name) "to discredit the ozone theory" and issued propaganda hoping to "discredit the leading researchers, Rowland and Molina" (Mullin, 2002, p. 212). In doing so, DuPont blurred the line between legitimate advocacy and outright disinformation. In addition, CFC producers and manufacturers hired "the world's largest public relations firm" to sponsor a "month-long U.S. speaking tour in 1975" for a prominent British scientist, Richard Scorer (Masters, 2004, p. 3). Despite never publishing any peer-reviewed works on the subject, Scorer attacked the credibility of scientists supporting the CFC-ozone destruction theory, and denounced Rowland and Molina as doomsayers (Masters, 2004, p. 3).

As late as 1994, industrially funded advocates were still arguing for a repeal of CFC regulations. Also laying claim to counterpublicity by portraying himself as "one voice in a growing chorus of protest against" the ban on production of CFC's, Robert Dornan (1994) testified to Congress, introducing CFC regulations as "the most scientifically baseless, politically oppressive, morally bankrupt [and] economically destructive, environmental farce" (para. 1). Dorman (1994) compared the claims of environmental harm by environmental scientists as analogous to "the 15th-century Europeans" who "were told of sea monsters at the edge of a flat earth" (para. 17).

Influential "economic interests" were a "critical ingredient" in the backlash to ozone science (Fisher, 1997, p. 77). Largely due to the substantial influence of businesses, the public discourse shifted from environmental concern over CFCs to fear of economic loss if regulations were to be implemented. Pennwalt Corporation, the third largest manufacturer of CFCs in the U.S., predicted that CFC regulations would produce "economic chaos" (Vanner, 2006, p. 8). Dupont warned of industrial failure, and the Association of European Chemical Companies foresaw an international economic decline if strict CFC regulations were to be put in place (Masters, 2004, p. 2). One U.S. representative to the Montreal Protocol stated that ozone depletion was "not an environmental issue," but rather "an economic issue" (as cited in Passacantando and Carothers, 1995, p. 7). Economic rebuttals from economists and policy-makers based on the availability of cheap substitutes were disregarded because of the risk that acting first would put the U.S. at a competitive disadvantage to European CFC producers. Historically consistent with other domestic debates over other environmental regulations, as fear of economic collapse became the dominant narrative, the environmental impact of CFCs was backgrounded and forgotten.

Industrial lobbyists, because of their economic and political influence, became a dominant public in the ozone debates. Multinational corporations that were wedded to the production and manufacturing of CFCs hyperbolized scientific disagreement, funded a disinformation campaign and inaccurately represented economic costs of regulation. In doing so, a dominant discourse was created that treated scientific opinions concerning ozone science as marginalized minorities. In order to win this debate, environmental scientists had to form a public that was *counter* to these well-funded skeptics by expressing opposition publicly, opening discursive space through different avenues of public media and rhetorically participating in multiple publics.

The CFC-ozone debate presented a unique challenge to scientists, policy-makers and diplomats. The nature of the problem required overcoming industrial backlash to regulation and forging a global consensus that would prevent safe-havens of CFC production and use. Throughout the course of the debate, "governments allowed commercial self-interests to influence their interpretations of the science" and "political leaders were prepared to accept…environmental risk rather than impose...costs" (Benedick, 2000, p. 19). Given these hurdles, neither domestic regulations nor the Montreal Protocol were inevitable (p. 19). A community of environmental scientists, circulating a counterpublic discourse in opposition to influential business interests, "prevailed over" disinformation, anti-science propaganda and hyperbolized claims of economic costs, and "were pre-requisites to a political solution" and (p. 20). The Montreal Protocol may be the "forerunner" of an important "partnership between scientists and policy makers" as daunting environmental challenges of the 21st century unfold (p. 25). In particular, the role of environmental scientists in the CFC-ozone debates provides

an important model for changing public opinion and motivating policy changes to prevent the worst effects of global warming.

Environmental Scientists as Counterpublic Intellectuals

In this section I, first, briefly review the contemporary theoretical debate over the role of the public intellectual. Second, I argue that the ozone debates in the 1970s and 1980s closely resemble the global warming debates in the early 21st century. Building on these similarities, I, finally, contend that despite the criticisms of public intellectuals, environmental scientists fulfill a unique function that is irreplaceable in public debates over global warming. I argue that in the context of global warming debates, environmental scientists must *counter* industrial influence by taking on the role of the public intellectual. Here, I preview the arguments scientists must make to overcome public disbelief in the anthropogenic global warming hypothesis.

The role of the public intellectual is to tie scholarly research to policy by making their findings accessible to the larger public. In defense of the public intellectual, Mills (1959) argued:

> It is the political task of the social scientist—as of any liberal educator—continually to translate personal troubles into public issues, and public issues into the terms of their human meaning for a variety of individuals. It is his task to display in his work – and, as an educator, in his life as well—this kind of sociological imagination. (p. 187)

For Mills, it was the duty of the scientist to participate in multiple publics--engaging peers through scientific discourse and the public through a translation of scientific discourse into a more accessible vocabulary. A diverse group of contemporary figures have promoted academics stepping out of the ivory tower to participate as public intellectual.

Richard Rorty, taking after Dewey, attacked ivory tower philosophy for its "remoteness and its increasing professionalization" (Guignon and Hiley, 2003, p. 1), arguing instead for a pragmatist axiology in which theory was guided primarily by practice. Giroux (2012) found that "gated intellectual" (para. 5) communities too often refused to admit social responsibility intrinsic to academic work, and thus committed a terrible disservice to those who need them the most. He argued that, instead of these ivory tower conservatives, "engaged public intellectuals" were "especially needed at a time when it [was] necessary to resist the hollowing out of the social state, the rise of a governing-through-crime complex and the growing gap between the rich and the poor" (para. 10). The alternative to academic engagement, Giroux argued, was a public discourse infiltrated by "right-wing extremists" (para. 1) that threatened to undercut "democratic public life" (para. 1). Both Rorty and Giroux provide a strong justification for the role of public intellectuals as counterpublic. Absent the public defense of pragmatic and well-informed solutions, scientists cede the public sphere to corporate interests that care more about their pocketbook than the well being of the polity. Despite these robust defenses, public intellectualism is not without its critics.

