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Material Expertise: Applying Object-oriented Rhetoric in Marine Policy

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Abstract

This dissertation applies object-oriented rhetorics and posthuman philosophies to environmental policy deliberation in order to help bridge gaps between policy makers, scientists, and citizens. For environmental policy scholars the non-credentialed expertise of local, or indigenous stakeholders is valued as possessing technical, objective merit that can improve the development and implementation of environmental policies. However, the utilization of stakeholder expertise in environmental policy faces serious challenges in terms of finding common grounds for communication within complex techno-social systems, of overcoming deep cultural differences and perceptions, and grave ethical issues of access and power. This dissertation develops two case studies of marine fisheries policy debates using theories of material ontology to detail the process of how the expertise of ordinary citizens develops within the context of environmental policy and how that expertise might be better utilized.

By employing object-oriented rhetorical theories to trace material agency through the Snook and Gamefish's (SGF) stakeholder integration programs in Florida's Spotted Seatrout and Common Snook fishery debates, this dissertation argues that a material ontology of expertise offers a means of assessing the quality of lay-publics' non-credentialed expertise. This dissertation suggests that an enriched since of what material objects are capable of rhetorically helps us develop tangible, actionable tools for environmental policy studies. By understanding expertise in terms of the accretion of material experiences, policy makers and scholars might more easily evaluate and utilize the expertise of environmental policy stakeholders.

Chapter 1: An Imbroglio of Expertise

Introduction

Thanks in large part to the work of science and technology studies (STS) and sociology of scientific knowledge (SSK), which began reevaluating the use-value of lay knowledge in matters of techno-scientific deliberation (Wynne 1989; Fisher 1993; Irwin and Michael 2003), the inclusion of knowledges located outside of traditionally sanctioned systems of expertise is advocated by many scholars as a part of 'best-practices' in the formation of environmental policy. As environmental policy scholars have embraced theoretical perspectives on indigenous and local communities as "engaged in a complex of judgments about trustworthiness, credibility, usefulness, [and] power" (Irwin and Michael 2003, p.28) in and about their environments, they have offered a wide body of scholarship advocating the importance of those communities' knowledge in the formation of public policies. Frequently understood in terms of phronetic knowledge (Linke and Jentoft 2014), tacit knowledge (Collins and Evans 2007), experienced-based expertise (Collins and Evans 2002), or lay expertise (Irwin and Michaels 2003), environmental policy studies have worked to detail the epistemology of such knowledge (Carrozza 2014; Evans 2010; Healy 2009; Nev and Teshner 2013), as well that expertise's value to development and implementation of environmental policies (Brewer 2013; Jentoft et al. 1998; Kaljonen et al. 2010; Linke and Jentoft 2014; Phillipson et al. 2012). Common among these studies is an understanding that local and indigenous

stakeholders possess a non-credentialed expertise that emerges from their own contextual experiences and practices with and in their local ecosystems, and that such expertise does possess technical, objective merit (Negev and Teschner, 2013; Wilber et. al 2004; Kraan et. al., 2014).

Scholars of marine policy have been particularly active in exploring and describing the value of incorporating stakeholder expertise (Hartley 2010; Hommes et al. 2009; Kaplan and McCay 2004; Mackinson et al. 2011; Wilbur et al. 2004). Within marine policy studies scholars have invested deeply in developing theoretical frameworks for the integration of stakeholder expertise through concepts such as co-management (Brewer and Moon 2015; Jentoff et al. 1998, Wilbur et al. 2004), and co-production of knowledge or participatory research (Kaplan 2004; Kraan et al. 2014; Phillipson et al. 2012; Wilber et al. 2009). Advocates of community-based approaches to marine policies make compelling cases that the input of local stakeholders can improve the sciences undergirding policy, thereby improving the quality of policy based on that science (Wilber et. al, 2004), and improve the quality of governance established by policy (Mikalsen e. al, 2007). These theoretical developments have been at least partially embraced in the area of marine fisheries management where large-scale agencies such as NOAA's Greater Atlantic Regional Fisheries Office, or the European Commission's Common Fisheries Policy now make engaging stakeholders on multiple levels of policy development a cornerstone of their strategic goals (NOAA 2015, EUF 2013).

However, despite this scholarship's breadth, depth, and quality, successfully integrating the expertise of stakeholders into public policy deliberation remains a vexing task. The integration of stakeholder expertise faces serious challenges in terms of finding common grounds for communication within complex techno-social systems, of

overcoming deep cultural differences and perceptions, and grave ethical issues of access

and power (Mackinson et al. 2011; Varjopuro et al. 2008). Even though the epistemology

of stakeholder expertise in environmental policy settings have been well explicated, and

its use-value well advocated, its application remains deeply problematic.

The Florida Snook and Gamefish Foundation's (SGF) attempts to channel the

expertise of their recreational fishing stakeholders involvement into successful

conservation efforts during recent Florida Fish and Wildlife Conservation Commission

(FWCC) marine fisheries debates exemplify the challenges of effectively integrating non-

credentialed stakeholder expertise into environmental policy. In 2011 the FWCC

proposed deregulating large parts of the state's Spotted Seatrout fishery by expanding

commercial access and by extending harvest seasons, prompting outrage and fear among

recreational fishing and conservation stakeholder groups. In reaction to the proposed

amendments the SGF developed a 'Sea Trout Action Alert' program to channel

stakeholder energy into conservation action through awareness campaigns, representation

in the FWCC public debates, and letter writing campaigns. Early in 2012, the FWCC

finalized the policy changes to the Seatrout fishery that effectively undid many of

conservation-oriented aspects of the Seatrout fishery. Despite the FWCC's calls for the

inclusion of stakeholder input at multiple stages of the Seatrout's management debates,

and despite the SGF's work to channel the voices and expertise of 3,500 concerned

anglers (FWCC 2011c), the voices of the SGF's conservation stakeholders were

ultimately ignored.

In contrast to the case of seatrout policy, the SGF was successful in engaging and

utilizing the expertise of their lay stakeholders to affect conservative fisheries policy in

the FWCC's snook fishery management. After a record-breaking cold-water fish-kill in

January 2010 the FWCC instituted an emergency closure of the state's entire snook fishery and began reassessing management strategies. In the hopes of advancing conservation in the wake of the snook fish-kill, the SGF developed the "Snook Watch Angler Action Program" to operationalize stakeholder support through data-collection and survey. As a result of the SGF's involvement in the snook fishery policy debates, the FWCC enacted unparalleled conservation policy changes, keeping the Gulf snook fishery – the area of the state most heavily impacted by the 2010 cold water fish kill –completely closed for harvest for three consecutive years. By engaging stakeholder expertise through the "Snook Angler Action Program" the SGF was able to directly influence the FWCC's fisheries management debate to further its conservation mission.

While the similarities between the SGF's involvement in both fisheries are remarkable, the results are strikingly different. Both debates share agencies, stakeholder groups, places, and times. The actions of both agencies exemplify the push to make environmental policy debates a more inclusive process by seeking out and incorporating the expertise of stakeholders in the fisheries management debates. And yet the SGF and its stakeholders succeeded in affecting conservation-oriented policy in the snook fishery, and failed in the seatrout fishery. The contrast in results is both puzzling and emblematic of the difficulties of wielding such expertise. What makes the application of non-credentialed expertise, even when it is called upon with so much well-supported effort applied to such similar circumstances, such a fraught task?

This dissertation uses the Snook and Gamefish's stakeholder integration programs as case studies to develop an ontology of expertise that explains the construction of expert knowledge in terms of the accretion of material agencies through experience. By employing object-oriented rhetorical theories to trace nonhuman agency through the

SGF's participation in Florida's Spotted Seatrout and Common Snook fishery debates, this dissertation argues that this material ontology offers a means of assessing the quality of non-credentialed expertise developed outside of normative paradigms. Finally, by comparing the SGF's successful transmutation of stakeholder expertise into successful policy intervention in the snook fishery debates against its failures in the seatrout fishery, this dissertation suggests new ways to deploy non-credentialed expertise in marine policy debates.

An Old Problem of Expertise

Contemporary challenges surrounding the integration of stakeholder expertise into environmental policies are echoes of very old questions about who is fit to speak in matters of civic deliberation. In the *Gorgias* dialogue, Plato stages a fierce debate between Socrates and Gorgias over the rights to speak in the Athenian agora. In one corner Plato's Socrates affirms the value of the experience and of formal, institutional expertise *a la* the 'master'. For Plato, without experience, without a track record of accomplishment, without credentials, the statesman or philosopher cannot lead the polis to the truth of the matter. In the other corner Gorgias extols the orator. Without the ability to speak well and persuade, the orator might never be able to lead the polis to act at all. Despite the elegance of Plato's dichotomy, and the apparent dominance of his perspective, both the dilemma and its answers are not so simple. Plato's easy dismissal of rhetoric is mired by inextricable links between communication and social action. As current rhetorical scholars have evidenced, the real-life Gorgias and his Sophist contemporaries were invested in a relativist epistemology where knowledge emerges

from communal conversation, from the rhetorical act of social deliberation and action (McComsisky 2002, Consigny, Jarratt). Through such an articulation the arts of rhetoric and oratory are indispensable and vital arts for building, communicating, and acting on communal knowledge without which the public sphere would not exist. Of course, Plato's concerns about the danger of errant persuasion are also just. In matters of civic affairs the lay polis is indeed vulnerable to the dangers of unjust persuasion when being asked to pass judgment on issues steeped in complexity. Without technically accurate, issue-specific, accountable information there is little hope of productively addressing issues of techno-social deliberation in the public sphere.

Despite the overwhelming gravity of expertise's place in civic affairs both in Plato's argument and in modern technocratic policy making, western civilization has largely answered the question of how to judge expertise in terms of Plato's problematic emphasis on institutional accreditation over individual experience. Whether through Aristotle's prized *pisteis* and Isocrates' exaltation of the Hellenistic *paideia*, or even Quintilian's good Roman speaking well, the concept of expertise fit for public address has black-boxed itself into a cycle where experience within formal institutions, and the value of the credentials granted by those institutions, represent the sanctioned means of public participation. Although Aristotle's *pisteis* is used as a blanket term for describing rhetorical appeals to character, emotions, and logic (1356a), in deliberative settings such as civic works appeals to character take precedent. Aristotle is adamant that in matters of civic deliberation, "[t]he greatest and most important of all things in an ability to persuade and give good advice is to grasp an understanding of all forms of constitution [*politeia*] and to distinguish the customs and legal uses" (1.8.1). To successfully participate in civic deliberation the rhetor must first and foremost navigate, utilize, and

achieve recognition by the socio-political norms of their community. Under such an arrangement ethos and expertise emerge directly from fidelity with dominant political and educational institutions.

Isocrates likewise advances the primary importance of political normalization through his privileging of *paideia*. Isocrates' concept of rhetorical and political education is firmly grounded in Hellenistic terms where the social rules and customs of Athenian democracy – or the *paideia* – are extolled as elevating Athenians from both beast and barbarian (*Antidosis*). Crucially for Isocrates, the *paideia* must be both learned and lived. Only through a life spent in the public embrace and practice of the *paideia* (*Antidosis*, p. 341), of exemplifying Athenian civil law and custom, can a rhetor gain welcome and success in matters of public deliberation.

Quintilian's oratory and writing pedagogy reiterates much of Aristotle and Isocrates' work, and exemplifies the closure of the credentialing cycle of expertise. Quintilian discusses the ideal public orator as a man

> who can sustain his character as a citizen, who is qualified for the management of public and private affairs, and who can govern communities by his counsels, settle them by means of laws, and improve them by judicial enactments. (p. 6)

Quintilian qualifies this description by noting that, "no one can be an orator who is not a good man" (Teaching, p. 19). Becoming a "good man" for Quintilian means possessing proper Roman education as well as a life spent "amid the greatest publicity, and in the full daylight of public affairs" (Teaching, p 22). Like Aristotle and Isocrates then, Quintilian's formula for public ethos relies on a cyclical logic where the public expert must process a "good character," which is achievable only in the terms of conformity and certification by the prevailing political and academic institutions. Only through the

correct experiences, certified by the correct institutions can an individual be said to possess expertise and ethos fit for matters of civic deliberations.

Lyne and Howe (1990) capture these formulations well in terms of a "structural account of expertise," where expertise arises only "after mastering the special knowledge of a field." (p. 76). This structural account of expertise emphasizes the influence of disciplines, institutions, and professional practices on the construction, regulation, and accreditation of expertise. In such an arrangement the structures of institutions take precedent over the individual or their experience. Expertise is, here, defined almost entirely by "reference to the norms and content of a field," (Lyne & Howe 1990, p. 76) where a given field maintains control over the terms and criteria for assessing expertise. Only after mastery – a credential only achievable according to the normalized paradigms of a given discipline– can expertise be claimed. The presence of "the field" or academic discipline is critical. Certification as an expert is only offered from within normalized paradigms. This structuralist account of expertise stands in opposition to the emerging consensus that favors the inclusion of lay-knowledge and expertise in political deliberation.

Bruno Latour responds to the conflict between the tradition of structural expertise and the push for more democratic participation as he reads from Plato's *Gorgias*. Latour (1999) poignantly argues that Plato's structural articulation of expertise was designed to safeguard the political process from mob-rule. Fearing the overwhelming power of the masses, Plato constructs a system of expertise that relies on a logic in which the objective world, and therefore knowledge and truth about that world, is displaced from humanity – out there, beyond the polis' grasp (Latour, 1999). Latour calls this the move to use "inhumanity against inhumanity" (1999, p. 217). By constructing a system of expertise

whose version of truth is founded on inhuman, transcendent 'natural' laws Plato is able to displace the inhuman and irrational desires of the masses from civic deliberation. Latour notes that even the position of Callicles, Socrates' interlocutor and primary respondent, works to displace the public from democratic participation through transcendental appeals to power and superiority. The only conduit to these natural laws and the knowledge they contain becomes the structurally approved paradigms of the expertise, thus protecting the political process from being overwhelmed by the force of too many participants. In this way an expert, armed with a structurally approved grasp of transcendent truth is able to wield a "Might mightier than Might" (Latour 1999, p. 225) against the polis' hoards. In this way Plato is able to build expertise as an anti-democratic weapon to solve the problem of democratic participation.

The lasting impact of this arrangement is visible two millennia later in Lippman and Dewey's much celebrated debate over participatory democracy. Lippman, fearing that the general public was too attached to their personal preconceptions or "stereotypes" and too easily manipulable (Rogers 2012), offers a fairly straightforward modern articulation of Plato's weapon of expertise. For Lippmann the public at-large was too steeped in their own microcosms, too stubborn to educate, and too subject to the whims of propaganda to be trusted with the task of managing nations (Rogers 2012). Reframing Plato's dependence on transcendent objectivity, Lippmann suggests that

> the real effects of most laws are subtle and hidden, they cannot be understood by filtering local experiences through local states. They can be known only by controlled reporting and objective analysis. (Lippman 1922, p. 19)

Like Plato's Socrates, Lippman goes on to suggest a "specialized class" (Lippman 1922, p. 195) of experts (philosopher kings) as necessary for the continuation of a successful

and healthy democracy. Under such an arrangement participation in the civil democratic process is restricted to elected officials and their expert advisors (Rogers 2012). Dewey rightly notes that Lippman's expert-centric democracy simply means to restrict access to the democratic process, and that "no government by experts in which the masses do not have a chance to inform the experts as to their needs can be anything but an oligarchy managed by the interests of the few" (as cited in Rogers 2012, p. 154).

It is little wonder why the integration of stakeholder expertise is so challenging when so much energy has been devoted to preventing just such an inclusion. That the SGF was able to successfully include any of their lay-stakeholders' voices against the history and perverseness of structural expertise is remarkable. Indeed, environmental policy studies' advocacy for the inclusion of the very publics that hitherto have been actively excluded from the civic sphere indicates a shift in the tides of public politics.