Edwards Park asked for scholars to remain separate from the public discourse by conducting "scholastic disputes in a scholastic way" and worried that "we do wrong to our minds when we carry out scientific difficulties down to the arena of popular dissension" (as cited in Bender, 1997, p. 12). Posner (2001) found that public intellectuals, although often entertaining, reflect "only a superficial engagement with the facts" (p. 2). The problem, according to Posner, is that many public intellectuals write about a broad array of subjects that are not closely related to their academic field. However, it does not follow based on these criticisms that the whole species of public intellectualism warrants rejection. Rather, these

criticisms incite caution; clearly, the public should not blindly accept information simply because it is presented by academics in the public sphere.

Warner (2002) presented a much more nuanced criticism of public intellectualism. Contrary to the thesis of this essay, he argued that intellectuals lose their counterpublic nature once they adapt their discourse to facilitate circulation (p. 157-158). There certainly is a "risk of publicness" (p. 151) faced by traditional academics entering the public sphere. What Warner ignores, however, is the similarities between some public intellectuals and the counterpublics that he exalts. To decry the role of the public intellectual in toto may risk throwing the baby out with the bathwater. Specifically, these attacks have overlooked the empirical success of environmental scientists *countering* industrial opposition to progressive climate policy.

Although many have decried the public intellectual, the CFC-ozone debates show that counterpublic intellectuals can be a positive force. This success need not be an isolated feat. In fact, there is great similarity between ozone debates in the 1970s and 1980s and the global warming debates in the 21st century. Examining three key similarities may prove fruitful for understanding what discursive strategies may help advance progressive climate regulations.

First, both ozone destruction and global warming are global, human-induced, multi-decadal environmental concerns (Matthews & McKenzie, 2006, p. 1). Although this may seem obvious, it is important to note, given the historical inability for environmental issues to resonate strongly with the public (Newport, 2009, para. 1). Feygina et al. (2010), a team of psychologists, use the System Justification Theory to contend that humans are psychologically driven to "deny environmental problems and resist meaningful attempts" (p. 328) to reform the status quo. According to this study, people who are asked to change their

consumption habits are predisposed to "defend and bolster" (p. 328) the existing, polluting, system. However, these psychological tendencies are not determinative; and, devising "persuasive communication" can reverse this motivation and "channel it in a pro-environmental direction" (p. 336). Given the successful regulation of CFC pollutants, communication strategies used in the ozone debates may be applicable in contemporary global warming discussions. In particular, public dissemination of scientific information, persuading the nature of the catastrophic nature of the risk and gaining industrial allies for policy change are three approaches that bred success in achieving support for the Montreal Protocol (Morrisette, 1989, p. 816).

Second, each has a scientific consensus linking anthropogenic emissions to environmental degradation. Scientific developments were a "key factor in reaching agreement" (Morrisette, 1989, p. 816) over policies to limit CFC emissions. For example,

> There was considerable disagreement among scientists over the problem of stratospheric ozone depletion in the 1970s, improvements in the collection and assessment of data and in models in the past decade have led to the development of a stronger scientific base on which to argue for and develop control strategies. (Morrisette, 1989, p. 816)

However, in each instance this strong scientific consensus is countered with a "well-funded campaign" (Lloyd, 2011, p. 6) of skepticism. Comparing the difficulty faced by ozone scientists to contemporary global warming debates, Masters (2004) argued:

> Once again, we find a theory that has wide support in the scientific community being attacked by a handful of skeptics, publishing outside of the peer-reviewed scientific

> literature, their voices greatly amplified by the public relations machines of powerful corporations and politicians sympathetic to them. (p. 8)

Even scientific "consensus" does not necessitate unanimity, and, often, minority scientific opinions receive much more attention in the public media (Anderegg, Prall, Harold and Schneider, 2010, p. 12109). Since neither ozone destruction nor climate change are easily linked to short-term, visible environmental changes, policy-makers are left with a cacophony of competing "expert" opinions to develop solutions. However, a scientifically educated public that understands the large risks associated with global warming will contribute to "political interest in the problem and the search for a solution" (Morrisette, 1989, p. 817).

Third, each debate is over the competing impacts of long-term environmental harm and short-term environmental costs. A consistent theme used by opponents of environmental regulation is to argue that the long-term environmental harm is not a large enough problem to justify imposing economic harm. This prioritization of economic harm has been historically successful. A 2009 Gallup poll found that "a majority of Americans say economic growth should be given the priority, even if the environment suffers" (Newport, 2009, para. 1). Opponents often point to the economic cost of regulation, the need for voluntary (as opposed to regulatory) measures and the loss of economic competitiveness if the United States takes regulatory action before an international accord is agreed upon. However, in the case of CFC regulation, "growing scientific evidence" "softened" industrial opposition because large corporations started to understand that some form of regulation was inevitable (Morrisette, 1989, p. 818). Because of this perceived inevitability, "the debate shifted from whether regulation was necessary to when and how to regulate" (Morrisette, 1989, p. 818). Just as "producers and users of CFCs in the United States waged a long, hard battle against the

regulation of CFCs" (Morrisette, 1989, p. 818), industrial opposition to carbon regulations have gone to great lengths to question the science supporting ACC hypotheses. However, climate scientists used public argument to counter this opposition and overcome opposition. For contemporary debates about global warming policy, overcoming industrial opposition requires the development of economic alternatives to carbon, and strengthening public and political support for regulation.

Finally, both ozone destruction and global warming are problems that cannot be addressed by one nation alone. Instead, each requires national and international efforts. The Montreal Protocol is widely believed to be a "swift" response to ozone destruction (Masters, 2004, p. 9). However, it took over a decade after national regulations were put in place to reach international consensus on the Montreal Protocol. Given the nature of climate tipping points, and the length of time that CO2 remains in the atmosphere after release, the international community must move more quickly to combat global warming.

Given these similarities between ozone debates in the 1970s and 1980s and contemporary global warming debates, environmental scientists can use ozone as a model for formulating a scientific counterpublic. First, environmental scientists must stand in opposition to public discourse dominated by well-funded industrial interests, conservative media and exaggerated skepticism. Just as stratospheric ozone scientists formed a community based on shared discourse, contemporary environmental scientists must form a transnational counterpublic based on faith in the scientific method, concern of environmental harm and the need for progressive environmental regulation. This oppositional stance is necessary, but not sufficient for influencing public opinion and policy formulation--a more *public* representation is also needed.

Second, environmental scientists must constitute a public discursive space (Brouwer, 2006, p. 197). Currently, "researchers rarely communicate directly with the public" (Andresen, 2009, p. 9) and may have their goals better served by constitution of a public discourse of (and about) science. In doing so, they should publish in non-scientific disciplines, find alternative media outlets and infiltrate discursive space dominated by industrial interests. If science is to overcome anti-intellectual biases among the broader public, "it is important that citizens get used to scientists arguing out controversial facts, theories, and issues" (Miller, 2001, p. 119) in public. Instead of remaining "backstage," environmental scientists must "become more visible" if the general public, and policy-makers, are going to take their findings more seriously (Miller, 2001, p. 119). This move into the public, requiring both sacrifice and vulnerability, will require scientists to participate in multiple competing publics simultaneously--the scientific public where findings are produced and the lay public that demands a translation of scientific findings into an accessible vocabulary.

This third requirement, participation in multiple publics, asks scientists to become rhetoricians--using persuasive tactics to represent their findings in order to convince the broader public and policy-makers of the need for progressive environmental regulation. The time in which science can be isolated "from society is clearly over" (Madsen, 2007, p. 170). Despite the historical, theoretical and practical divisions between scientific and lay discourses, environmental scientists must embrace the challenge posed by the inevitable intersection of the scientific sphere and public spheres and "establish meaningful communication across" these eroding "barriers" (165). To do so, environmental scientists must step down from the

ivory tower of academia, out of the comfort of the laboratory and into "both worlds" (p. 166) of science and politics.

As counterpublic intellectuals, a transnational community of environmental scientists can fulfill a vital function for limiting the worst effects of global warming. In particular, this group of scientists should publicly lobby for government regulations based on scientific findings; publicly defend the objectivity and neutrality of the scientific method; and publicly serve as leaders of the environmental movement. Several environmental scientists are embracing counterpublicity by publishing findings at: Climate Central, Yale Environment 360 and the Yale Forum on Climate Change and the Media (Fahy and Nisbet, 2011, p. 790). For example, James Hansen, head of the NASA Goddard Institute for Space Sciences, has publicly opposed industrial influence on climate science by constituting lay public spaces. For example, Hansen translated his climate research into congressional testimony, traveled on a public speaking tour in defense of climate science, authored non-scientific books and has been arrested for public protest of environmentally damaging practices. He has consistently translated his scientific findings into a publicly accessible vocabulary, because "he wants people to understand the facts and the urgency of our climate problems, and demand immediate change" (Shetterly, 2012, para. 8).

Conclusion

Understanding the role of environmental scientists in the 1970s and 1980s as counterpublic intellectuals has substantial theoretical and practical implications. In this section I, first, argue that this interpretation of counterpublicity requires a broadening of contemporary definitions of counterpublicity. If one accepts a group of wealthy, tenured scientists as counterpublic, this may modify the way counterpublic scholars view oppression

and marginalization. Second, I contend that, contrary to several counterpublic scholars who decry the role of the public intellectual, environmental scientists *become* counterpublic when they perform as public intellectuals. Finally, I conclude that an influential counterpublic composed of environmental scientists is necessary to combat industrial influence, shift public opinion and develop regulations to combat global warming.

Contemporary counterpublic scholarship has focused almost exclusively on minority populations marginalized based on race, class, gender or sexuality. This emphasis has served the development of the tradition extremely well. Scholars of the public now have the tools to analyze how competing publics interact, how counterpublics develop and in what ways the dominant public reacts (either by cooptation or opposition) to counterpublic discourses. However, this tradition, with few exceptions, has largely ignored other forms of marginalization that may demand counterpublicity. Using Brouwer's (2006) working description of the discursive features of a counterpublic--oppositional discourse, constitution of a discursive arena and a dialectic of retreat from and engagement with other publics (p. 197)--I contend that scholars may benefit from broadening their interpretation of what constitutes a marginalized/subaltern public. For example, ozone scientists who performed as public intellectuals served a counterpublic function by publicly opposing the dominant anti-science discourse funded by CFC producers and manufacturers. Environmental scientists like James Hansen fulfill a similar role in contemporary global warming debates.

Importantly, understanding these scientists as counterpublic serves two functions. First, it highlights the way in which industrial influence on government policy acts as a dominant and marginalizing force. Instead of understanding these forces as two equal publics, exposing the *counter*publicity of environmental scientists acknowledges that in many

ways the deck is stacked against them. Although an argument could be made that the CFC industry also laid discursive claim to counterpublicity, I am skeptical that treating them as such serves the critical project. Instead, taking cue from Asen and Brouwer, it may be more beneficial to look at intersections of discourse, materiality and ideology to determine legitimacy. Second, it enlarges scholarly interpretation of marginalization. Too often, the focus on race, class, gender and sexuality overlooks more subtle forms of marginalization, like the treatment of scientific opinion in a polity. Although not every marginalized public must be approached as counterpublic, Brouwer's working definition may provide guidance for application of counterpublic research beyond the identities originally studied by the field. This essay also sheds light on the relationship between counterpublic scholarship and public intellectualism. Although some scholars (Warner in particular) have decried the role of the public intellectual, the success environmental scientists had in convincing the public and policy-makers that ozone regulations were an immediate necessity should provide skepticism to critics of the genre of public intellectualism. Surely, some public intellectuals have made inaccurate predictions, served the dominant interests of industry and/or argued well beyond their academic qualifications. However, on issues that meet at the intersection of science and politics, scientists are invaluable force for understanding difficult concepts, changing public opinion and developing political solutions.

Chapter 6 – Conclusion

Introduction

Global warming is a significant environmental concern that may, in many ways, define the 21st century. The science supporting the fundamental tenets of the ACC hypothesis is solid. Although there is some uncertainty concerning the magnitude and timing of the worst climate impacts, there is a consensus among qualified climate scientists that global warming is happening, human induced and a threat to future generations. Throughout the next century, most climate scientists project rising temperatures, decreased arable land, rising sea levels, loss of biodiversity and several climate threat multipliers (e.g., refugee crises, resource shortages, etc.).