As Freud might remind us, the repressed always returns. Now western civilization finds itself scratching old itches. Who is capable of addressing these issues? What does it mean to be an expert? In issues of public environmental policies like marine fisheries management, this crisis of expertise is particularly at the fore. Due in large part to the vast complexity inherent to the social and physical ecologies at stake in public environmental policy issues the lines that determine who is qualified to participate in decision-making are becoming increasingly difficult to determine. At least one root of the difficulty stems from an old tree – perhaps the original problem of expertise and ethos: the vast spectrum of human experience and values. In many ways it is a problem of subjectivity itself. Delineating the value of one knowledge or expertise against another once the gates of participation are reopened to the public represents a serious quagmire. The crushing cacophony of the masses has returned, louder than before. We are asked

once again to confront the original dilemma embodied by Plato and Gorgias' dialogue. How do we decide who speaks before us?

New Rhetorical In-roads

For many of the same reasons that expertise has re-emerged as an issue of debate, rhetoric's civic roles are once again receiving greater attention (Ackerman and Coogan 2010; Rivers and Weber 2011; Druschke 2014). In the wake of postmodern philosophy, as epistemological certainty and its edifices have waned, questions concerning the relationships between knowledge, communication, and social action have waxed. Drawing on the Cultural Studies paradigm that humanities scholarship should concern itself "with describing and intervening in the ways cultural practices are produced within, inserted into, and operate in the everyday life of human beings and social formations" (Grossberg 2010, p. 8) rhetorical scholars have worked to reopen long-standing debates over the purpose and place of rhetorical studies. Rhetoric is once again being understood as a discipline "fundamentally attuned to action" (Rickert 2007, p. 28), capable of generating its own knowledge and contributions about how humans construct their shared worlds. Scholars of rhetoric are once again confronting questions of what rhetoric is capable of studying, doing, and producing. As part of this rekindling, rhetorical scholars are also increasingly engaged in academic and professional settings that extend beyond the traditional canon of subjects. As current rhetorical scholars find themselves studying and participating in civic agoras such as public science policy (Ceccarelli, 2013; Druschke and Seltzer, 2012; Druschke and McGreavy, 2016; Herndl and Cutlip, 2013), they are confronted with a flood of complex techno-scientific systems supporting those agoras (Wynn and Walsh, 2013). Given the network of science, technologies, tools, and

practices that undergird public environmental policies, rhetorical scholars have been challenged to develop theories and tools to better navigate those complex material and semiotic spaces. Part of this challenge is the work to seek out and advocate for the "missing masses" (Latour 1992), whether they be humans marginalized by systems like structural expertise, or the nonhumans that undergird the technologies and networks inherent in such socio-technical systems.

Spurred by the inability of anthropocentric definitions of the rhetorical to account for full spectrum of agencies at play in such agoras, and encouraged by recent upswings in new materialist philosophies, rhetorical scholars are exploring the rhetorical agencies of non-human forces and things. Taken together, the work of those engaged in what Scott Barnett dubs 'object oriented rhetoric' (2010) decouples agency from its anthropocentric roots and attributes to the material world its own affective agency that bears weight on the discursive structures and acts that comprise our social realities. For these rhetorical scholars the concept of 'what counts as rhetorical' comes to include the extra-human forces, places, and things that exert force in rhetorical ecologies (Bennett 2009; Davis 2010; Hawhee 2009; Mol 2002; Rice 2012; Rickert 2013). In perhaps the most thorough and explicit account of the role of the material in rhetoric, Thomas Rickert (2013) develops the notion of 'ambience' to describe the interplay of the nonhuman agency in rhetorical acts. Understanding ambience as "ontological and primordial," as preceding "all cognition and volition" (Rickert 2013, p. 14), Rickert convincingly posits the material world as not simply part of, or background for, but vital to all rhetorical action. For these increasingly materialist scholars, non-human rhetorical agency reshapes how they approach the composition classroom (Brown and Rivers 2013; Holmes 2014; Cooper 2015), public rhetorical pedagogy (Rice 2012; Rivers 2014), technical

communication (Rivers 2008; Mara and Hawk 2009; McNely et al. 2015), and new media and technology (Brooke 2000; Rickert and Bay 2009; Tirrell 2015) by adding to those rhetorical ecologies a sense that, what has been traditionally privileged as the product of human activity, is in fact "thoroughly immersed within materiality's productive contingencies" (Coole and Frost 2010, p. 7).

The recent scholarship on the importance of materiality and material networks in rhetorical ecology is especially relevant in the agoras of public environmental policies. While discursive analyses of public environmental policies offer compelling insights into the role of language, power, and social constructivism in the politics of policies (Feindt and Oels, 2006; Hajer and Versteeg, 2006), the privileging of those elements ultimately neglects critical material agencies also at stake. The work of environmental policy analyses typically utilizes Critical Discourse Analysis methodologies to close-read texts, develop abstract models and theories, or interpret ethnography and interview results (Lejano et al., 2013; Nursey-Bray et al., 2014; Puente-Rodríguez et al., 2014; Rantala and Primmer, 2003; Reed et al., 2009; Shackley and Wynne, 1996; Waddell, 1990). In contrast, the work of object-oriented rhetorical scholars demonstrate how material agencies serve as a kind of 'objective coefficient of friction' that bear effects on the causes, development, and experience of those texts, theories, and subject experiences. For example, both Bennett and Latour describe how materiality stabilizes discursive acts by helping determine the paths and patterns of action (Bennett 2005), and by preserving the product of that action across time and space (Latour 2005). Whether in terms of biopolitics (Coole and Frost 2010), ontological politics (Law 1998; Mol 1999), or onto-stories (Bennett 2009) the work of object-oriented scholars stresses the importance of tracing materiality's fields of influence, and of working to explicate how that influence

contributes to our shared reality. Without accounting for the ontological power of material agencies, the analyses of environmental policies miss vital intersections of human and nonhuman agencies that dramatically, and perhaps inequitably, affect policy ecologies.

In the light of object oriented rhetorical theory, the issue of expertise and the questions circulating around it are recast in an ontological hue. Even as the epistemological origins and value of non-credentialed expert knowledge has been well explicated, the ontology of *how* materiality and its agencies contribute to non-credentialed stakeholder expertise has gone largely unexplored in environmental policy studies. This ontological gap is discernable in a paradox emerging from Collins and Evan's (2002) work on experience-based expertise. After Collins and Evans advocate for an understanding of "members of the public who have special technical expertise in virtue of experience" as "experience-based experts" (2002, p. 238) they recognize that,"[e]xperience, however, cannot be the defining criterion of expertise. It may be necessary to have experience in order to have experienced-based expertise, but it is not sufficient" (2002, p. 251). Working from an epistemological perspective Collins and Evans run into Plato's classic dilemma of the necessity to discriminate between various human experiences. Without resolving this paradox, Collins and Evans supplement their "experience-based expertise" with "contributory expertise" – a term they use to describe the ability to "contribute to the science of the field being analyzed" (2002, p. 254). Without focusing on the ontology of *how* experience becomes expertise – without addressing the material nuts-and-bolts process at stake – Collins and Evans are not able to stray far from a structuralist account as they too are forced, in the end, to rely on

normative credentialing structures to characterize experiences and the knowledges they generate.

An object-oriented rhetorical approach, on the other hand, might resolve this paradox of experience and expertise. If an anthropocentric, epistemological approach to expertise consistently returns to the conundrum of appraising the inexhaustible spectrum of human experience, an object-oriented, ontological approach's focus on the shared materiality of those experiences might provide an alternative yard-stick. From an object-oriented perspective the question of how to decide who speaks in civic deliberation becomes less about understanding the validity or value of certain kinds of expert knowledge, and more about the ontic process of *how* expert knowledge emerges from our human experiences within fields of material agencies. Here, the question of materiality and ontic process, returns us to the two cases of fisheries policy introduced earlier. The object-oriented rhetorical theories outlined here and which I will develop more carefully later, signal the need explore the process of *how* - the real, material, physical nuts and bolts actions - the SGF attempted to develop and operationalize its stakeholder's expertise. While similarities of human agencies abound in the SGF's stakeholder programs the critical differences in *how* material agencies were and were not operationalized to construct stakeholder expertise emerge as places of powerful rhetorical genesis. Without developing an ontological approach to expertise that attempts to understand *how* expertise emerges from experience, actionable heuristics for evaluating non-credentialed expertise and for integrating that expertise into policy development will remain underdeveloped.

This dissertation demonstrates how object-oriented theories' focus on the tangible material conditions of reality make them ideally suited for developing rhetorical tools

capable of pragmatic interventions. Speaking of critical sociology, Bruno Latour (2005) argues that by ignoring the agency of nonhumans the discipline has evacuated itself of an empirical object of study and fatally underestimated the true difficulty of real politics. Without welcoming the fullest pantheon of nonhuman – the fullest pantheon of objects and things – at play and at stake in politics the work of critical sociology is stuck with human subjects acting alone in a vacuum. By narrowly focusing on the work of human subjects, Latour's logic goes, critical sociology has foregone the opportunity to analyze and better understand exactly *what* is political and *how* the work of politics is accomplished. Latour goes on to posit that welcoming material agency back into the field of study provides a means of both reclaiming an "empirical grasp," and regaining "political significance" (2005, p. 251) by more realistically approaching the true work of constructing the social world. In other words, by placing nonhuman objects and things onto the radar of politics, scholars gain a more detailed and nuanced picture the agencies at stake and, in doing so, create the conditions to both respond to those agencies and utilize them in political action. Much of the same can be said of both rhetoric and environmental policy studies as disciplines. The work of object-oriented rhetorical scholars represents a corrective move to address the same perceived lack of empirical and pragmatic objects of study. In this spirit the work offered here suggests that object-oriented rhetorical theories, despite their seemingly esoteric nature, represent a valuable and inherently pragmatic stance through which to develop tangible, actionable tools for environmental policy studies.

Chapter Overviews

Chapter 2:

Chapter two tells the story of the Snook and Gamefish Foundation's participation in the Florida Fish and Wildlife Conservation Commission's Common Snook and Spotted Seatrout fisheries debates. The Snook and Gamefish Foundation (SGF) is a 501(C)(3), publicly supported foundation whose mission aims to support "the protection and preservation of current fish populations for future generations by facilitating coordination between anglers, researchers, and policy makers" (SGF "About"). The Florida Fish and Wildlife Conservation Commission (FWCC) is the public policy and law enforcement agency in charge of governing Florida's wildlife resources, including the $7.2 billion recreational fisheries (FWCC Economic). The FWCC holds five public forums each year in which it brings together researchers, policy makers, law enforcement representatives, and members of the public to debate and decide on wildlife management rules and regulations. Together, between 2010 and 2014, both the FWCC and SGF occupied central roles in the management of both the Common Snook and Spotted Seatrout fisheries. By accounting for the actions of these two groups during the public policy deliberations this chapter introduces the rhetorical agents, actions, and situations at stake in later analysis.

Chapter 3:

Chapter three surveys the theoretical roots of object-oriented rhetorical theories and explores their current implications for the field of rhetoric in terms of nonhuman agency and its place in rhetorical action. By explicating the work of Diane Davis, Jenny Rice, Thomas Rickert, Nathaniel Rivers, and others, this chapter redefines conventional notions of the rhetorical situation in terms of Rice's "rhetorical ecologies," (2012) and

explicates the role non-human agency plays within them. This chapter then presents

Actor Network Theory (ANT) as a rhetorical methodology that allows rhetorical scholars

to more precisely follow and understand how nonhumans participate and influence the

rhetorical ecologies they populate. With object-oriented rhetorical theories and

methodology in hand this chapter explicates the specific rhetorical effects that the snook

and seatrout, the fish themselves, exercise on their respective rhetorical policy networks.

Chapter 4:

Synthesizing object-oriented theories with ANT as a rhetorical methodology,

chapter four demonstrates the practical value of object oriented rhetorical studies in the

formation and application of expertise in public marine policy. By explicating the

connections between nonhuman agency and stakeholder experience in the arena of

marine fisheries policy, this chapter develops a material ontology that accounts for how

expertise is constructed. This argues that a material ontology explains how non-

credentialed expertise can be qualified and implemented in non-normative settings. This

chapter makes this argument by following the ways that the SGF was able to transmute

nonhuman agency through non-credentialed stakeholder expertise into successful policy

intervention. This analysis demonstrates both the rhetorical power of the material world,

and how it can be utilized to affect marine policy debates.

Chapter 5:

Chapter five demonstrates how an object-oriented rhetoric of expertise can

contribute to rhetorical studies' growing engagement with public policy. This chapter

argues that object oriented rhetorical studies' focus on the material agencies that support

environmental policy debate and development supplement traditional discursively oriented analyses with more tangible and actionable conclusions. By explicating object-oriented rhetoric's potential to engage with objects in terms of 'objects that object' this chapter argues that object-oriented rhetorics can represent a pragmatic methodology to engage in public rhetoric ecologies. Finally this chapter concludes the dissertation by demonstrating how an object-oriented rhetorical mythology can offer pragmatic and actionable insight into how nonhuman rhetorical agents can be used to influence rhetorical ecologies.

Chapter 2: The Cases

Introduction

The public policy debates surrounding Florida's fisheries for Common Snook (*Centropomus undecimalis*) and Spotted Seatrout (*Cynoscion nebulosus*) typify the promises and challenges of including the expertise of non-credentialed stakeholders into techno-social deliberations. The two case studies of marine policy deliberation that follow bring together a wide range of participants including policy makers, scientists, conservation organizations, recreational anglers, the commercial fishing industry, and a pantheon of non-human actors. The description of the actors, exigencies, deliberations, and decision-making presented in this chapter narrate the drama of welcoming non-credentialed stakeholders in the development of public environmental policies, and establish the materials for the theoretical analysis in later chapters.

The two most prominent human characters in these cases are the Florida Fish and Wildlife Conservation Commission (FWCC) and the Snook and Gamefish Foundation (SGF). The FWCC, created in 1999 through the combination of Florida's Marine Fisheries Commission leadership and staff, the divisions of Marine Resources, the law enforcement division of Florida's Department of Environmental Protection, and the staff of the Game and Fresh Water Fish Commission (FWCC About), regulates Florida's wildlife resources, including the $7.6 billion saltwater recreational fisheries (FWCC Value). The agency today encompasses its own triumvirate legislative body, research institution, and law-enforcement agency. As an agency designed to "address complex

conservation issues of the new century," and to bring "the decision-making process closer to the public" (FWCC About) the FWCC holds five public forums each year in which it brings together researchers, policy makers, law enforcement representatives, and members of the public to debate and decide on wildlife management rules and regulations. The 2014-2019 Strategic Plan commits the FWCC to engaging the public and stakeholders to ensure they "are engaged in development and implementation of conservation programs," and "to understand their perspectives, develop and implement conservation programs [*sic*]" (FWCC Strategic Plan). In both its design and practice, the FWCC reflects the movement toward greater public participation on policy development described in the previous chapter.

While the FWCC is a public agency, the Snook and Gamefish Foundation (SGF) is a 501(C)(3), publicly supported foundation whose mission is to support "the protection and preservation of current fish populations for future generations by facilitating coordination between anglers, researchers, and policy makers" (SGF About). Founded in 1998 by marine conservationist William R. Mote, the SGF was designed as a "platform for anglers and conservationists to preserve, protect and enhance snook and game fish populations" (SGF About). As part of their core mission statement the SGF believes that "a brighter future for all fisheries is in the hands of informed anglers who will take proactive steps to increase, not just maintain, the stocks," through "enlightened regulation, research, and education" (SGF About). With its board of private citizens, professional fishing captains, and scientists, the SGF is dedicated to pursuing, "unbiased and responsible fishery and marine regulations and conservation, restoration, and enhancement of estuarine and coastal water habitats" (SGF About).

In 2010, following a record-breaking, statewide cold weather fish kill, the FWCC began reassessing the management of the state's snook fishery. A year later, in 2011, prompted by a better-than-expected stock assessment of the state's seatrout fishery the FWCC began debating management changes in that fishery as well. As the FWCC debated management changes to the snook and seatrout fisheries the SGF occupied a central role as an advocate for conservationists, recreational anglers, and the fish themselves. As the FWCC and SGF set out to engage stakeholders and deliberate the management of two of Florida's most popular and beloved fisheries, they navigated the perilous waters of incorporating non-credentialed expertise into matters of extraordinary technical and political complexity; however, they did so in different ways and met with different results.