Despite the high magnitude of the risk and the scientific consensus supporting the ACC hypothesis, public support for policies to limit greenhouse gas emissions has been limited. Although there are many causes for this phenomenon, public disbelief in climate science is a primary concern. Because large portions of the public do not trust scientific data supporting climate change theories, climate science has not translated into changes in policy or individual consumption. In fact, this discrepancy between scientific consensus and public disbelief has undercut one of the best motivators for climate regulations, a motivated populous:

> Whether policymakers seek to understand the science depends on whether the public values leaders who value science. Even if policymakers fully understood climate science, their ability to implement policies consistent with that knowledge, given societal goals, is constrained by the lack of grassroots political support. The public cannot be ignored. (Sterman, 2011, p. 815)

Several psychological, sociological and political explanations for public skepticism were outlined in chapter one, but the subsequent four chapters demonstrated that this is a fundamentally rhetorical problem. Pointing to rhetoric as the proximate cause of public skepticism, Romm (2008) noted that "poll after poll shows that scientists…are failing to persuade large segments of society about the urgent need to act" (para. 2). Therefore, rhetorical theories provide guidance for how to change public opinion and create an environmentally concerned public.

The preceding chapters have outlined a diverse set of interrelated causes of environmental apathy among the public. Given the importance of the issue and the significant barriers to progressive environmental policy, the problem may seem daunting. However, if climate change is given "presence" (Perelman & Olbrechts-Tyteca, 1969, p. 116) through the foregrounding of environmental science, then there is a possibility for a widespread change in attitude, consumption patterns and policy. Using theoretical tools developed in rhetorical disciplines, the "presence" of the harm of global warming can become a "psychological element" that "controls how the audience perceives, conceives and remembers the rhetor's objects, ideas and lines of argument" (Long, 1983, p. 110).

As well as outlining the causes of public apathy, each preceding case study offers clues for rhetorical correctives to help combat climate skepticism and move public opinion closer to scientific opinion concerning ACC theories. The Climategate scandal, analyzed in chapter two, pointed to the need to develop quick responses to accusations of conspiracy, responses defending the scientific discipline broadly, not just refuting the facts of the charge. The discourse of the Heartland Institute and other conservative think tanks, analyzed in chapter three, shows that the anti-environmental movement is willing to use deceptive

strategies of definition and naming--strategies that require consensus scientists to respond with even stronger efforts to distinguish themselves from their anti-environmental counterparts. Chapter four discussed the need for an environmental president, noting the inadequacy of economics and national security justifications for environmental policy. Chapter five pointed to the need for an epistemic community of climate scientists willing to defend climate science in a more public setting. The purpose of this final chapter is to expand upon and clarify these clues, and to provide a set of rhetorical correctives to help reverse these troubling trends.

The final chapter follows in two parts. First, I outline rhetorical correctives by building upon the findings in the preceding case studies. I recognize that none of the proposed solutions are silver-bullets, and each may introduce new risks. However, if climate scientists are to make their mark on public opinion, the solutions proposed below are worth taking seriously. Second, I conclude with the shortcomings of this series of case studies, and preview areas for future research.

Rhetorical Correctives

If climate scientists choose to embrace a more public position with a rhetorical defense of their findings, they will be asked to navigate a difficult rhetorical terrain. Two factors--an environmentally unexcited public and well-funded conservative organizations--make this task notoriously challenging. However, the preceding case studies provide guidance for developing persuasive representations of complex scientific data. In what follows, I outline a template for motivating the public to embrace scientific findings, based on four rhetorical correctives. Specifically, scientists should:

(1) Embrace rhetoric

(2) Recognize the importance of a motivated and informed citizenry

(3) Utilize alternative media outlets

(4) Inoculate the primary causes of public disbelief, including, the time lag of visible impacts, the concern that science is manipulated and conspiratorial, the overshadowing of global warming by economic uses and the problem of "uncertainty" in scientific theories.

None of these proposed rhetorical correctives is certain to transform public opinion, and each may introduce new costs. However, the cumulative implementation of these proposals may be the best avenue for using climate science to change public opinion and motivate policy responses.

Embrace Rhetoric

Climate scientists have a complex relationship with rhetoric. For example, climate "scientists do not like to repeat themselves," because they "like to focus on the things that they don't know…so they don't keep repeating the things that they do know" (Romm, 2008, para. 14). Moreover, the climate science community has typically avoided persuasive framing in favor of descriptive and neutral language, because:

> Scientific training…emphasizes sticking to facts and speaking literally, as opposed to figuratively or metaphorically. Scientific debates are won by those whose theory best explains the facts, not by those who are the most gifted speakers. (Climate Progress, 2010, para. 16)

The Climategate case study demonstrates how the aversion to rhetoric may backfire because conspiracy accusations that call into question the neutrality of science itself are not easily defeated by more scientific data.

Because of these tendencies, an artificial divide between rhetoric and science in the academic climate field has been established. On one side stands purely descriptive scientific vocabulary (e.g., temperatures, satellite data, measurements of arctic ice thickness, etc.), and on the other stands the rhetorical depiction of that data to the public. Unfortunately, most climate scientists have accepted this divide, choosing to remain solely in the esoteric academic exchange of scientific journals instead of translating scientific information into a publicly accessible discourse. However, this strategy is short-sighted and ineffective for two reasons: (1) it allows the public debate to be controlled by skeptics and fringe scientists; (2) it ignores the obvious fact that one of the best tools that environmentalists have to create an environmentally concerned populous is strong scientific consensus supporting the ACC hypothesis.

Writing well before the emergence of climate science, and popular media in its current form, Burke (1969) spoke prophetically about the necessity of scientists embracing rhetoric. Burke feared that while science characterized itself as empirically objective, the impurities of science (uncertainties) would be detected, portrayed and exploited. However, because scientists are often concerned with "science qua science," their response to criticism is too "abstracted" to rectify the tension between scientific findings and public opinion (p. 505). Practically, scientists view themselves as objective and rational--unconcerned with mere rhetoric:

> The authors of scientific reports and similar papers often think that if they merely report certain experiments, mention certain facts or enunciate a certain number of truths, that is enough of itself to arouse the interest of their hearers or readers. This attitude rests on an illusion, widespread in certain rationalistic and scientific circles,

> that facts speak for themselves and make such an indelible imprint on any human mind that the latter is forced to give its adherence regardless of its inclination. (Perelman & Olbrechts-Tyteca, 1969, p. 17).