What follows is a careful and detailed rendering of the SGF's efforts to utilize stakeholder expertise to affect the course the FWCC's marine fisheries debates. The two cases are reconstructed from FWCC public-meeting minutes, presentations and publications offered by the FWCC's research division, FWCC executive orders, Florida state legal statutes, FWCC press releases, key press releases and position statements from the SGF, polls conducted by the SGF, publications from the SGF's stakeholder-engagement campaigns, news stories, professional fishing reports, and the opinions of Florida fishing celebrities. This wide spectrum of primary source documents has been assembled to recreate a synoptic vision of the fisheries management debates.

With regard to the larger project at stake the case studies offered in this chapter highlight the difficulty of including Florida's angling stakeholders in the formation of marine fisheries policy. As the snook and seatrout fishery debates evidence, even when conditions are seemingly perfect, there are no guaranteed results. By detailing the SGF's

work to include the expertise of Florida's recreational anglers in the FWCC's deliberations, and the results of that work, these cases trace a broad network of communities, individuals, agencies, wants, needs, hopes, and technicalities that are both at play and at stake in the policy deliberations. The reconstruction of the SGF's stakeholder expertise integration campaigns draws attention to their many similarities, their key differences, and raise important questions about their divergent results. By cataloging these comingling elements this chapter serves as a reference point from which subsequent theoretical analysis will develop.

The Seatrout Debate

In September 2011, in reaction to better-than-expected stock assessment measurements, the Florida Fish and Wildlife Conservation Commission (FWCC) proposed deregulating many aspects of state's Spotted seatrout fishery (FWCC 2011b). These changes, which ran counter to long running conservation trends in the seatrout fishery, prompted fear and outrage among recreational fishing and conservation stakeholder groups (Killer, 2011; McNalley, 2011; Richards, 2011; Fitzgerald 9/8/11). Many feared that the FWCC's proposed amendments would severely damage, if not destroy, the state's seatrout stock (Fitzgerald 9/26/2011).

In reaction to the proposed amendments the Snook and Gamefish Foundation (SGF) released a 'Take Action' plea to their members and to the public via their website. The 'Sea Trout Action Alert' urges that, 'FWC NEEDS TO HEAR YOUR VOICE!' (Fitzgerald 9/26/11, emphasis original). After directing readers' attention to the proposed amendments to the seatrout fishery, the 'Action Alert' offers a four-step method, including the necessary links and a prefabricated but customizable text, for contacting

FWC Commissioners. The letter asks the FWCC to maintain the existing per-boat catch limit of 75 seatrout, to limit the commercial fishery to hook and line only, and to limit the commercial seatrout season to a defined season and region (Fitzgerald 9/26/11). By November, 2011, the SGF had amassed the supportive voices of 3,500 concerned anglers to speak against the FWCC's proposed regulations (FWCC 2011c).

Yet, on February 1st, 2012, the FWCC finalized the policy changes to the seatrout fishery by increasing the commercial limits from 75 to 150 seatrout per vessel, increasing the recreational seatrout harvest in many regions from 5 to 6 fish per day, and extending the commercial seatrout season by two to three months for most of the state. Despite the SGF's 'Sea Trout Action Alert,' and the vocal support of their stakeholders, the FWCC expanded both the commercial and recreational limitations on the seatrout fishery; effectively ignored the participation the SGF and its stakeholders.

The documents described below chronicle the SGF's work to garner the support of concerned recreational and professional anglers against the FWCC's efforts to deregulate the seatrout fishery, and commercial fishing interests who stood to benefit. Together, these stakeholders and agencies set out to negotiate between their own interests, the science of fisheries management, and the diplomacy of environmental policy.

March 4, 2011. Carly Canion and Michelle Sempsrott, FWRI Report. "Spotted Seatrout Stock Assessment Review and Discussion."

Representing the FWCC's Fish and Wildlife Research Institute (FWRI), Carly Canion and Michelle Sempsrott present the findings of the 2010 Spotted Seatrout Stock

Assessment[1] to the FWCC Commissioners. Authored by the FWRI's Michael Murphy,

David Chagaris, and Dustin Addis, the 2010 Spotted Seatrout Stock Assessment provides

estimates of the seatrout's abundance and fishing mortality from 1982 to 2009.

Sempsrott's presentation reviews current basic seatrout distribution and biology, current

seatrout management regulations, and a recent history of stock assessments and

management decisions. The presentation reports that, in general, recreational fishing of

seatrout has increased since the last stock assessment while commercial fishing efforts

have decreased. Canion and Sempsrott report with 95% confidence that the seatrout's

Spawning Potential Ratio's (SPR)[2] as having exceeded the FWCC's 35% SPR

management goals, and that the state's stock "has a low probability of falling below the

35% SPR management goal." Referencing the stock assessment's SPR findings, Canion

and Sempscrott close by recommending the FWCC consider

- Maintain existing regulations for the Northwest region

- Consider modifying regulations in other regions, such as:

    o Reduce/Eliminate recreational closed months

    o Raise recreational Bag limit[3]

    o Modify commercial season

    o Modify commercial trip limit

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[1] NOAA describes 'stock assessments' as the process of examining "the effects of fishing and other factors to describe the past and current status of a fish stock, answer questions about the size of a fish stock, and make predictions about how a fish stock will respond to current and future management measures" (2012). They are, essentially a mathematical means of determining the size, strength, and distribution of fish populations.

[2] Spawning Potential Ratio (SPR) measures the "number of eggs that could be produced by a fish incorporating mortality over its lifetime divided by the number of eggs it could produce it there were no fishery" (Canion and Sempscrott 2011). Because SPRs measure the reproductive potential of a stock they are frequently used as a base-line measurement for stock health.

[3] Bag limits refer to the maximum number of fish, per trip, any recreational individual or vessel may harvest.

- Work with stakeholders to discuss management options

April 6, 2011. FWCC Public Meeting. Pat Thomas Law Enforcement Academy, Havana, Fl.

Following a vote on an anchoring and mooring pilot program Chairman Barrento asked FWCC's Fish and Wildlife Research Institute (FWRI) Marine Fisheries Division biological scientist Carly Canion to present the findings of the 2010 Spotted Seatrout stock assessment which included data on the fishery up to 2009. After reviewing past management decisions and stock assessments Canion reported that stock assessment found commercial seatrout fishing has remained at a "low level," and that recreational seatrout fishing landings remained level. Canion also reported the seatrout's Spawning Potential Ratios (SPR) from the most recent stock assessment noting that all management regions had exceeded the 35% SPR goal, and that "[a]ll regions except the northeast region have a low probability of falling below the 35% SPR goal." In reaction to Canion's presentation the FWCC staff recommended

> maintaining existing regulations for the northwest region, and in the three other regions consider modifying the regulations to reduce or eliminate recreational closed months, raise the recreational bag limit, modify the commercial season and trip limit.

Staff also recommend, "working with stakeholders and gathering public comment on these and other potential management options, and returning to the Commission with a draft rule at the September meeting."

When the floor was opened for public comments a representative from the Coastal Conservation Association (CCA) Florida recommended "removing the closed months'

for the four management zones, maintaining current size and bag limits for all zones, and requested 'some numbers from models from FWRI with regards to removing the closed months, in all zones." Several non-affiliated private citizens all spoke in favor of commercial deregulation. The Commission closed the issue by requesting that "Carly Canion work with stakeholders on this issue."

August 1, 2011. Carly Canion and Michelle Sempsrott, FWRI Report. "Spotted Seatrout Draft Rule".

Carly Canion and Michelle Sempscrott present the draft rule changes to the seatrout fishery requested by the FWCC during the April public meeting. Canion and Sempscrott's report details the results of the 2010 Seatrout Stock Assessment, and incorporates public input from eight public workshops conducted around the state of Florida from June to July, 2011. The report reviews the SPR findings from the 2010 stock assessment which indicate that the seatrout fishery meets or exceeds the FWCC's management goals, and the current recreational and commercial regulations. The report also details the public input as supportive of removing closed recreational months and year-round recreational harvest. Canion and Sempscrott also detail the support of year-round sale of seatrout, and expansion of the commercial harvest season by commercial stakeholders. Based off their work Canion and Sempscrott recommend that the FWCC

- Allow recreational harvest in all regions year-round
- Change the commercial season in the northwest region to be open from September 1 – January 31
- Expand the commercial season in the northeast, southeast and southwest to be open from June 1 – October 31

- Allow year-round sale of spotted seatrout

The report closes by advertising that, "[t]he result of these changes will be reducing the amount of regulations on the fishery and increasing the fish harvested, without adversely impacting the fishery in the future."

September 7, 2011. FWCC Public Meeting. Naples Grande Beach Resort, Naples, Fl.

During the fourth regularly scheduled public meeting, Chairman Barco asked Canion to present her drafted changes to the Spotted Seatrout fisheries management program. Canion presened the proposed amendments to 68b-37, F.A.C:

- To approve the proposed amendments to rule that would allow recreation harvest in all regions year-round.
- Change the commercial season in the northwest region to be open from September 1 - January 31.
- Expand the commercial season in the northeast, southeast southwest regions to be open from June 1 - October 30.
- Allow the year-round sale of spotted seatrout.

Following the presentation of these points, the official minutes state that, "[t]he result of these changes will be reducing the amount of regulation on the fishery and increasing the fish harvested, without adversely influencing the fishery in the future."

The floor was then opened to public comment where Pete Quasius of the SFG stated that, "the Snook Foundation does not have a position yet." While representatives from the Coastal Conservation Association did speak out against the proposed amendments citing concerns over the implications of year around sale on the health of the fishery and citing the seatrout's wintering habits as leaving them vulnerable to

overfishing, the majority of public comment supported the proposed amendments.

Spokespersons from the Organized Fishermen of Florida and the Wakulla Fishermen

spoke in favor of the amendments and proposed additional deregulation including even

greater extension of the commercial season, and the introduction of seine nets to

allowable gear.

During Commission Discussion the FWCC reaffirmed their commitment to

expanding the commercial fishery. Deferring to Canion, and the scientific evidence, the

FWCC Committee asked if commercial expansion would damage the seatrout fishery.

Canion replied, "no, according to analyses done by FWRI scientists." Citing concerns

raised during public comment the Commission urged Canion to continue working with

stakeholders to "tweak the draft rule." The Commission closed the topic with "a motion

to approve staff recommendations with guidance to staff to make adjustments and bring

those back at the November meeting."

September 8, 2011. SGF website. "Florida Spotted Seatrout Alert."

In the 'alert' the SGF provides an overview of the 2010 spotted seatrout sock

assessment, and the Commission's proposed changes to the seatrout fishery. After

carefully reviewing landing trends[4] from the FWCC that show annual increases in

recreational fishing of seatrout between 1990 and 2008, and the corresponding decrease

in commercial seatrout fishing over the same span the SGF urges its members to become

involved in the FWCC's public process,

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[4] Landing trends refer to statistical measurements of the total annual poundage of fish harvested by commercial fishers.

> We have heard from members that many of you want to put more effort into participating in these meetings. Public comment meetings are a fantastic forum for a cordial exchange of thoughts and ideas, contrary to common belief they are usually functional. The FWC staff and commissioners do want to hear your voice.

The 'alert' draws explicit attention to the fact that 39 anglers appeared to represent their views over eight FWCC public comment opportunities, and that "many of these meetings fall through the cracks and we anglers aren't made aware of our opportunities to be involved in these very important proceedings."

Included in the 'alert' is a link to a "Trout Fishery Poll" which asked individuals to voice their opinions concerning the FWCC's proposals to allow for the bycatch[5] of seatrout in commercial seine nets[6], increase the commercial bag limits for seatrout, and to extend the sale of seatrout year round. The bycatch of seatrout in seine nets is controversial because it provides an additional avenue of commercial harvest that would be difficult to monitor. The poll closes by reminding anglers that, "[t]he FWC Commissioners on the advice of our staff will be voting Nov 16 in Key Largo on rule changes that may seriously affect your potential to catch a mess of keeper trout!"

N.D. C.A. Richards Flatsclass.com. "C.A.'s Blog: Sea Trout Issue… New Regs, Why?"

On his personal blog professional fishing guide and popular TV personality C.A. Richards directly confronts the proposed amendments to the trout fishery, "**If it's not**

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[5] Bycatch refers to fish that are caught incidental to the intended, or 'target,' species.
[6] Seine nets are a broad category of fishing equipment characterized by a long net that is made to circle an area of water, in which sea-life are ensnared by drawing the ends of the net together. Seine nets are controversial because they catch both indiscriminately and very efficiently.

broke, don't fix it!" (emphasis original). Recalling, "I have never seen the Sea Trout fishery this healthy in my angling career (*sic)*," Richards slams the FWCC's amendments as "unwarranted and way too risky to accept." Richards goes on to provide a brief history of the seatrout fishery and its often tenuous balancing of economic and conservation interests, and describes seatrout as "a 'gateway' species that draws new anglers and young people into our sport and into the outdoors," then pleads that the state not "let commercial fishing interests destroy this valuable resource and the opportunity to future anglers." Richards closes his post by imploring readers to voice their concerns directly to the FWCC, as well as to participate in the SGF's seatrout poll, noting that participation is "important to all of us, please voice your opinion my friends."

September 22, 2011. Ed Killer, TCPalms. "New trout rules could be game changers."

In his article, Killer produces an outline of the 2010 stock assessment's findings as well as a review of the proposed changes to the fishery, citing that the changes might "result in fewer restrictions for a catch that is accessible by all Floridians." Alongside a poignant description of the trout fishery as a "pretty special endeavor," Killer quotes the reaction of citizens on both sides of the debate noting that the proposed fishery changes have "rekindled the conflict between recreational and commercial fishermen."

September 26, 2011. SGF website. "Take Action."

The SFG releases a second 'Take Action' plea to their members and to the public via their website. The 'Sea Trout Action Alert' urges that, "FWC NEEDS TO HEAR YOUR VOICE!" (emphasis original). After directing readers' attention to the proposed amendments to the seatrout fishery, the 'Action Alert' offers a four-step method,

including the necessary links and a prefabricated but customizable text, for contacting

FWC Commissioners. The letter asks that the FWC not increase the per-boat limit of 75

seatrout to 150, to limit the commercial fishery to hook and line only, and to limit the

commercial seatrout season to a defined season and region. Additionally, the form letter

explains that:

> Because of the generally predictable behavior of spotted sea trout,
> doubling the boat limit will allow local spots to be essentially cleaned out
> in a matter of days. Same goes for netting - a hook and line only
> commercial fishery makes sense if the goal is protecting Florida's state
> fish from over exploitation. Finally, expanding the sale to year-round is an
> unnecessary gesture that would encourage poaching.

Immediately preceding the template letter the SGF notes, "[d]on't forget to personalize

the letter - this is YOUR voice, we are only providing the template."

October 10, 2011. Carly Canion and Michelle Sempsrott, FWCC closed meeting
"Spotted Seatrout proposed rule amendment".

Carly Canion and Michelle Sempsrott present an updated version of the proposed

rule changes to the FWCC. Canion and Sempsrott's report reiterates that "the spotted

seatrout populations are exceeding the FWC's management goal in all regions of

Florida," and that proposed changes would "loosen regulations for both the recreation

and commercial fisheries." After detailing the results of the 2010 stock assessment, and

their interactions with commercial stakeholder groups Canion and Sempsrott's report

recommends approving the following amendments to the seatrout fishery:

- Allowing year round recreational harvest

- Expanding the commercial season in the southeast May 1 – September 1, in the southwest from June 1 – October 31, in the northeast from June 1 – November 30, and in the northwest from September 1 – January 31

- Allowing the year round commercial sale of seatrout

- Establishing a commercial vessel limit of 150 seatrout with two licensed fishermen aboard

- Allowing a bycatch of 75 seatrout for commercial fishermen with seines on board

- Raising the recreational bag limit to six seatrout in the northeast

While the report mentions that the proposed rule changes "have been previously advertised to the public," it makes no other mention of recreational stakeholder groups.