This artificial division of science and rhetoric treats science as a supposedly objective body of discourse, while rhetoric is seen as merely "the manipulation of men's beliefs for political ends" (Burke, 1969, p. 41). Because of this, the supposed purity of scientific language does little to influence the public because even a "'good' rhetoric neglected by the press obviously cannot be so 'communicative' as a poor rhetoric backed by nation-wide headlines" (Burke, 1969, p. 25-26). Thus, valid and significant scientific findings are most often not effectively disseminated to the public.

In response to the view that scientific vocabulary alone was sufficient to influence public policy, Burke (1969) argued that scientists should hire "a batch of poets" (p. 15) to make their message appeal to the "average Middle-class audience" (p. 16). By "poets" Burke is using his distinction between semantic and poetic language--semantic being purely descriptive and poetic incorporating the rhetorical. Integrating the rhetorical into scientific discourse would allow for scientists to create a "motivational recipe" (p. 17) that could portray findings persuasively. Scientists, rather than rejecting the interconnectedness of science and rhetoric, should instead "recognize the factor of rhetoric in their field" (p. 43). For scientists hoping to argue persuasively, it is not sufficient to use "strictly the scientific vocabularies of description;" rather, an "inducement to action" demands that scientists become rhetoricians (p. 42). In doing so, scientists may more successfully "engage with the public and be vigilant against projecting stereotypes of their profession--such as the elitist, arrogant scientist" (Lloyd, para. 17, 2011).

Whether it requires hiring poets to speak, or hiring poets to teach, Burke's point is clear: scientific vocabulary alone is unlikely to change public opinion on complex scientific matters. Simply introducing more scientific information into the public sphere is not likely to transform public opinion or influence public policy; rather, this information must have a targeted goal of persuading a specific audience to accept the position held by climate scientists. Instead of *solely* taking "refuge in peer review" and blaming climate skepticism on public illiteracy, climate scientists must use all media available to counter the "campaign" of skepticism that mirrors the "strategies honed by the tobacco industry" (Keller, 2011, p. 22). Researchers have an "obligation to the public" to publicly defend the findings of climate science and "convey the results of their expertise to those likely to be affected by the implications of those results" (p. 23). Chapter four supports the hypothesis that the consensus opinion on climate change can be rhetorically foregrounded to create a presence that motivates a progressive environmental citizenry (Perelman & Olbrechts-Tyteca, 1969, p. 116).

Inducing pro-ACC environmental action among the public will require more than just engagement on the part of scientists, but will demand a rigorous examination of which rhetorical tactics are the most effective in persuading the public. Rhetorical correctives may come in the form of training sessions or classes and should be developed based on audience-centered message analysis. To this end, scientific organizations may choose to hire rhetorical and media scholars to provide consulting advice for how scientific information should be disseminated. There is likely no single rhetorical solution; rather, an array of efforts must be put forth from the scientific community if activists hope to translate scientific findings in a manner that will align public opinion with scientific consensus on global warming.

Recognize the Importance of an Informed and Motivated Citizenry

It is relatively easy for politicians to find excuses to ignore global warming. Chapter three outlined how conservative think tanks have undercut public support for progressive environmental regulations by evoking public skepticism of climate science. They have done this by calling into question the neutrality of climate science, highlighting the negative economic effects of environmental regulation and hyperbolizing the uncertainties of consensus climate science. This trend is consistent with the findings in chapter four--President Obama avoided public discussion of climate science, instead favoring economic and national security justifications for his environmental policy. There is also historical precedent for this problem of climate prioritization: the policy response to the ozone crisis was similarly lethargic until a dedicated group of public intellectuals entered the debates to help overcome political inertia.

For most politicians, there is always a more pressing and immediate concern--unemployment, foreign policy, health care, immigration, etc. Other issues hold the political advantage of having immediate and visible impacts, as well as having widespread popular support for policy change. Because of this, policies to address global warming (e.g., Kyoto Protocol, cap-and-trade, agency rule-making, etc.) have faced either apathy or outright opposition. However, an informed and motivated public may be one of the greatest tools climate advocates could use to pursue political solutions to global warming. In fact, motivating the public may be a pre-requisite to effective regulation of greenhouse gas emissions:

> Politicians, government officials, and the public pay attention to public opinion reflected in polling data. While public opinion may not ultimately settle issues, it

> almost always factors in decision making, as accounts of the operations of the Bill Clinton and George W. Bush administrations indicate. And if public opinion is especially one sided, it may actually be controlling. (Sparrow, 2008, p. 579)

If climate activists hope to use climate science to achieve "major policy change," then "new meanings and messengers for climate change are needed"--and science should become a central emphasis (Nisbet, 2009, p. 22). An epistemic community of dedicated public intellectuals may be the best antidote to industrially funded organizations hoping to limit progressive environmental regulations.

However, motivating the public should not just be left up to climate scientists alone. Other influential figures should use environmental science as one of the tenets of their platform for environmental sustainability. In concurrence with the conclusion in chapter four, Breakthrough Strategies and Solutions (2012) strongly suggested that President Obama should instill environmental values in the public by including action against climate change as a central component of his 2012 campaign (p. 3). Moreover, there is a burgeoning eco-pedagogy movement that argues for teachers to develop an environmental curriculum that foregrounds sustainability. Kahn (2010) proposed an eco-literacy paradigm for schools in the global North in an attempt to reverse unsustainable consumption practices that were largely ignored by most curricula. Misiaszek (2011) built upon this paradigm to develop "Environmental Education Programs" that incorporate social justice models into daily classroom activities (p. 1). These classroom models may be particularly important for environmental sustainability given the long-term resonance of beliefs learned in early childhood (Barnett, p. 43, 1995). Tactics developed by these environmental educators may be applicable to environmentalists hoping to reach a broader adult audience as well.

Chapter one provided a more thorough description of the importance of public opinion in determining public policy, but there is another advantage to public belief in consensus climate science: the potential to change individual consumption patterns. As individuals gain information about the relationship between energy consumption and global warming, they may be motivated to limit environmentally unfriendly choices. This recognition allows consumers to create new pathways towards environmental sustainability; for example, individuals may reduce consumption by buying "high fuel-economy cars or compact fluorescent light bulbs" (Oppenheimer and Todrov, 2006, p. 5). The cumulative effect of a more reflexive and informed citizenry has the potential to significantly limit greenhouse gas emissions and stave off some of the worst effects of global warming. Therefore, even in the face of widespread political opposition to new climate regulations, an environmentally conscious populous is an important component of the strategy to limit global warming.

Utilize Alternative Media Outlets

Translating complex climate science through contemporary news media presents a host of problems. Namely, there is limited time and space to argue, complex findings can be reduced to simple headlines, most news organizations portray both sides of every issue to provide a balanced perspective and (paradoxically, given the importance of balance for most commentators) some news organizations are so biased that climate science is unlikely to be represented accurately. Despite these problems, the conclusion is not defeatism; rather, climate scientists hoping to use public media outlets to engage the public must adapt their approach to reach a broader audience with *their* message. Three particular strategies are noteworthy.

First, climate science may be more persuasive if it is represented and learned through a deliberative exchange. Climate science may gain more traction with the public if scientists perform as counterpublic intellectuals by taking the time to "engage in public forums such as blogs, question-and-answer sessions and public talks" (Lloyd, 2011, para. 16). Instead of a one-way transmission of scientific information, climate scientists should engage in forums "where a variety of stakeholders could participate in a dialogue and exchange of views about science policy" (Nisbet & Scheufele, 2009, p. 1769). The effectiveness of this strategy is well documented. Internationally, "there has been a wave of consensus conferences, deliberative forums, and town meetings on a number of issues," that have shaped "perceptions of scientists as open to feedback and respectful of public concerns, perceptions that predict eventual acceptance and satisfaction with a policy outcome, even if the decision is contrary to an individual's original preference" (p. 1769). Having a stake in the dialogue and viewing science as relevant to their concerns has created a more trusting public with regard to scientific concerns. This model, applied to climate science, holds great potential.

Second, significant scientific content must find its way onto the local news. Although not as glamorous as national news, surveys show that "local television news remains among the dominant sources of public affairs-related information for the American public" (Nisbet & Scheufele, 2009, p. 1774). Scientists may choose to make television appearances themselves, or provide their information to organizations that "produce climate science stories for syndication at local television outlets across the United States" (p. 1774). Despite innovations in social media and the growing importance of the Internet for disseminating daily news, "local people" "still trust their local newspaper (more than they trust the national media) to tell them what's really going on" (Collingham, 2012, para. 26). Coming up with alternatives

to national television and newspaper media may, in the near future, be a necessity for overcoming the conservative bias currently influencing representations of climate change science within the media (Lloyd, 2011). This particular strategy of "going local" may help reverse the perception of scientists as elitist and unconcerned with problems that affect the general public.

Third, scientists should use web media sources that engage in interactive and iterative learning processes. This approach can help replicate the process of scientific experiments for a lay audience and may be particularly helpful when dealing with a young audience. When developing hypotheses concerning climate science, scientists generate "feedback through controlled experimentation, an iterative process through which intuitions are challenged, hypotheses tested, insights generated, new experiments run" (Sterman, 2011, p. 823). However, scientists often portray their "results to policymakers and the public" by a one-way dissemination of "reports and presentations" (p. 823). This strategy often times creates resistance because the targed audience feels "excluded from the process" (p. 823) of scientific discovery. Instead, scientists should use "interactive, transparent simulations of the climate" that "give people control over assumptions and scenarios" to "help people develop their understanding" of basic climate science (p. 823). In particular, interactive websites that visualize the impact of climate based on user input variables provide a valuable learning experience and make complex models easily understandable.

Inoculate the Primary Causes of Public Disbelief

Introduced by McGuire and Papageorgis (1962), inoculation theory provides valuable guidance for promoting attitude change and limiting the persuasive effectiveness of climate change skeptics (p. 24). By exposing the audience to predictable counter-arguments and

rebutting those arguments proactively, one can effectively undercut the persuasiveness of the opposition's message. There are several powerful arguments that must be inoculated in order to reverse public apathy and motivate the public to support progressive environmental policy. In particular, scientists must address the time lag of visible impacts, the concern that science is manipulated and conspiratorial, the overshadowing of global warming by economic uses and the problem of "uncertainty" in scientific theories. Chapter three points to the difficulty of overcoming these dispositions because of the financial strength and zealous persistence of conservative think tanks. However, a renewed rhetorical campaign in defense of climate science may prove capable of undercutting even the strongest resistance.

First, it is difficult to tie consumption choices to negative ramifications because the largest impacts of global warming will not be visible for some time. As discussed in chapter one, it is psychologically much easier to remain apathetic to a future concern than one that is immediately present. Therefore, even if the public were to trust ACC theories, it is possible that individuals would seek to deny that the problem is large enough to warrant substantial environmental regulation. In order to inoculate this concern, scientists should (1) point to the visible impacts of global warming that are starting to emerge (decreases in arable land, dramatic climactic shifts, and rising temperatures), (2) use the data found in statistical climate models to create visual models of future crises. This use of visual elements has been widely accepted as valuable for creating presence and spurring changes in attitude (Birdsell & Groarke, 1996; Blair, 1996; Foss, 2004). Visual depiction of present and future climate impacts can "influence our actions" by arguing "a person into a state of feeling" (Birdsell & Groarke, 1996, p. 9). These visual strategies, in tandem, help make the impacts of global

warming seem present and immediate, not distant threats to be dealt with by future decision-makers.

Second, environmental advocates should inoculate the argument that climate science is elitist and conspiratorial, unconcerned with or irrelevant to the average citizen. As discussed in chapter two, the Climategate scandal damaged the perception of climate science as neutral, objective and based purely on natural observation. A pre-requisite to using scientific findings to guide public policy is restoring the reputation of science. To reverse this skepticism, scientists should point to the peer-review process as transparent, accountable and welcoming of healthy skepticism. By doing so, they may reduce the perception that the fox is guarding the climate science henhouse. Although not every accusation of conspiracy will induce such a substantial public reaction, scientists should approach future situations with a radically different response than was used in this case. In future cases, climate scientists should respond quickly and forcefully in defense of the broad consensus of scientists supporting ACC theories. Climate scientists must understand that although facticity does influence the resonance of conspiracy theories, proving the accuracy of science is necessary but insufficient to influence public opinion. A pre-requisite to limiting the effectiveness of these conspiracy accusations is a sustained and consistent defense of the scientific enterprise as neutral, objective and open to healthy skepticism. If the public views the accusation of science as conspiratorial as inconsistent with their existing ideology, then these charges will be ineffective at influencing public opinion. Science will be trusted, while conspiracy theory will be exposed as fraud and blatant self-interest.