November 2, 2011. Ed Killer, TCPalm. "New trout rules proposed."

Killer writes, "[t]he Snook and Gamefish Foundation have spoken out against proposed rule changes that if adopted during this meeting would increase the rate of harvest of this economically and ecologically important species of fish." After reviewing the proposed changes to the seatrout fishery Killer goes on to provide details on how the public can attend the FWCC meeting, and contact the FWCC.

November 6, 2011. Bob McNally, Florida Times Union. "Seine-netting proposed for spotted seatrout causing concern for recreational anglers."

McNally describes how "[t]housands of Florida anglers are shocked and growing angry" at the FWCC's proposed seatrout fishery amendments. McNally reviews current

regulations, and their proposed amendments, and goes on to note how the "proposal to legalize commercial sea trout seine netting strikes at the heart of countless recreational fishermen throughout Florida who have enjoyed the best fishing for the popular species many have ever experienced." McNally describes in detail how seatrout are "the most popular sport-fish in Florida," and how, "[n]o other fish comes close." The article tempers its conclusion quoting FWCC Chairmen Barco,

> Our fisheries staff is very conservative, and they have run the state sea trout population numbers inside and out. I am comfortable that the resource will not be disrupted [by the new FWC rules], and that seatrout stewardship will be maintained.

November 10, 2011. Terry Tomalin, Tampa Bay Times. "Spotted seatrout caught in middle of regulation debate."

Tomalin describes seatrout as "the mainstay of Florida's recreational fishery," and condemns the proposed rule changes as "bad news." Tomalin praises the current, conservative seatrout fishery regulations as having "helped the state's spotted seatrout stocks exceed management goals in all areas of the state," and, after detailing of the proposed changes, reminds his readers that "[a]nglers stil have time to weigh in on this issue." Tomalin includes information on how to contact the FWCC, and how to attend the FWCC's public session.

November 11, 2011. Ed Killer, TCPalm. "FWC meeting next week potentially features rule changes for sharks, redfish, and more."

Killer employs the title of Clint Eastwood's (1966) "The Good, the Bad, and the Ugly" as a trope, and frames the FWCC's proposed seatrout fishery amendments to "the Ugly." Killer slams the FWCC proposals,

> It's rare that an idea comes along in fisheries management that is as poorly conceived as federal rules in recent years for red snapper and snowy grouper. But here it is in the state's proposed regulation changes for spotted seatrout.

Killer quotes the SGF's Rick Roberts on the proposed changes as "not a step forward." Killer concludes his article with strong opposition to the FWCC amendments, noting that "this is too sensitive a fishery to changes in fishing methods to risk by dramatically throwing open the doors for more harvest."

November 16, 2011. FWCC Public Meeting. Hilton Key Largo Resort, Key Largo, Fl.

After the commission reached a decision regarding another saltwater fishery during the final regular public meeting of 2011, FWCC Chairman Kathy Barco asked Canion to present the finalized version of amendments to the Spotted Seatrout fishery. Canion explained how the proposed rule changes would "loosen regulations for both the recreational and commercial fisheries," and recommended, "approving the change described to be advertised rule and authorizing staff to publish a notice of change." Canion presented the finalized amendments as:

- Allowing year round recreational harvest
- Expanding the commercial season in the southeast May 1 – September 1, in the southwest from June 1 – October 31, in the northeast from June 1 – November 30, and in the northwest from September 1 – January 31

- Allowing the year round commercial sale of seatrout

- Establishing a commercial vessel limit of 150 seatrout with two licensed fishermen aboard

- Allowing a bycatch of 75 seatrout for commercial fishermen with seines on board

- Raising the recreational bag limit to six seatrout in the northeast

Immediately following Canion's presentation, the floor was yielded to public comment. Members of various publics expressed their support and criticisms about the proposed amendments. Members of the commercial fishing public, representing such organizations as the Wakulla Fishermen's Association, Shrimp Producers, and the Organized Fishermen of Florida, largely applauded the Commission's proposal. The SGF's Danny Borrow spoke out against the proposed draft rules. Barrow asked that the Commission issue no "increase in the boat limit for commercial angers, no year round sale of seatrout, no bycatch allowances and no nets period on seatrout." Borrow concluded his remarks by noting the proposed rule changes would put "the fisheries and nurseries at risk." Brett Fitzgerald, also representing the SGF, spoke out against the draft rules. Fitzgerald presented the results of a poll conducted by the SGF that reported 3,500 participants voted against commercial boat limit increases, bycatch exemptions, and the year-round sale of seatrout. Fitzgerald also commented that many poll participants "commented that they prefer that seatrout become a gamefish," and that personally, "[h]e would prefer no change to current regulations." In the state of Florida 'gamefish' designation would protect the seatrout against commercial harvest, and apply additional constraints on gear and bag limits. Private representatives of the larger fishing public also

addressed the Commission, speaking unanimously against the commercial deregulation of the seatrout fishery.

After public comments the Commission began deliberation. Although unanimously agreed on the expansion of the recreational fishery the Commission struggled over the implications of commercial deregulation. Erring on the side of conservation, and recognizing that they had "never had a situation where we have loosed regulations because of a good assessment and then years later had to re-adjust," the FWCC agreed to remove the provisions "to allow the bycatch of 75 fish with seines on board, and to allow the sale of seatrout for 30 days following the end of season." With the removal of the seine bycatch provision, the motion to amend to the seatrout fishery regulations passed.

November 16, 2011. Amanda Nalley, FWCC website. "Recreational, commercial fishermen to benefit from spotted seatrout management."

Quoting FWCC Commissioner Brian Yablonksi, Nalley touts the Commission's recent amendments to the seatrout Fishery management programme and balanced approach to conservation, "[a]t the end of the day, both commercial and recreational fishermen are getting something." In addition to reviewing the specific changes to the fishery management programme, Nalley also champions the FWCC's decision by drawing attention to its foundation in the science of population studies by quoting Chairman Kathy Barco, "[w]hat we are trying to do is be fair in a fishery that is in abundance, and in some cases way in abundance. … We are dealing with a success story."

November 16, 2011. SGF website. "FWC Commission Votes on Trout."

Following the FWCC's final changes to the seatrout fishery the SGF releases an article through their website discussing the vote. Touting the SGF's seatrout poll and its presentation to the FWCC, Brett Fitzgerald writes, "[w]hen the time came for the commission to have their final discussion before putting this issue to vote, it was clear that the commissioners heard your voice." However, after reviewing the details of the amendments, Fitzgerald's tone changes as he recognizes that, "[t]he final verdict reflects a compromise that could prove costly to Florida's fishing economy." Fitzgerald closes the SGF's commentary on the vote on mixed terms,

> The Commission should be commended for their willingness to give back to anglers in Florida… However, seeing how seemingly close we came to having seine nets used for catching trout, one has to wonder if 'no sale gamefish' status is the only way we can ensure sea trout get the long term protection they need to keep them as the number one inshore recreational fish in Florida.

November 18, 2011. Sam Hudson, Florida Sportsman. "Regulation Changes Affect Redfish, Seatrout."

Hudson describes the changes to the seatrout fishery as being "received with mixed feelings." Hudson notes that the FWCC's amendments would make "[t]he top family friendly inshore species in Florida is about to become the most widely caught and kept inshore species." Hudson seems to capture the general public tone surrounding the seatrout management changes

> Many anglers statewide are asking "Why?" Why the dramatic changes now? And why allow commercial seatrout fishermen to increase pressure by as much as 66

percent? Who even buys seatrout from a store? Many Northeast Florida

Sportsman members are not pleased with the decision.

February 1, 2012. FWCC.

Amendments to Florida Fish and Wildlife Conservation Commission rule chapter

68B-37, and rules 68B-37.002 through 68B-37.006 concerning the management of the

Spotted Seatrout fishery took effect for the state of Florida. The principal changes to the

rules, recorded as a matter of public record, are as follows:

68B-37.002: The northern border of the Southeast region was clarified to

include 'Card Sound.'

68B-37.004: Recreational catch limits in the Northeast region of the state

were raised from 5 to 6 fish per day

68B-37.005: The Commercial fishing season for the Northeast region was

changed from June 1 through August 31, to June 1 through November 30.

The Commercial fishing season for the Northwest region was changed

from June 1 through August 31, to June 1 through October 31. The total

quantity of fish permissible on a commercial vessel was raised from 75 to

150 fish per vessel, per two fishermen. A 30-day time period for selling

Spotted Seatrout after the closure of commercial fishing seasons was

established.

Under the jurisdiction of the FWCC and pursuant Section 370.021 of the Florida Statutes

rule chapter 68B-37 and the amendments are enforceable by both civil and criminal

penalties.

The Snook Debate

  After a record-breaking cold-water fish-kill in January 2010 the FWCC instituted an emergency closure of the state's entire snook fishery (McRae and McCawley 2010a). In the hopes of garnering conservation support in the wake of the snook fish-kill the SGF developed the "Snook Watch Angler Action Program." In April 2010 the SGF opened the 'Angler Action Program' website as a "data collection program that will shed more light on to the actual status of our snook population today," and offered to "give anglers a chance to bring vital information to the table as future regulations are considered" (SGF "Florida Fish Kill", 2010) in the form of catch surveys. The 'Snook Watch Angler Action Program' surveys asked anglers to record trip locations, catch numbers (including zero-catches), catch lengths, as well as photographs of any catches (SGF Snook Watch). By September 2010 the "Snook Watch Angler Action Program" had amassed 358 unique angler reports representing 1,085 hours of fishing, and recording 932 caught snook (SGF FWC). These reports were shared with FWCC researchers and brought to the public forums.

  While the effects of the "Snook Angler Action Program" reports are difficult to qualify in a specific sense, their general gravitas is made clear in the subsequent regulatory actions taken by the FWCC. As a result of the SGF's " Snook Angler Action Program," and their continued involvement in the snook fishery policy debates, the Gulf snook fishery – the area of the state most heavily impacted by the 2010 coldwater fishkill – remained completely closed for harvest until 2014 (FWCC 2010d; FWCC 2011a; FWCC 2012; FWCC 2013). The data generated by the "Snook Angler Action Program," which now boasts more than 5,800 trips logged that record 8,666 harvested fish and 31,946 released fish (SGF About Angler Action), was also utilized by the FWCC's

research branch as a primary data-set for the past two statewide snook stock assessments (Muller and Taylor 2012; Muller and Taylor 2013). Additionally, two years after the "Snook Angler Action Program's" debut it was referenced, by name, by FWCC Chairmen Kathy Barco as a source of confidence during the June 2012 snook fishery deliberations (FWCC 2012).

The documents that follow recount the SGF's work to operationalize the support and expertise of their stakeholders to sway the FWCC's management of the snook fishery. Once again, these stakeholders and agencies set out to balance their own interests against the health of a fishery and the demands of a public environmental resource.

January 10, 2010. Florida.

On January 10, 2010 a powerful Artic-low plunged air and water temperatures to record lows as it swept across the state of Florida (Masters, Jan 7, Jan 11). Orlando's high temperatures for January 10, 2010 were two degrees colder than those at the San Martin Base, Antarctica (Masters, Jan 11). Early on January 11, 2010, Florida's fishing community sounded a desperate alarm as water temperatures had dropped below 60 degrees – a deadly point-of-no return for the state's snook fishery (FWCC, Snook). Text messages, phone calls, and Internet posts about a "MAJOR fish kill," and reports of "floaters" came pouring in from across the state (SGF, March 2010). It was clear that the state's snook fishery had suffered a devastating cold weather fish-kill.

January 12, 2010. Captain Steven Markovich, Cyberangler.com. "Take Stock."

Captain Makovich reminds anglers through his fishing report that "[t]he cold weather can have harmful effects on our snook populations," and asked his readers to "check out the latest at www.Snookfoundation.org" (Markovitch 2010).

January 12, 2010. Captian Seah Hagen, Cyberangler.com. "Fish Kill in Tampa Bay."

In his fishing report, Captain Sean Hagen is more explicit, and concerned:

> With water temperatures in the middle forties it does not look good for the Tampa Bay snook. On a recent trip up the Alafia River I encountered several floaters and the weather has only gotten worse since then. I am sadly predicting that this January's cold icy temperatures have caused damage to our Snookery.

January 15, 2010. FWCC Executive Order No. EO 10-03.

Using an executive order to bypass the public-comment and deliberation process, the FWCC immediately closes the entire state's snook fishery, mandating that "due to the prolonged natural cold weather event that has caused significant, widespread mortality of saltwater fish … no person may harvest or possess snook in the state and federal waters off Florida" until August 31, 2010" (FWC, January 2010).

February 17, 2010. FWCC Public Meeting. Franklin County Courthouse, Apalachicola, Fl.

During its first regularly scheduled public meeting the FWCC set about discussing "Florida's January 2010 cold snap – Impacts on fish and wildlife." FWCC staff opened the discussion recognizing that, "[t]he cold snap that affected Florida in the

first two weeks of January 2010 had an effect on some of Florida's fish and wildlife."
The FWCC staff noted that it had responded to "over 850 phone calls from the public
about fish kills since January," and that while, "the widespread nature of this event across
multiple species and aquatic habitats makes it nearly impossible to quantity the
magnitude of the fish kills by species or region," it would engage "long-term sampling
programs on a variety of fish species [which] will allow FWC scientists to look for
possible immediate effects on Florida fish populations; obtain some measure of the
relative recovery of these populations over time." The FWCC also reviewed the details of
Executive Order 10-03 and advised anglers that, while they may still practice catch-and-
release fishing for snook, "they handle snook carefully as possible to help promote
survival."

March 3, 2010. SGF website. "Call to Action."

Featuring a 6-minute video, the "Call to Action" reminds anglers of the infamous
1989 freezes which killed upwards of 500,000 snook statewide. Set with dramatic music,
and images of dead or dying snook the video explains how

Gamefish of Florida have been through these cold-related kills before and

populations have always recovered … The difference how … there's more

anglers and less habitat, and these will influence the rate of recovery for the

gamefish impacted by the cold kill … This highlights the need for attention to

habitats, and should be recreational anglers call to action.

The "Call to Action" asks the public to "demonstrate how recreational anglers can be part
of the solution to declining fish stocks, not part of the problem" (SGF March 2010), and
concludes by informing anglers that

The Snook Foundation is embarking on a data collection program that will shed more light on the actual status of our snook population today. This program has been reviewed by state scientists for validity, and gives anglers a chance to bring vital information to the table as future regulations are considered.

April 19, 2010. SGF website. "Snook Watch Angler Action Program."

Citing the need for data concerning the size and distribution of snook the SGF asks anglers to record trip locations, snook catch numbers (including zero-catches), catch lengths, as well as photographs of any catches through an online survey system. The SGF advertises that the program was developed in cooperation with the FWCC Fish and Wildlife Research Institute, and "closely tracks the information biologists ask in face-to-face surveys." The SGF concludes, touting that

By collecting usable information about directed fishing trips, this program will allow anglers the opportunity to play a part in conserving our valuable fisheries and habitat. It also ensures that the data utilized to evaluate socks of fish includes direct angler input.

August, 2010. FWCC website. "Snook Cold Kill Report."

The report details the cold weather event, the ensuing fish kill, the closure of the snook fishery, and offers a summary of the FWRI's assessment of the impact on snook populations. Noting that "surveys for dead fish – either washed on beaches and other shoreline or floating – may severely underestimate actual mortality," the report utilizes data from four long-term monitoring programs – the FWCC-FWRI Fisheries Independent Monitoring Program (FIM), the Marine Recreational Fisheries Statistics Survey

(MRFSS), the Everglades National Park's (ENP) recreational creel survey, and the FWCC's Snook Acoustic Tagging Program – as data sources. The report indicates that analyses conducted utilizing FIM data confirm that water temperatures were "much lower than normal" from January to April 2010, and that the numbers of snook collected each month and per haul during 2010 were "lower than historic values in each of the estuaries … with the exception of April and May in the Southern Indian River Lagoon." Analysis of FIM data also indicated that larger snook were collected during the 2010 sampling, and that "suggests a greater vulnerability of smaller-sized common soon to low water temperatures." Analyses conducted using MRFSS data suggested that "adult snook … in different parts of Florida were impacted differently by the cold kill," and that the "snook on the Gulf coast were much more severely impacted by the cold kill than Atlantic coast snook." These results were substantiated by data from the Snook Acoustic Tagging Program which located snook on the southeast coast of Florida, and whose analysis indicated that, "although the Atlantic coast snook suffered some level or mortality from the cold kill a significant proportion of reproductive-sized fish survived to spawn." Data from the ENP showed a sharp decline in snook populations, which were on the rise only a year earlier.

August 15, 2010. Gil McRae and Jessica McCawlet, FRWI Report. "Snook Cold Kill Report Presentation."

The FWRI's Gil McRae and Jessica McCawley deliver a "Snook Cold Report" presentation to the FWCC. After briefly describing the cold kill, the FWCC's precautionary response, as well as the snook's spawning biology, the presentation reviews the findings from the Snook Cold Kill Report. Citing the need for conservative

management of the snook fishery "because snook are vulnerable to cold weather events and stakeholders wanted snook managed as a trophy fishery[7]," the presentation offers four management options:

- Option A: Revert to current season structure

    o Reopen harvest on September 17

    o Snook would close again in December

- Option B: Continue closure through end of 2010

    o Snook would remain closed for the rest of 2010

    o Based on current closures would not reopen until Feb 1 on Atlantic and March 1 on Gulf

- Option C: Open now, close again spring 2011

    o Reopen harvest on September 17

    o Regularly scheduled closures for rest of 2010

    o Continue closure from January through August 2011 to protect spawners[8]

- Option D – Keep fishery closed through spring 2011

    o Snook would remain closed for rest of 2010

    o Keep fishery closed through August 2011

Citing the analyses of MRFSS and Snook Acoustic Tagging Program data, which indicate that Gulf snook populations suffered greater mortality than Atlantic populations, the presentation also suggests that Commissioners may want to consider a bi-coastal approach where different options are selected for the different coasts. The presentation

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[7] "Trophy fishery" here refers to the legal gamefish designation.
[8] Fish that are of breeding age.

finally offers the FWRI's recommendations for Option C, noting that they make their recommendation "based on available data indicating that the fishery was very robust going into the freeze," and that, "[h]aving a brief harvest season … will also allow FWC to collect valuable information on adult populations through our normal harvest sampling." The presentation concludes with a warning that,

> stakeholder needs and desires in this fishery are variable. While the biological health of the fishery is not in jeopardy at this time, the Commission may wish to consider stakeholder concerns and consider other options for short-term management of the fishery. (FWCC "Cold Kill Report" 2010).

August 23, 2010. SGF website. "FWRI Recommends reopen the Snook Fishery."

Following the FWRI's report to the FWCC the SGF publishes an update for their members and interested publics. In the update the SGF provides links to the FWRI's "Cold Kill Report" presentation and their own "Snook Foundation Poll." After noting that the FWCC's SPR goals are purposefully "more conservative than the goal for other species because snook are vulnerable to cold weather events and stakeholders wanted snook managed as a trophy fishery," the SGF goes on to review the FRWI's proposed management options. While the SGF does not directly endorse any of the FWRI's management options it recognize that the FWRI make their recommendations "primarily based on available data indicating that the fishery was very robust going into the freeze," and that the SGF "believes the fishery is healthy enough to rebound and continue to grow." The SGF also cites existing FWCC regulations as capable of helping ensure the recovery of the fishery, and that "[h]aving a brief harvest season this fall will also allow FWC to collect valuable information on the adult population through our normal harvest

sampling." The SGF closes by asking that the FWCC "consider stakeholder concerns and consider other options for the short term."

August 24, 2010. SGF website. "Your Take."

The SGF publishes their comments on the FWCC and FWRI's proposed snook fishery management options. After reviewing the details of the FWRI's presentation and suggestions to the FWCC, the SGF presents the results of an online poll of anglers' opinions of the management options. The poll showed that of the 997 respondents 41.7% disagreed with any opening of the snook fishery in 2010, 9.8% supported a shortened Fall 2010 season, and 48.5% supported a fully opened Fall 2010 snook season."

August 31, 2010. SGF website. "Thanks for taking Poll!"

The SGF publishes an update of their snook management opinion poll. With an additional 814 respondents the poll reports a total of 1811 responses with a final distribution of 790 (43.6%) supporting a September – December 2010 open snook season, 788 (43.5%) disagreeing with any opening of the fishery in 2010, 173 (9.6%) voting for at least a 30 day open Fall 2010 season, and 60 (3.3%) preferring a very short (10 day) Fall 2010 season.

September 3, 2010. FWCC public meeting. Hilton Pensacola Beach Hotel, Pensacola Beach, Fl.

During the fourth regularly scheduled FWCC meetings in Pensacola Beach, Fl, the Commission opened discussion of the "Snook Cold Kill." Chairmen Barreto asked Mr. Robson and Mr. McRae to update the Commission "on the effects from the past

season's cold weather on the snook fishery, and recommended management changes."
Mr. Robson and McRae then presented the findings of the FWRI "Snook Cold Kill
Report," and recommended Option C – that the snook season open on September 17,
2010 and close in the spring of 2011.

The floor was then opened to public comment where virtually everyone, including
Rick Roberts of the SGF, spoke in favor of Option C. The Commission then resumed
deliberations. Commissioner Wright spoke in favor of a bi-coastal approach with Option
C for the Atlantic, and Option D for the Gulf. Commissioner Barco supported Option C
with, "the option of leaving everything open for the rest of the year for those who have
already purchased a snook stamp." Chairmen Barretto noted that,

> the professional fishermen and guides[9], who normally catch 10-12 snook a day,
> now catch one. He said he observed a large amount of dead snook from the cold
> weather and favors a more cautious approach on the west coast of Florida.

Chairmen Bergeron agreed with Barreto concerning the need "be cautions," supported
Option C for the east coast and Option D for the west coast. Commissioner Stephenson
also spoke in favor of a C and D bi-coastal plan.

Chairmen Barreto then suggested "rewording Option D 'to keep the fishery open
for catch and release'." The Commissioners then unanimously seconded the motion to
adopt Option C for the Atlantic coast and Option D for the Gulf coast, with the language
of Option D being reworded to keep the fishery open for catch and release. Closing the
issue, Commissioner Wright suggested "staff coordinate with the Snook Foundation … to

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[9] Professional fisherman and guides here refers to private 'for hire' anglers. Because they serve
the recreational fishing public they are usually considered part of the recreational fishing
community.

communicate the Commission's decision urging them not to ask for a refund and show support for funding future snook research"."

September 3, 2010. SGF website. "FWCC hear from SGF."

Immediately following the FWCC's September 2nd vote to open the Atlantic coast for snook harvest, the SGF hails that "FWC Commissioners Hear from Snook Foundation." After reviewing the results of the FWCC vote the SGF praises the Commissioners' decision saying, "the decisions made by FWC Commissioners will help create a robust rebound of snook." The SGF also details the their "Snook Watch Angler Action Program," noting that between May 20 and August 30, 2010 the program collected 208 fishing trip reports cataloging the 1085.25 hours of fishing, and 932 caught snook. The SGF's press release closes by asking that, "Commissioners continue the conservative management of the fishery and apply additional effort towards inshore habitat study and protection that will benefit snook and all game fish."

September 5, 2010. SGF website. "Snook Season Decision."

The SGF publishes an additional update on the FWCC's snook fishery vote through their website. After reviewing the FWCC's decision to open the Atlantic snook fishery and maintain closures to the Gulf snook fishery, the SGF reiterates the importance of continuing participation in the "Snook Watch Angler Action Program." Quoting SGF Director Rick Roberts,

> We respect these science-based decisions, bur our knowledge base can always be
> improved … We look forward to working with FWC biologists since the

commission has emphasized that the season is closed to harvest but is not closed

for catch-and-release recreational fishing.

The SGF goes on to note that "[t]he Angler Action Program has been instituted to make

fisheries dependent data[10] more robust and accurate," and that the program helps the

FWCC develop, "a more concrete understanding" of the fisheries by providing a "catch

per unit of effort[11]" measure, a "vital standard in any stock assessment." The SGF

celebrates the success of the "Snook Watch" program, quoting FWCC Commissioner

Brett Fitzgerald that "[s]heer volume reduces bias in such data … and we've already

surpassed more than 1,100 hours of fishing effort recorded."

September 17, 2010. FWCC Executive Order number 10-45.

The FWCC officially signs Executive Order number 10-45, maintaining the

closure of the snook fishery from the Gulf of Mexico, Monroe County, and Everglades

National Park through August 31, 2011, and closing the Atlantic Ocean, Lake

Okeechobee, and Kissimmee River snook fishery from December 15, 2010 through

August 31, 2011. Executive Order 10-45 also reiterates that the order, "does not prevent

catch and release fishing for snook during the harvest closure."

May 9, 2011. Gil McRae and Jessica McCawley, FWRI Report. "Snook Cold Kill

Report."

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[10] Fisheries dependent data are collected from commercial and recreational anglers, and include information on fishing locations, gear, landings, bycatch, prices, catch sampling, and more. This data are used in stock assessments, and to generally inform management decisions.
[11] Catch Per Unit of Effort (CPUE) provides a standard unit of measurement for caught fish. CPUE is often used as an index of fish abundance, or to measure the economic efficiency of fishing (NOAA 2006).

After reviewing a history of the 2010 cold weather fish kill and the subsequent emergency management actions McRae and McCawley survey the snook's spawning biology, and the FWCC's monitoring programs. McRae and McCawley then describe the reports findings in terms of the snook's 'juvenile abundance,' 'catch rates,' and 'creel surveys.' The report's analysis indicates that while the snook catch-rate, or 'creel,' was significantly impacted in the Everglades National Park, and that "the average number of snook caught … was lower than historic value," in generally state tide "abundance levels in 2010 were not statistically significant from 2009 in any of the estuaries evaluated." The report also suggest "a smaller impact from the cold kill on adult, exploitable-sized snook," and that, "snook on the gulf coast were more severely impacted by the cold than Atlantic coast snook." Based on the FWRI's work McRae and McCawley's report offers the following as management option:

- Option A: Resume original season structure
    - Repopen harvest on September 1, 2011
    - Snook season would close again in December and reopen February 1, 2012, on Atlantic and March 1, 2012, on Gulf
- Option B: Continue closure through end of 2011, reopen in 2012 based on original rule structure
    - Harvest would remain closed for the rest of 2011
    - Snook harvest would repoen February 1, 2012, on Atlantic and March 1, 2012, on Gulf
- Option C: Open fall 2011, close through August 31, 2012
    - Reopen snook harvest on September 1, 2011

- o Snook harvest would close again in December and remain closed through August 31, 2012

- Option D: Keep closed pending assessment in 2012

  - o Snook harvest would remain closed for the rest of 2011

  - o Continue closure from January 1, 2012 through August 31, 2012

The report reiterates that, "[a]vailabe research information indicates there may have been a different freeze effect, with indication of more adult mortality on the west coast than on the east coast," and that, "[w]hile we do not believe the population is biologically threatened on either coast, the evidence suggests the easy cost snook came through the freeze event in better shape than those on the west coast." Finally the report recommends that the FWCC "may wish to consider a different approach for each coast of Florida," and that such a bicoastal approach might "align well with stakeholder interests for the fishery."

June 9, 2011. FWCC public meeting. Renaissance Resort at World Golf Village, St. Augustine, Fl.

The FWCC returns to deliberate on the snook fishery's management during the third regularly scheduled public meetings in St. Augustine, Fl. Chairman Barco opened discussion by asking Ms. McCawley and Mr. McRae of the FWRI to present the most resent update of the "Snook Cold Kill Report." After Ms. McCawley reviewed the history of the cold kill, subsequent emergency management measures, the sampling methods, and trend results for the FWRI's 2010 "Snook Cold Kill Report" she presented the FWRI's updated 2011 Snook Management Options, saying that the FWRI

recommends Option A for Atlantic Coast, which would open the harvest
of snook on Sept. 1 and return to the original season structure for the rest
of 2011 and early 2012, and Option D for the Gulf Coast, which would
keep the harvest closed until August 31, 2012.

Ms. McCawley closed by reminding the FWCC that, "[i]f a closure were chosen, it would occur using an Executive Order." When the floor was open to public comment, most respondents spoke in favor of a conservative approach to managing the snook fishery, and voiced their support of the FWRI's recommendations. Terry Gibson, representing the SGF, "strongly supported staff recommendations for Options A and D." When the Commissioners resumed discussion, Ms. McCawley commented that,

we do not have many people who are pushing to keep the Gulf open because most
of Gulf fishermen we have heard from are worried and want the season closed as
long as needed, until the new assessment is ready.

With that, a motion was made by Commissioner Corbett was made and was seconded by Vice Chairmen Wright to approve staff recommendations, passing Option A for the Atlantic and Option D for the Gulf.

September 1, 2011. FWCC Executive Order number 11-16.

The FWCC officially maintains the closure of the snook fishery from the Gulf of Mexico, Monroe County, and Everglades National Park through August 31, 2011, and closing the Atlantic Ocean, Lake Okeechobee, and Kissimmee River snook fishery from December 15, 2010 through August 31, 2011. Executive Order 10-45 also reiterates that the order "does not prevent catch and release fishing for snook during the harvest closure."

June 27, 2012. FWCC public meeting. PGA National Resort, Palm Beach Gardens, Fl.

During its third regularly scheduled public session the FWCC once again opened discussion of the snook fishery's management. Chairman Barco opened by asking FWRI Biological Administrator Aaron Podey to present the findings of the FWRI's 2012 snook stock assessment. Podey explained that the 2012 stock assessment included data from 1986 to 2010, and calculated the Atlantic snook fishery's SPR at 35% and the Gulf fishery's 53% (Sharer and Podey, 2012). Citing the results of the 2012 snook stock assessment, which indicate that the snook's SPR exceeded minimum biomass thresholds and were approaching the SPR goals on both coasts, Podey recommended maintaining existing regulations for the Atlantic fishery, and allowing Executive Order 10-45 to expire for the Gulf – allowing the Gulf coast to return to pre-cold kill regulations. In response, Commissioner Priddy questioned if, "because it was mostly juveniles who were killed from the cold, and the impact on the spawning cycle will not be realized for another five years; will we need to revisit this in another five years and maybe close the season again?" Podey replied, "no, the fish that survived are protected by the lower end of the slot-limit[12], and there should only release morality." Chairman Barco then asked, "if we keep the snook fishery closed for an extended length of time, are we going to get caught … and not have data?" Mr. Barbier of the FWRI explained that because of the popularity of catch-and-release snook fishing, data collection would continue despite closures. Chairman Barco reiterated that she does not "want a situation in which they are not able to do anything, because we do not have data."

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[12] NOAA (2006) defines slot-limits as the defining the size range of fish that may be kept. Slot-limits can describe a minimum and maximum range a fish must measure to qualify for harvest.

When the floor was yielded for public comment nearly all praised the FWCC's management actions and spoke in favor of continuing closures of the Gulf Coast. Representing the SGF, Rick Roberts stated that they "support staff recommendations," and expressed confidence in the stock assessment "because of the data input from fishermen all over the state of Florida." The SGF's Captain Danny Barrow also spoke, reminding the Commission and the public that "recreational anglers can now log their catches online through the Angler Action Program," adding that, "[t]hey can furnish his data to FWRI from places that biologists do not get to, it's real people out there fishing, supplying data."