Third, environmental advocates should inoculate the argument that global warming is not as important as other issues. As discussed in chapter four, politicians tend to prioritize

other agenda items over policies to address global warming. A "major factor" that has ensured that "climate change has remained largely hidden" from public concern is the overshadowing of global warming by other problems (Moser & Dilling, 2004, p. 34). "Creeping environmental problems" (p. 34) are rarely as sexy or immediate as other impending disasters like foreign policy crises or economic concerns. For example, in the second presidential town hall debate, President Obama and Governor Romney were asked about energy policy, economics, immigration, guns and trade. The candidates even discussed closely related issues such as oil and natural gas drilling, renewable energy and the trade dispute with China over solar panels. But, "climate change never came up" (para. 10). Although the moderator, Candy Crowley, said that "she had a question ready to go 'for all you climate change people,'" it turned out that "there wasn't enough time" (Plumer, 2012, para. 11). "During the three presidential debates that spanned more than four hours," neither candidate mentioned "global warming or climate change"--the first time the topic has been left unaddressed in the presidential debates since 1984 (Brainard, 2012, para. 5). Lowering the prioritization of global warming is consistent with political and popular culture: there always seems to be something more deserving of attention.

In order to counter this public apathy, scientists should frame climate change as a significant threat. Chapter four criticized the economic and national security frame, but left open several possible alternatives that "hold the promise of resonating with a broader coalition of Americans and social groups" (Nisbet, 2009, para. 42). Scientists must make global warming seem like a personal problem, not just a distant abstract phenomenon. For example, environmental advocates should use the strong scientific evidence that pollution and global warming pose a significant danger to human health (para. 43). Along these lines, the

argument that there is a moral or ethical obligation to limit one's own carbon footprint may resonate with religious audiences and individuals already disposed towards environmental stewardship (para. 41).

Environmental advocates should also use widespread media coverage of extreme weather events to their advantage. As the evidence is becoming stronger, some environmental advocates are beginning to publicly discuss the link between global warming and extreme weather patterns. For example, Jonathan Foley, director of the Institute on the Environment at the University of Minnesota, "directly linked" "Hurricane Sandy" and climate change: "would this kind of storm happen without climate change? Yes…is the storm stronger because of climate change? Yes" (Fischetti, 2012, para. 9). Although "scientists have long taken a" "cautious stance" concerning direct linkages between climate change and weather, "more are starting to drop the caveat…because researchers have gotten very good in the past decade at determining what affects the variables that create big storms" (para. 3). As weather becomes more devastating and unpredictable (e.g., hurricanes in New York) this argument will likely resonate more strongly.

However, simplistic apocalyptic descriptions of looming climate change have the potential to backfire. Fear-inducing messages are necessary, but they must be accompanied with "positive motivations" (Moser & Dilling, 2004, p. 39) that motivate action instead of anger, apathy or resignation. Simply, one must feel as if global warming is a threat, but, also, that the negative effects can be avoided. Otherwise, the natural psychological response is "frustration and anger" (Moser & Dilling, 2004, p. 39) and a "sense of fatalism" (Nisbet, 2009, para. 52). Thus, scientists should carefully craft fear appeals to include recipes for individual action in order to avoid these undesirable outcomes. Moreover, there is an inherent

danger in using apocalyptic appeals--it is possible that the predictions violate reality. For example, linking extreme weather to climate change is problematic because it means that a mild winter, or a peaceful hurricane season can now be used as evidence that climate change is faulty and that those predictions are simply "liberal alarmism" (para. 54). Therefore, environmental advocates should avoid specific weather predictions in favor of a more general description of weather trends.

Finally, scientists should inoculate the need for absolute certainty and perfect predictions by re-appropriating the term "uncertainty." As discussed in chapters two, three and five, there is a campaign of climate skepticism that is successfully using the claim that "science is uncertain" to decrease public support for environmental regulations. However, as a fear appeal, uncertainty concerning future negative ramifications of global warming has the potential to be a persuasive rhetorical tool. The indefinite nature of even the most precise science is being used to undercut sound ACC theories, largely because climate scientists have not successfully countered the argument that uncertainty is grounds for inaction. Although emphasis on scientific agreement about the ACC hypothesis is helpful, it may also be useful to point to the risk of devastating impact from climate change, because "the fact that climate scientists can't predict how bad the impacts might be" but agree that catastrophe is nearly certain could well motivate political "action" (Nature, 2010, para. 8). For example, environmental advocates may point to the certainty that sea level will rise, but the uncertainty associated with how far inward from the Eastern seaboard the devastation may extend. Or, environmental advocates may point to the certainty that climate change will substantially decrease arable land, but also to the uncertainty of how many trillions of dollars in crops will be lost.

In doing so, climate scientists can reverse the effect of one of the most common arguments made by skeptics--that scientists can't predict with absolute certainty all of the impacts that climate change has on the environment. Given the potential harms, climate scientists must argue that the appropriate response is to acknowledge the uncertainty while clearly stressing the certain devastating impacts of global warming upon human life on earth.

Criticisms and Areas for Future Research

Each of the proposals above surely invites criticism. In what follows, I outline and answer four likely criticisms of my findings. Although each criticism contains a kernel of truth, and is grounds for skepticism, I believe the potential benefits of the rhetorical correctives outweigh the costs. I conclude the chapter by discussing areas for future research and further academic development of the findings of this study.

Criticisms

First, one may argue that the average citizen does not have the capacity to understand nuanced scientific findings and develop an informed opinion concerning climate change. Nisbet and Scheufele (2009) labeled this criticism as the "deficit model" (p. 1767). They contended that public officials often times blame an ignorant public for policy shortcomings. However, they disagree with the assumptions of this model; instead, they find that "by emphasizing what is wrong with the public" many policymakers and some scientists underestimate the intelligence of the average citizen and "ignore the possibility that their communication efforts might be part of the problem" (p. 1767). If taken seriously, this deficit model would seriously decimate any conception of a vibrant public sphere, something that is antithetical to many of the findings dispersed throughout the preceding chapters. Surely, a more balanced middle ground is helpful: it is necessary to recognize that the public is a lay

audience that may not understand complex scientific data, but also to note that "condescending claims of 'public ignorance' too often serve to further alienate key audiences" (p. 1767). Seen this way, this criticism simply points to the need to translate complex data into understandable and rhetorically persuasive vocabulary, a skill scientists are certainly capable of, and increasingly willing to perform.