When the floor was returned to the Commission for discussion, a heated exchanged developed over whether or not snook management decisions should return to public comment and further deliberation. As commissioners weighed the publics demands and the scientific evidence Commissioner Barco deferred to the SGF saying, that "she listened carefully to the Snook Foundation" who supported the FWRI's recommendations. Commissioner Barco then called for a vote on the motion to maintain closure of the Gulf fishery through August 2013 by executive order, and maintain existing regulations for the Atlantic. Following a brief discussion concerning the advantages and disadvantages of utilizing an executive order the motion to continue Gulf closures and maintain Atlantic regulations passed with Commissioner Priddy dissenting. The Commission added that, "[w]e will bring this back at the June 2013 meeting so we can make a decision prior to next year's opening."

September 1, 2012. FWCC Executive Order number 12-11.

The FWCC once again moves to maintain the closure of the snook fishery from the Gulf of Mexico, Monroe County, and Everglades National Park through August 31, 2011, and closing the Atlantic Ocean, Lake Okeechobee, and Kissimmee River snook fishery from December 15, 2010 through August 31, 2011. Executive Order 10-45 also reiterates that the order "does not prevent catch and release fishing for snook during the harvest closure."

June 12, 2013. FWCC public meeting. Hilton Garden Inn, Lakeland, Fl.

A year later, during the third regularly scheduled meeting the Commission opened their review of the snook fishery management. Chairman Wright asked FWRI analyst Carly Canion to present the findings from the FWRI's 2013 snook stock assessment. Canion reported that the 2013 snook stock assessment determined that both the Atlantic and Gulf stocks were well above the 20% minimum biomass thresholds, and that both coasts were approach or had surpassed the 40% SPR management goal with the Atlantic snook SPR measuring 36% and the Gulf stock measuring 58% (Sharer, Canion, & Recks 2013). Citing the positive findings Canion recommended maintain Atlantic regulations and allowing the Gulf closures to expire.

While speakers during public comment were split for and against opening the Gulf, SGF's Rick Roberts voiced his support of FWCC and FWRI staff recommendations. Roberts added that the "SPR is adequate," and that, because of the data generated through the "Snook Watch Angler Action" program, he did not feel the snook were in trouble.

When the Commission regained the floor, Commissioner Bergeron moved to approve staff recommendations. Commissioner Roberts seconded the motion. With that,

the motion passed unanimously, allowing Executive Order 12-11, and the closure of the Gulf snook fishery, to expire on August 31, 2013.

June 12, 2013. SGF website. "FWC Opens West Coast to Fall Snook Harvest."

Following the FWCC's vote, the SGF publishes a review of the decision on their website. After presenting detailed histories of the snook's cold kill, the emergency management efforts, and the FWRI's stock assessment process, the press release notes that "[t]he Snook & Gamefish Foundation is confident that FWRI staff made the most informed decision possible," adding, "[f]or one thing, they considered data that was provided directly from anglers via the Angler Action Program." The SGF concludes with high-praise for the FWCC:

> Florida Anglers are extremely fortunate to have a commission that has problem to take public comment into consideration. They then balance that input with the information gathered from FWRI's very dedicated staff of scientists and managers who work diligently to ensure we have the best possible understanding of snook and many other species of fish. So take advantage, make your voice heard.

Conclusions

In summation, both the FWCC and the SGF have tried to engage Florida's recreational fishing stakeholders as new management policies were debated for the state's snook and seatrout fisheries. The SGF's efforts in the seatrout debates were largely unsuccessful. Despite the SGF's work, and the public's focused energy against commercial deregulation of the seatrout fishery, the FWCC went ahead and expanded the commercial season and sale. By contrast the SGF's work on the snook fishery was wildly

successful. Together the SGF and their angling stakeholders managed to convince the FWCC to maintain the remarkably conservative closure of Florida's Gulf Coast snook fishery for more than three consecutive years.

The disparity between the SGF's success in utilizing stakeholder engagement to affect policy change in the snook fishery and relative failure to do so with regard to the seatrout fishery is made even more interesting when the two fisheries debates are compared further. Beyond simply sharing agencies, the snook and seatrout debates share many of the same individual players. The FWCC Commissioners are the same across debates. The SGF's Brad Fitzgerald is active and in-person in both debates. Even the FWRI's Carly Canion and Michelle Sempsrott are engaged in the science behind both fisheries. In both debates the inclusion of stakeholders is advocated at multiple levels of the policy process. The stakeholders themselves are also conceivably the same across the debates as both the FWCC and the SGF release their calls to action through the same outlets. With so much in common under such ideal circumstances, how could the results be so different?

Even the contrasts between the fisheries debates add to the puzzle. The widespread public outcry evidenced by the popular media coverage of the seatrout debate seems to greatly overshadow the comparatively limited extend of concern for the snook fishery. That the SGF failed to persuade the FWCC with the inclusion of 3,500 concerned seatrout stakeholders when it succeeded with only 1,811 snook stakeholders seems to defy logic. How was the SGF able to do affect *more* policy change in the snook fishery by involving *fewer* stakeholders then in the seatrout fishery? Additionally the FWCC's extensive use of executive orders in the snook fishery, which effectively bypasses public deliberation, seems antithetical to stakeholder involvement. By contrast

the FWCC openly sought to engage stakeholders from the very beginning of the seatrout

debate, and at each subsequent stage of deliberation. And yet it is in the snook fishery

debates the voices of SGF and the conservation-oriented recreational angling

stakeholders find greater representation and success.

It should be noted, however, that, scientifically, the differences between the snook

and seatrout likely contribute to the disparity between the SGF's stakeholder engagement

campaigns. Ernst Peebles (personal communication, May 17, 2016) notes that there are

inherent differences in the complexity of the population dynamics of the two species.

Most reproduction in the relatively short-lived Spotted Seatrout results from spawning by

young fish, which have a sex ratio near 1:1 (E. Peebles, personal communication, May

17, 2016). In contrast, the long-lived Common Snook is clearly a sequential

hermaphrodite (male first, then female) that has complex, poorly understood sex ratios,

and most reproduction results from a highly age-structured spawning stock that includes a

large proportion of older fish (E. Peebles, personal communication, May 17, 2016). The

Common Snook is a tropical species that exists at its northern thermal limit on the west

coast of Florida, where the spawning stock is periodically vulnerable to cold kills (E.

Peebles, personal communication, May 17, 2016). As a result of these inherent

differences, the Spotted Seatrout responds quickly and resiliently to population

disturbances, whereas the Common Snook may take many years to recover from damage

to its highly age-structured spawning stock (E. Peebles, personal communication, May

17, 2016). In short, there is far less risk involved in managing Spotted Seatrout relative to

Common Snook (E. Peebles, personal communication, May 17, 2016).

The similarities and differences between these cases make tracing lines of

causality between the SGF's stakeholder involvement campaigns and the FWCC's policy

decisions a fraught endeavor. Hypothetically, the commercial interests of the seatrout fishery represent a financially disproportionately and powerful force that worked against stakeholders not present in the snook debate. However, since the total commercial harvest of seatrout represents only 2.2% of the state's total seatrout harvest, this is an unlikely deduction. By another metric, commercial fishing in the state of Florida generates nearly 65,000 jobs and approximately $200 million annually (FWCC Value). In comparison, Florida' recreational saltwater fisheries support more than 109,000 jobs and generate a conservative $7.9 billion annually (FWCC Value). The disproportionate value of recreational saltwater fishing suggests that the tension between commercial and recreational anglers in the seatrout debates may not represent a critically influential difference in comparison to the commercial-less snook debates. Or, it could be argued that stakeholder opinion in the seatrout fishery was over-ruled by the FWRI's scientific findings; that the seatrout's healthy SPR values were simply more persuasive than the angling public's opinion. However, in the snook debate the same SPR data was clearly outweighed by the stakeholder voices. Even though the 2012 snook stock assessment indicated that the snook populations were approaching or had exceeded the FWCC's SPR management goals, the fishery was still kept closed. When the same voices spoke out against virtually the same science, the results were still divergent. The snook's 'gamefish' status might also be seen to represent a critically influential difference compared to the seatrout's unprotected status. However, as the seatrout's portrayal in the popular media surrounding the debate indicates, the seatrout is already very much a gamefish in the hearts and minds of the fishing public. Indeed many Florida anglers are already engaged in pushes to legitimize the public's love of seatrout by having the species officially

designated as a gamefish. Given the seatrout's clearly beloved place in anglers' hearts and minds, its official status is likely only a minor issue.

Indeed, the entanglement of individuals, communities, agencies, and interests create an imbroglio of agencies so dense that explanations focused solely on work of the humans and their discourses – the typical subjects of environmental studies and rhetorical analysis – fail to provide a compelling account of what made the stakeholder voices and the expertise they represent so much more persuasive in the snook fishery debates than virtually the same voices in the seatrout fishery. A compass calibrated to other, nonhuman agencies might represent the key to charting more compelling and fruitful explanations. However, precisely where or how the nonhuman agencies at play and at stake in the case studies exert their influence is difficult to observe. The case studies presented in this chapter may be clearly about fish, but how those fish participate in the debates is far from clear. Better understanding how the fish themselves exercise influence in the seatrout and snook policy deliberations, and that nonhuman agency's relationship with stakeholders may tell us much about the nature of expert knowledge, the place of non-credentialed stakeholder expertise in marine policy debates, and how that expertise might be utilized better; but, doing so will first ask us to navigate puzzling and potentially treacherous theoretical waters.

Chapter 3: Object-oriented Rhetorics

Becoming Object-oriented

Encouraged by recent upswings in New Materialism, Object Oriented Ontology, Multiple Ontologies, and other posthuman scholarship, the work of those engaged in what Scott Barnett dubs 'object-oriented rhetoric' (2010) reflects a growing attention to and investment in the agentive forces of non-humans within rhetorical situations. For these increasingly materialist scholars the notion of rhetorical agency, and therefore of what counts as rhetorical, comes to include the extra-human forces, places, and things that exert rhetorical force.

Object-oriented rhetoric owes a large debt to the feminist rhetorical scholarship that decentered rhetoric from its traditional logocentric cannon through concepts such as Julia Kristeva's abject (1988), Judith Butler's performativity (1990), Donna Harraway's cyborg (1991) and material semiotic (1988), and Debra Hawhee's bodily rhetorical pedagogy (2004). This feminist interest in the body and in performance, helped open rhetorical scholarship to a renewed interest in the material and troubled the issue of agency.

The move to embrace the rhetorical value of objects and things which are completely nonhuman began most explicitly with the work of Diane Davis and Jenny Rice. Davis, in seeking to uncouple rhetoric from its hermeneutical dependence on the autonomous human subject, offers the immanence of the Levinasian 'Other' as the origin of rhetorical agency (2010). For Davis the always-already presence of Others represents

the origin – the prerequisite – of the rhetorical (2010). Instead of being understood as persuasiveness or effectiveness, rhetorical action and agency is reconceptualized in terms of affectivity – as the influence of, and ability to influence, the rhetorical situation enabled and sustained by proximity with Others. Though Davis primarily explicates the affective significance of human Others, her confrontation of Levinas' baseline anthropocentrism by way of Derrida does signal the possibility, perhaps even the necessity, for a materialist perspective on community, Other, and affect. Recognizing that Levinas grants neither animals nor the feminine with the capability of generating the kind of affective responsiveness that represents the core of both the rhetorical and ethical (2010, p. 142), Davis works to offer an understanding of affective alterity that embraces "the *play of differences* that are effaced by this rude and crude dichotomy ('the human'/'the animal')" (2010, p. 143). By engaging Derrida's confrontation with the "'abyssal limit' of what is called 'the human'" (2010, p. 163) by the gaze of his "real cat," Davis decisively exposes the arbitrariness of Levinas' self-imposed limitations on what kinds of Others call for response. By completely displacing an actual human subject from center of rhetorical exigency in favor of hypothetical Others, Davis' privileging of communal alterity could also be expanded to include the presence of nonhuman and material Others. Davis acknowledges the extension of her arguments as she asks rhetorical scholars to,

> reconsider both the role and scope of 'affect' in the language relation, which
> would in turn require us to reconsider what this 'language relation' involves and
> who or *what* might be engaged in it. (2010 p. 166, emphasis mine)

Jenny Edbauer Rice, working to move away from static definitions of the rhetorical situation, develops the metaphor of rhetorical ecologies to describe rhetorical action as emergent from, and taking place within dynamic systems of circulating agencies (2005). Instead of understanding rhetorical situations and acts in terms of a finite collection of elements at-hand, Rice offers an ecological perspective that embraces a fluid interplay of rhetorical agents and agencies. Rice's ecological metaphor inverts and expands the traditional relationship between a rhetorical situation and its rhetorical acts, highlighting how

> A given rhetoric is not *contained* by the elements that comprise its rhetorical situation (exigence, rhetor, audience, constraints). Rather, a rhetoric emerges already infected by the viral intensities that are circulating in the social field. (2005a, p. 14)

Rice's notion of rhetorical ecology rejects models of rhetoric that suggest meanings or agencies can be discretely located within autonomous elements of a given situation. Rather, the ecological model suggests that rhetorical acts and agencies are highly contingent on the unique, live interplay of a wide spectrum of networked influences – none of which can be removed or altered without influencing the rhetorical possibilities or realities, and each of which carries with it its own ecology of influences.

Although Rice does not develop an explicitly materialist, nonhuman oriented perspective, her major works analyzing the city of Austin from an ecological perspective do seem to acknowledge the presence and power of nonhuman agencies. In her analyses of Austin's graffiti (2005b) and urban development (2012) Rice draws repeated attention to the interplay of many "affective encounters, experiences, and moods that cohere around material spaces" (2005a, p 11). Whether it be the size, color, and texture of street-

art, or juxtaposition of shady oak trees with glassy skyscrapers, Rice's attention to the impact of nonhumans on the development of rhetorical discourses and subjects implicates the material world as another affective strata of rhetorical ecologies' "viral intensities … circulating in the social field" (2005a, p. 14).

Capitalizing on the displacement of the traditional human subject and the expansion of the rhetorical situation in ecological terms, Thomas Rickert (2013) articulates the most explicit and through account of the role of the material in rhetoric. Given the radical surge in the complexity of science, technology, medicine, as well as their increasingly ubiquitous and potent impact on everyday life in the early 21st century, Rickert posits that

> Rhetoric can no longer remain centered on its theoretical commonplaces, such as rhetor/subject, audience, language, image, technique, situation, and the appeals accomplishing persuasive work, at least as they are predominately understood. Rather, it must diffuse outward to include the material environment, things (including the technological), our own embodiment, and a complex understanding of ecological relationality as participating in rhetorical practices and their theorization. (2013, p.3)

To facilitate such an outward diffusion Rickert develops the concept of 'ambience' to describe the interplay of the nonhuman agency in rhetorical acts and ecologies.

Recognizing that the material world plays a critical role in influencing what is possible and how it is made possible, Rickert develops the concept of 'ambience' to describe the "active role that the material and informational environment takes in human development, dwelling and culture," and the dissolution of "the assumed separation between what is (privileged) human doing and what is passively material" (2013, p. 3).

Understanding ambience as "ontological and primordial," as preceding "all cognition and volition," (2013, p. 14) Rickert posits the material world as not simply part of, but vital to all rhetorical ecologies. Like Davis, Rickert understands the "presymbolic affectability" (2013, p.15) of the material world as a prerequisite for the formation and execution of the rhetorical. For Rickert, then, the rhetorical comes to include background sound, the walls of a cave, electric cars, and the whole pantheon of objects and things once downplayed by concepts of the rhetorical that were centered solely on the autonomous human subject (2013).

Calling on the classic Greek concept of *chora* Rickert convincingly demonstrates how materiality's ambience plays a central role in influencing the development of rhetorical ecologies by highlighting the critical affectability the ambient world exercises on processes of rhetorical invention. Rickert extends Plato's mythically indeterminate space which facilitates movement "from the realm of the idea to the world of generation" (2013, p. 53) through the work of Kirsteva, Derrida, and Ulmer to suggest *chora* as a concept that "transforms our senses of beginning, creation, and invention by placing those activities concretely within material environments, informational spaces, and affective (or bodily registers)" (2013, p. 46). Rickert's *chora* comes to represent the vitality of the real world's "'infomaterial' matrix" (2013, p. 34), or, "material infrastructure" (2013, p. 44) in contributing to, perhaps even determining, "what is available as a means of rhetorical generation" (2013, p. 46). For example, with reference to Neolithic cave paintings, Rickert's interpretation of *chora* signals how the material and environmental stability of the caves' walls and micro-atmospheres represent not simply a canvas for paintings but the very medium that ushers the paintings forth into existence and which sustains them – the very material reality that creates the conditions for the

genesis and survival of the art. Rickert's ambience confronts rhetorical scholarship with the understanding that, "[r]hetoric has a material dimension, and it is an embodied and embedded practice," and that rhetoric itself, "is an emergent result of environmentally situated and interactive engagements, redolent of a world that affects us, that persuades us prior to symbolicity" (2013, p. 34).

Critics of nonhuman agency and its rhetorical significance might suggest that the ambient materiality of the seatrout's debate described in chapter 2 simply represent the backdrop of the rhetorical acts; that any agency the fish might be seen to wield is simply a byproduct of human agency. Put more directly: because we imbue the human subjects who are debating the management of the seatrout fishery with rhetorical agency, and because the seatrout are a subject of the humans' rhetorical utterances, the fish can be said to share a degree of rhetorical agency. Agency only through subjective association, so to speak. The spirit of this argument resounds in Burke's grounding of rhetoric in the symbolic, where the material world manifests itself solely by its corresponding symbolic character (1969).

In a compelling rebuttal to this line of criticism Rickert pairs Burke's understanding of meaning as emergent alongside Heidegger's phenomenological 'fourfold' to clarify the extra-human agency of materiality and its relationship with the discursive. Reading from *Rhetoric of Motives* (1969), Rickert describes Burke's take on symbolic meaning as an emergent "sense or significance of things, events, and relations" (Ricket 2013, p. 166). Rickert couples this reading with Heidegger's phenomenological 'fourfold,' which generally describes influence of the fourfold elements Earth, Sky, Divinities, and Mortals – metaphors for the world's extra-human relata - on the experience of reality (1993). By drawing lines between Burke's meaning as emergent

from relata and Heidegger's elevation of nonhuman relata, Rickert describes symbolic meaning and discourse as emergent not simply from subjective interpretation, but from a "rich, preexisting contextual web of interconnected people, and equipment, land, and culture" (Rickert 2013, p. 172) in which the material – the nonhuman – is an always already active participant. The emergence of meaning - and of the discursive - from *within* the always-already presence of materiality, for Rickert, signals how

> *things take part in what language speaks*; they come to presence in the world amid other beings, abiding there, and language carves out a clearing for them to show themselves. Neither language nor presencing of the thing is an exclusively human doing … (2013 p. 183)

Embracing the "mutually conditioning amalgam of humans, animals, environments, and things that co-responsively produce discourse" (Rickert 2013, p. 183) also asks us to recognize that analyses of rhetorical ecologies are strengthened by the inclusion of material sensitivity. Rickert calls this the work of "attunement" (2013).

If ambience signifies the "mutually conditioning amalgam of humans, animals, environment, and things that co-responsively produce discourse" (2013, p. 183), attunement for Rickert comes to signify the legitimation of pursuing the nonhuman dimensions of that amalgam as a rhetorical pursuit. Again drawing heavily on Heidegger's fourfold, more specifically from his concept of 'dwelling' within the fourfold, Rickert offers attunement as a means of reorienting rhetorical analysis and production towards ambience. Rickert describes how Heidegger's 'dwelling' represents a specifically active and grounded concept of habitation within the fourfold – as a particular mode of inhabiting the world. For Rickert dwelling, "entails more than existing

and subsisting; it extends beyond simply doing what we need to do – working, socializing, building – to survive to include the richness that is developed and pursued in how we are doing so" (2013, p. 243). Dwelling thus represents a certain mode of living or being in the world with heightened sense of conscientiousness, mindfulness, purposefulness, and care that seeks to cultivate a more holistic relationship with and within the fourfold. With respect to rhetoric and ambience, attunement represents a similar, purposeful rhetorical dwelling. If dwelling "arises with craft and acquisition of skill," which, "in turn emerge through an attuned engagement with the surroundings, all of which generates strong sense of place," (Rickert 2013, p. 240) then attunement is meant to indicate both the necessity and benefit of more deeply and purposefully engaging rhetoric's ambient dimensions. Attunement to ambience thus represents an active project of, as its musical origins suggest, both listening and production where the rhetor might, through attunement, better understand the ambient dimensions of rhetorical ecologies as well as do rhetoric "in ways that dissolve such problematic binary distinctions and bring the world and its processes back into what we mean by rhetoric" (Rickert 2013, p. 169). Returning to Rickert's impetus for ambience and attunement, if the discipline of rhetoric is to grapple with the rising tide of techno-social complexity and the challenges that tide represents we must invest in and "attend to the way the material dimension is not just important but integral for rhetoric, just as discourse, sociality, and human exigence are traditionally held to be integral for it" (2013, p. 159). For rhetorical scholars this means looking and listening to, seeking out, and taking seriously nonhuman agents within rhetorical ecologies in order to better understand how they shape the emergence of meaning, persuasion, culture, and our shared realities.

Taking up the challenge of excavating the roles and influence of ambience within rhetorical ecologies, object-oriented rhetorical scholars have developed materialist approaches to technical and professional writing (McNely and Rivers 2014; Rivers and Soderlund 2016; McNely, Spinuzzi, Teston 2015), rhetoric of science technology and medicine (Rivers 2015; Graham and Herndl 2013), as well as rhetoric and composition theory and pedagogy (Holmes 2014; Pflugfelder, 2015; Rivers 2014). Even as object-oriented rhetorical studies focus on topics as far afield as the implications of multiple ontologies in pain management (Graham and Herndl 2013), the application of speculative realism in usability studies (Rivers and Soderlund 2016), or even development of a materialist composition pedagogy (Brown and Rivers 2013; Holmes 2014) they can be seen to share at least three common threads: a renewed interest in nontraditional metaphysics, disrupted notions of causality, and an interest in production.

In addition to drawing on Rickert's concepts of ambience and attunement object-oriented scholars are also invested in the value of alternative, non-Cartesian metaphysics. Understanding that questions about 'what is real?' must be decided before approaching questions about 'how can we act?' object-oriented rhetorical scholars have sought out non-traditional metaphysics as a means of reopening "the most fundamental questions about the nature of matter and the place of embodied humans within a material world" (Coole and Froste 2010, p. 4). Drawing on metaphysics such as Ian Bogost's work in speculative realism (Brown and Rivers 2013; Rivers and Soderland 2016), Jane Bennet's new materialism (Graham Herndl 2013; McNely and Rivers 2014), Brian Harmon's object oriented and multiple ontologies (Barnett 2010; Rivers 2015), and Andrew Pickering's ontological theater (Pflugfelder 2015; Rivers and Soderland 2016) object-oriented rhetorical scholars embrace an understanding of reality's 'what' as a "complex,

pluralistic, relatively open process" that locate humans as "thoroughly immersed within materiality's productive contingencies" (Coole and Frost 2010, p. 7). Even as these projects offer different, even contradictory metaphysical constructs, their generally shared move to de-center humans as master of material reality towards more open systems of interconnectedness and interdependence offer object-oriented scholars a means of carefully expanding baseline definition of what counts as real and agentic and, therefore, what kinds and intensities of actions are possible.

As a result of the import of new, diverse metaphysics into their accounts of reality object-oriented rhetorical scholars also welcome disrupted notions of causality. Since ontologically focused metaphysics invite a mutiplicitious understanding of reality they also invite new, alternative models of cause and effect. As Anne Marie Mol (1999) posits,

> Talking about reality as *multiple* depends on another set of metaphors. Not those
> of perspective and construction, but rather those of intervention and performance.
> These suggest a reality that is *done* and *enacted* rather than observed. (p. 77)

Paired with ontologies that decenter human agency within a larger field of material agencies, Mol's metaphors of *doing* and *enactment* cast serious doubt on the efficaciousness of human intent, and the ability to guarantee the correlation between cause and effect. Mol's *doing* and *enactment* refocus causality away from humans as the Cartesian helmsmen of real action and towards the material surround and relata that support and enable a particular effect.

More than a slight of hand, Mol's move privileges the importance of kairotic timing, space, place, and material surround for determining the effects of actions over the intent of its human actants. Jane Bennett (2005) alternatively suggests that ontological

metaphysics offer models of causality that conceptualize agency and intent in terms of cascading systems that, "loosen the connection between efficacy and the moral subject and bring efficacy closer to the idea of the power to make a difference, to generate changes that call for response" (p. 457). For object-oriented rhetorical scholars this shift in causality from a one-to-one model of input and output to broader notions of affective action have been a welcome boon in a field long weary of models of rhetorical action and agency centered in intentionality.

Rather than taking the shift in agentic causality as an affront to the importance of human agency, object-oriented rhetorical scholars have embraced the affirmative and generative possibilities that distributed models of agency open. Understanding that rather than diminishing the agency of humans, ontological models of reality and causality multiply the agencies and agents that can be seen participating within rhetorical ecologies object-oriented scholars have worked to develop new rhetorical tropes and devices that offer means of utilizing those agencies. Whether in terms of a "micro-rhetoric" theory of material interactions (Pflugfelder 2015), a heuristic of speculative usability (Rivers and Soderlund 2016), an actant-pedagogy (Holmes 2014), or an understanding of document design in terms of "assemblages" (McNely and Rivers 2014) object-oriented scholars are working to capitalize on the distribution of agency to nonhuman objects and things as valuable allies for doing rhetorical work – generating rhetorical effects – within ecologies where action is far from guaranteed. For example, Brown and Rivers' 2014 work on "rhetorical carpentry" argues that objects' and things' physical form, texture, color, density, and other material characteristics can produce wholly new and affective rhetorical utterances. Weber and Rivers even describe a hypothetical rhetoric classroom whose purpose is to offer students the opportunity to build argumentative objects and

things with the understanding that, by doing so, students experience rhetoric in an ecological sense that "positions rhetoric not simply as humans changing the minds of other humans, but as the work of relations" (2014, p. 34) among humans and nonhumans. Rivers, developing the implications of Bruno Latour and Jane Bennett's work for public rhetorical pedagogy, summarizes the general mantra of object-oriented scholars well when he writes, "[a]ll matter matters, and so all matter is rhetorical" (2014).

More Than Ambient

As we have seen, object-oriented rhetorics ask us to acknowledge and attune ourselves to the true diversity of rhetorical agents that populate, construct, and maintain rhetorical ecologies. Following this insight, I argue that the amended version of 68B-37 that went into effect on February 1, 2012, is the result of a tremendous amount of symbolic, discursive, as well as physical and material effort. Think of all the human-hours, typing, writing, talking, all the stacks of paper, bytes of RAM, square feet of concrete, miles of wires and cups of coffee that it must have taken to produce just one of Canion's presentations to the FWCC that may, or may not have, changed the opinion of one of the persons involved. When we take a moment to consider how much material work goes into even just one FWCC meeting, let alone the entire set of settings, events, people, and things involved in altering the seatrout's network by just a few amendments, it becomes much easier to understand what Rickert means when he says that, "meaning is fundamentally entangled in matter" (Rickert 2013, p. 160). Nonhuman participants like the pens, paper, and computers Canion used to compose her presentations notes; the buildings that the FWCC uses to hold its meetings, the software and hardware involved in communicating the FWCC debate to the public aren't simply present, they are

contributing real labor to the deliberations themselves - lending their materiality in support of the development of the seatrout network. The material strata that must cooperate for the FWRI science teams to complete their assessment studies – the boats and tides and nets and fish and weather – in order to generate the data to calculate SPRs that are so critical to Canion's presentation and, ultimately, the FWCC's decision to amend rule 68B-37, are elemental to the seatrout management debate's entire rhetorical ecology. Had even one material element – one nonhuman agent – participated or interacted differently within the long chain of rhetorical events, the results of the debate may have been dramatically altered. Without the Thomas Law Enforcement Academy building's sound shelter Florida's subtropical weather may have prevented the Commission's April meeting; delaying the vote, possibly forever altering the seatrout's future. Without the seatrout's fierce fight on hook-and-line, or without their regular wintering habits the representatives of fishing publics may have cast their voice for differently. Without acknowledging the affectivity of ambient materiality our analyses of rhetorical ecologies like the seatrout debate will overlook vital agencies that play, and at stake.

Although Rickert's ambience legitimated the pursuit of nonhuman objects and things as rhetorical agents, spurring a veritable arms race of object-oriented scholars to excavate the value and application of those ambient rhetorical agents, it remains a troublingly vague descriptor. As object-oriented scholars press closer and closer to their nonhuman rhetors and look to not only produce ontological accounts of their rhetorical agency but also theorize how that agency might be utilized, we need to more carefully define the particular ways that nonhumans exercise agency in rhetorical ecologies. Bruno Latour – whose work already serves as a nearly ubiquitous cornerstone in object-oriented

rhetoric - offers a conceptual vocabulary of material mediation that helps to clarify the ontological work of nonhuman agency within rhetorical ecologies. Latour's concept of mediation offers a model of agency that stresses the importance of networked associations between actants - Latour's descriptor that resists the distinction between what is human and what is nonhuman, between subject and object, and which symmetrically applies agency to both (1999, 2005).

Working from Alfred North Whitehead's metaphysics of nature as process (2014), also described as the Philosophy of Organism (1985), Latour signals that agency itself is only possible through the 'association of actants' (1999, p. 182). In his metaphysical analysis of science's subject, *Concept of Nature* (2014), Whitehead offers an understanding of the natural world as composed of a series of perceivable events whose reality is disclosed in large part by the relata of present objects. Whitehead's metaphysic is grounded in two central objective premises; that, indeed, "something is going on; there is an occurrence for definition," (2014, p. 27) and that the experience of that reality as an event is comprised of data contributed by the present entities (1985). The first tenent, in other words, represents the fairly banal yet critical metaphysical confirmation that there *is a real world* that exists independently of the subjective human experience. Whitehead's second tenet argues that the nature or quality of the real world is determined by the collective and related presence of definite, *real objects* and their associated qualities. In other words, the real world – which can be observed and described in terms of a series of unique but continuous events transpiring over a duration of time – is populated by *real* objects whose own unique but interdependent material data, or rather qualities (their density, temperature, size, coefficient friction for example) determine the perceptible quality of reality's experience.

The later tenet, framed as the "ontological principle," (Whitehead 1985) is perhaps most critical to Latour's conceptualization of mediation and agency. Whitehead's ontological principle claims that an actual entity – or a real object – is, "conceived as an act of experience arising out of data" (1985, p. 40), and that the data of each entity is both the result of a concrescent process of ingression and egression and contributes to the ingression and egression of other entities and their data (1985, p. 41). In other words, Whitehead offers an ontological model of reality where the experience of the real is comprised of and mediated by the recalcitrance of objective entities, whose own phenomenological reality is, in turn, mediated by the ingression and egression of other objective entities. The experience of perceiving the red color of a rose is an apt example. A rose in Whitehead's vocabulary represents a distinctly *real* actual entity. The event of perceiving a rose's red color, however, is an experience intrinsically mediated by the presence of other distinct but interconnected real entities such as the air that surrounds the rose, water vapor and dust suspended in the air, photons emitted by the sun, so on and so forth. The ontological data contributed by these other distinct entities directly influence the experience of perceiving the rose's color; should any one element contribute different data – should, for example, the water vapor and in the air be more or less dense in population the perceptible color of the rose may be slightly or vastly different. In this way the ingression or egression – the presencing or withdrawal to borrow from Heidegger – of other actual entities hold sway over the real ontological character of the perceivable event. Latour seizes upon Whitehead's central dependence a recalcitrant reality external and independent of a perceptive subject to offer a mechanical model of agency that resists traditional subject object binaries.