Second, one may argue that the problem of media "balance" undercuts the effectiveness of any rhetorical proposal. Contemporary journalists "aspire to" "abide by the norm of balance, identifying the most dominant, widespread positions and then telling 'both' sides of the story" (Boykoff & Boykoff, 2004, para. 4). One study that looked at articles from *The New York Times*, *The Wall Street Journal*, *The Chicago Tribune* and *The Los Angeles Times* published between 1985-1995, found that journalists tended to focus "on controversy and disagreement among scientists," even when there were areas of agreement (Zehr, 2000, p. 90). This study discovered that journalists chose to cite skeptics "such as Richard Lindzen, Fred Singer, Patrick Michaels, and Robert Balling" more frequently, precisely because "they disagreed with much of the climate change scientific community and because their public statements tended to invoke controversy" (Zehr, 2000, p. 91).

A second study analyzed "a dataset of US newspapers and television news from 1995 to 2006" to determine the relevance that climate science was given by journalists in their framing of global warming articles (Boykoff, 2007, p. 477). Boykoff (2007) found that a "scant discussion of the convergent scientific view" framed climate science so haphazardly that public "confusion" and misunderstanding ensued (p. 482). This study's findings illustrate that media coverage from 1995 to 2006 "contributed to an appearance of a storyline of increased uncertainty and debate over time" (Boykoff, 2007, p. 482). The United States

media "depicted a departure from the convergence of views in science over time regarding anthropogenic climate change," because the "pre-print stage" "propel[s] conflict into print" and because the media tend to take a "snapshot selection" of a science that evolves over decades (Boykoff, 2007, p. 485). These studies point to a tension between science and the "micro-processes that undergird professional journalism" (Boykoff, 2007, p. 486).

Although this journalistic aspiration is an attempted "check on biased reporting," it "causes problems when it is applied to issues of science" because it demands "that journalists present competing points of view on a scientific question as though they had equal scientific weight, when they actually do not" (Gelbspan, 1997, p. 58). The desire to treat both sides of a debate equally is problematic when scientific consensus overwhelmingly favors one side (e.g., creationism vs. evolution, the link between vaccines and autism, etc.)

Critics who cite the problem of journalistic balance may see this idea as a threat to my proposed correctives, because no matter what scientists say, journalists may seek to find opposing information to counter the findings of qualified scientists. Although there is certainly some truth to this criticism, the use of alternative media outlets may circumvent some of the problems associated with contemporary news media. For example, engaging in deliberative exchanges allows the public to question the science for themselves and test ideas with climate scientists. Moreover, first-person interviews and appearances on local news limit the ability for journalists to cherry-pick statements with the intention of creating a sense of uncertainty. Finally, websites devoted primarily to iterative and interactive learning provide user-generated climate models that cut out the journalistic middleman. Although these correctives do not address the fundamental problem of misapplied journalistic balance

in the case of climate science reporting, each provides a supplementary avenue for dissemination of accurate information.

Finally, one may argue that attempting to "sell" science risks backfiring as scientists step into the realm of public advocacy (Nisbet and Scheufele, 2009, p. 1776). For example, Nisbet and Scheufele (2009) argued:

> Public communication and engagement should not be conceived of as simply a way to "sell" the public on the importance of science or to persuade the public to view scientific debates as scientists and their allies do…If the public feels like they are simply being marketed to, this perception is likely to only reinforce existing polarization and perceptual gridlock. (p. 1776)

In agreement, Fischhoff (2007) maintained that scientists should stick with "nonpersuasive communication" that "lets the science speak for itself"--a strategy that prioritizes pure scientific data over a rhetorical translation of scientific findings (p. 7208). The problem with this argument is that scientific findings are going to be presented to the public whether climate scientists choose to or not. As climate scientists remain disengaged from public advocacy, their findings are being misrepresented in a wide variety of media sources.

This criticism serves more as a note of caution than grounds for inaction. The strategy of letting scientific facts speak for themselves has not succeeded, and nonpersuasive communication has not created an environmentally concerned citizenry. However, climate scientists should be careful not to step too far beyond the field of climate science when making public statements. For example, a climate scientist may be unqualified to speak about the economic costs and benefits of a carbon tax, so should instead stick to discussing the impact that a carbon tax would have on carbon emissions or consumption trends. This may

help avoid the criticism that scientists are stepping beyond their field of qualification, and instead center public comments on the issue at hand--the clear and present danger from climate change based on sound scientific data.

Areas for Future Research

Each of these criticisms, as well as the dissertation process as a whole, has piqued my interest concerning areas for future research. I view this dissertation not as an endpoint, but as a jumping-off point for a variety of new and exciting areas of study. In particular, three potential projects come to mind.

First, I would like to test specific climate messages with different audiences. Much research has been done concerning demographic gaps in climate belief. For example, there are wide differences in belief of ACC hypotheses in populations who differ based on race, gender, education, age, religion, ideology and income (Scruggs & Benegal, 2012, p. 8). I am interested in seeing if different populations react differently to different messages (for example, if a specific motivational appeal is more or less likely to succeed with younger or older audiences). In order to overcome demographic gaps and persuade individuals to take action to limit climate change, "more direct and personalized channels are needed" (Moser & Dilling, 2004, p. 40). In order to complete this project, I may require some methodological instruction or a helpful teammate, because I don't believe that rhetorical methods are best suited to answer this particular question.

Second, I would like to investigate the relationship between experience and climate belief. As climactic shifts are becoming more visible, public belief in the existence of climate change (although not necessarily the belief that it is caused by humans) has increased. However, I fear that public belief is primarily related to immediately visible and recent

weather phenomena. A cursory read of polling data throughout the last five years shows that public belief in climate science drastically increases during the winter, then declines in the summer. I hope to investigate this theory further, and add *experience* to growing list of variables that are important for creating an environmentally motivated public.

Finally, I would like to expand my findings to other scientific fields. I am interested in exploring how findings from these case studies can inform other scientific debates concerning evolution, vaccinations, stem cells, etc. In doing so, I hope to apply my conclusions about climate science to create more generalizable theories about the relationship between science and rhetoric outside of the field of climate change.

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