Drawing a direct line from Whitehead's ontological principle Latour suggests agency be understood broadly as the ability to perturb, or affect other actants (Latour 1993). Latour describes this affective agency in terms of mediation, where "action is a property of associated entities" (1999, p. 182) (Fig. 1).
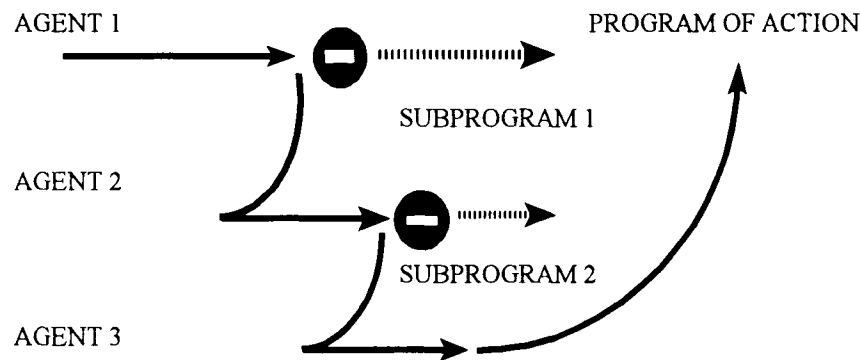
AGENT 1   PROGRAM OF ACTION

SUBPROGRAM 1

AGENT 2

SUBPROGRAM 2

AGENT 3

Fig. 2. Second Meaning of Mediation: Composition

Figure 1: The mediation of associated actants

Under this conceptualization of agency an actant's ("Agent 1," Fig. 1) ability to act or exert agency within a rhetorical ecology depends on its association with another or other actants ("Agent 2," Fig. 1); further, the association between actants results not simply in augmentation of the original actants' agencies, but in the formation of a networked agentic entity ("Agent 3," Fig. 1) whose agency is, in turn, determined in large part by agencies of its associating actants ("Agent 1" and "Agent 2," Fig. 1). The agentic possibilities ("Program of Action," Fig. 1) of the networked actant ("Agent 3," Fig 1), therefore, must be understood as originating not from a singular subject or object but as the result of the compounded associations of actants ("Agent 1 + Agent 2," Fig. 1). In other words, because actants are imbued with material recalcitrance that bears influence on its associated actants, and because each actant's own material recalcitrance depends in

large part on its networked connections with other actants, every interaction between actants fundamentally alters the reality of the actants involved in the action and the new actants produced by that association (Latour 1999). Much the same as mechanical gears, as any actant interacts with another, the association fundamentally moves the agentic possibilities, or trajectory, of the newly networked actants. The critical move embodied by this representation of mediation, what Latour refers to as "the first meaning of mediation: Composition" (1999, p. 181), is its symmetrical distribution of agency between all associating actants. Under this mechanical model of mediation agency is attributable to not one actant or the other, but both; it is always symmetrically distributed. In order to understand the agency or actions of an actant ("Agent 3," Fig. 1) then, agency of the associating actants that compose the actant under consideration ("Agent 1" and "Agent 2," Fig. 1) must both recognized and taken into account.
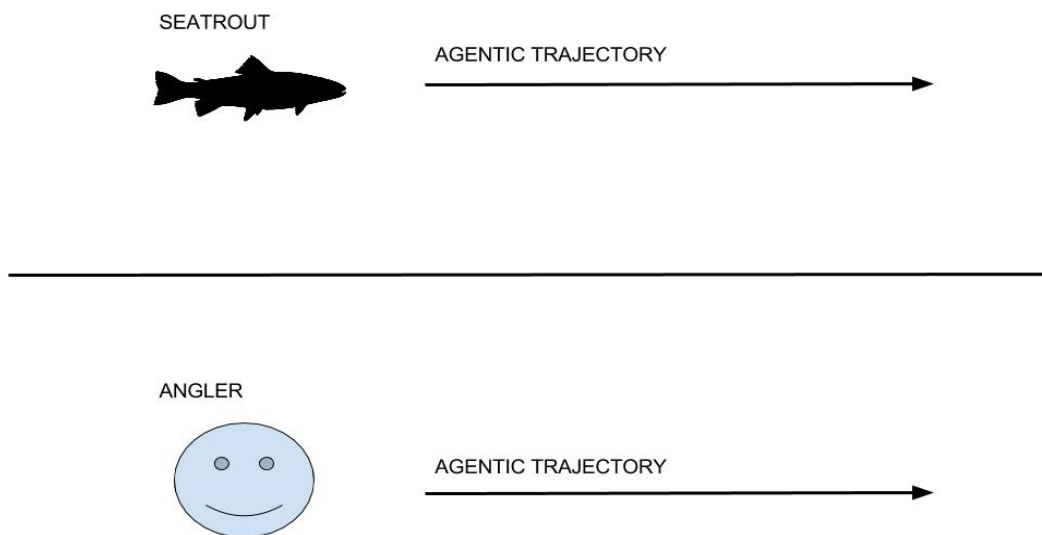

Figure 2: The distinct agentic trajectories of non-associated actants

In terms of the seatrout and snook rhetorical ecologies, Latour's premises are observable in the mediation of agencies when fish and angler meet. Without interaction or association, without contact between angler and fish, the fish and anglers can be seen to possess their separate and distinct agencies and agentic trajectories (Fig. 2). Should they never meet through the act of fishing – or, more desirably catching – the seatrout would continue its life swimming, eating, evading predators, spawning, so on and so forth. Much the same, the angler would continue acting much the same as they previously had. Without contact each actant continues along the path of its previously established trajectory, its agency unaltered.
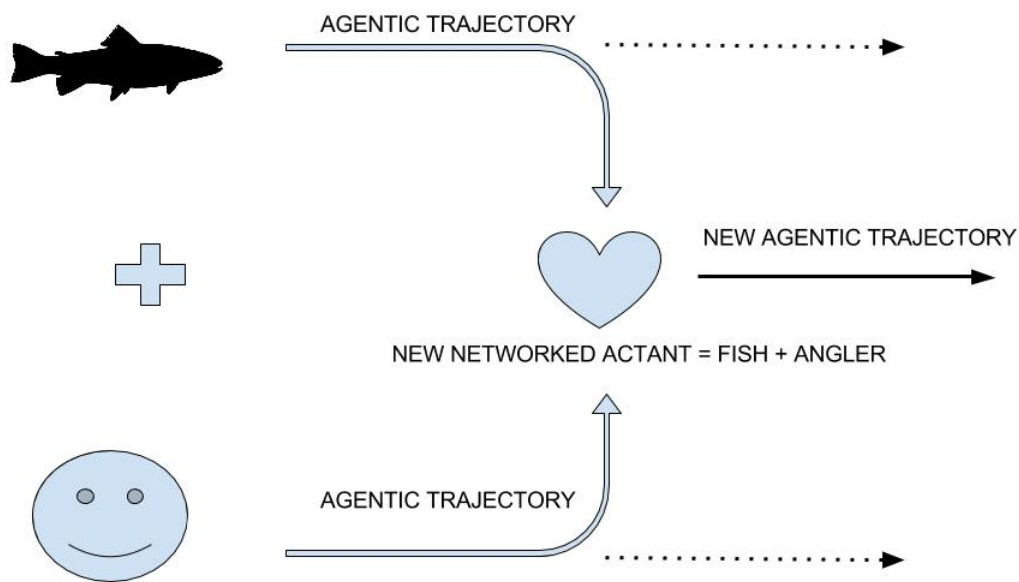

Figure 3: The alteration of actants' agentic trajectories as a result of associated mediation

However, the instant fish and angler meet – say through the occasion of angler hooking the fish – their agencies are comingled, resulting in the generation of an entirely new networked actant: that of fish+angler (Fig. 3). As a result of their association the fish can no longer remain swimming/eating/evading as it once had; it must now battle the angler's hook and line, its trajectory uncertain. The angler too is changed; they must now exercise their own wit and skill to land or loose the prized fish. Indeed together, the networked actant "fish+angler" is now capable of exercising agency along an entirely new agentic trajectory. "Fish+angler" is capable of rendering a meal for the angler's family, of satisfying a creel survey for the FWRI, of decorating an office wall, or of inspiring a tall-tale about what might have been. To add yet another set of actants to this affective mix, a photo of angler plus fish could easily have agentive capacity to move and alter other agents through the mediation of FaceBook or Twitter.

Latour further develops the mediation of actants in terms of what he refers to as "technical delegation." Noting that, "it is perfectly true to say that any given interaction seems to overflow with elements which are already in the situation coming from some other time, some other place, and generated by some other agency'" (2005, p. 166), Latour suggests that the effects of material mediation are not limited by temporality. Latour tells us that, because of symmetrical distribution of mediating agency within rhetorical ecologies, actants exchange agencies with each other through networked action where the agency of one actant is perpetuated throughout the life of that ecology (2005, p. 61). In other words, an actant can 'stand in' for other actants (1999, p. 189). Latour describes this substitution as the work of "technical delegation" (1999, p. 197).

While Latour's very mechanical notions mediation and technical delegation may feel very far abreast from the traditional canon of rhetorical concerns, they add depth and

nuance for understanding the formation, maintenance, and evolution of rhetorical ecologies and the specific roles nonhumans play in those processes. In his essay "Notes on a Third Sophistic" Victor Vitanza makes the case, in describing the difference between Platonic/Aristotelian and Sophistic rhetorics, that Gorgias' privileging of kairos represented a progressive break with other rhetorical traditions. For Vitanza, by binding the concept of physis (natural being) with karios (appropriate timing), Gorgias establishes a rhetorical subject whose power to act is substantiated by the material and discursive possibilities embodied in their actual time and space, and place (1991, p. 124). Latour's concepts of material mediation and technical delegation further suggest that the kairotic possibilities of any rhetorical ecology are themselves the result of agencies that have been or "shifted down" (Latour 1999, p. 187) from other material spaciotemporal locations. In other words, the agency of nonhuman actants, even when those are displaced from their original time, place, and actions, contribute to and establish the kairotic and choric possibilities for any rhetorical ecology – or reality for that matter.

Returning to the example of "fish+angler" we can observe that new agencies and agentic trajectories that resulted from the initial association between angler and fish are shifted down into new associations that the actant "fish+angler" might endure (Figure 4). Even though the generative association where "fish" and "angler" comingle their agencies is located outside of the current kairotic ecology where "fish+angler" associates with "catch survey," its affects are still very present. For example, the agentic trajectory of "fish+angler" takes on vastly different vectors depending on whether or not said angler
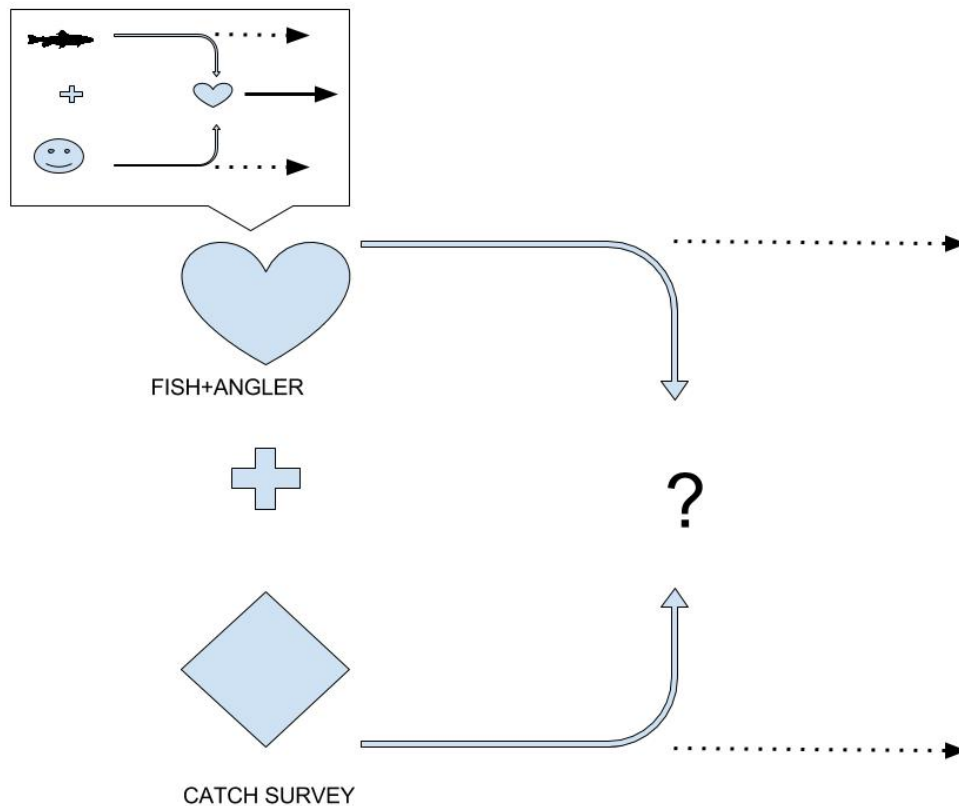
successfully catches the fish.

Figure 4: "Fish+Angler" as a technical delegate for seatrout in successive mediating associations

If "fish+angler" is the product of a successful catch then it embodies critically different phenomenological information that will greatly influence the association between "fish+angler" and "catch survey." In this way the actant "fish+angler" becomes a technical delegate for the unique rhetorical ecology embodied by their original association, perpetuating the agencies at play in that original association across time and space.

What Latour's material mediation and technical delegation add to Rickert's ambience and attunement is a more refined vocabulary with which we might conceptualize the participation of nonhuman actants within rhetorical ecologies. More

than recognizing the seatrout as *ambient* within and to the rhetorical ecology of the FWCC's fishery policy debate, material mediation and technical delegation offer object-oriented rhetoric a vocabulary for describing *how* the seatrout participates in generating and maintain their ecology. With Latour's vocabulary it is possible to describe how the seatrout mediate their ecology by altering the agentic trajectory of their fellow ecologically associated actants, how their agency is shifted-down by the work of their technical delegates, and how their mediating agency helps establish the kairotic conditions for the ecology far beyond their own mediating action. So while ambience and attunement have prepared an analytical stance that embraces the affective agency of seatrout, material mediation and technical delegation provide a means of more precisely describing more *how* the seatrout's agency contributes very real and active work in their rhetorical ecology.

Mapping Mediation

With a more carefully defined vocabulary with which to describe the way that nonhuman actants influence and participate in their rhetorical ecologies it becomes possible to trace or map those agencies. Creating maps of the ways nonhumans mediate their rhetorical ecologies represents a move to more holistically understand how the individual mediations of a nonhuman actant circulate and reverberate throughout an ecology. Such ontological maps also represent a critical step in understanding how the participation of a given nonhuman actant might be anticipated and utilized.

Developed in the field of Sociology of Science by Michael Calloon, John Law, and Bruno Latour as a theoretical methodology to describe the ontological activity of science, Actor Network Theory (ANT) represents a set of "material-semiotic tools,

sensibilities, and methods of analysis that treat everything in the social and natural worlds

as a continuously generated effect of the webs of relations within which they are located"

(Law 2009, p. 141). Oft cited by object-oriented rhetorical scholars as a productive means

of illustrating the rhetorical implications of nonhumans (Rivers and Brown 2013; Rivers

and Weber 2011; Rice 2012), ANT also represents a valuable method for identifying,

tracking, and fully describing the participation of nonhumans in rhetorical ecologies

(Spinuzzi 2015; Simmons, More, and Sullivan 2015; Gries 2015).

Firmly grounded in a flattened ontology, where agency is symmetrically

distributed across all actants by material mediation, ANT enigmatically asks scholars to,

"just describe the state of affairs at hand" (Latour 2005, p. 144). As a sort of

metaphysical or ontological ethnomethodology ANT offers

> a method to describe the deployment of associations like semiotics is a method to
>
> describe the generative path of any narration. It does not say anything about the
>
> shape of entities and actions, but only what the recording device should be that
>
> would allow entities to be described in all their details. [ANT] places the burden
>
> of theory on the recording not on the specific shape that is recorded. (Latour 1999,
>
> p. 9)

Though there are no explicit, formal guidelines for conducting ANT analysis, the practice

is characterized by a set of theoretical assumptions and foci. Law (2009) describes these

shared characteristics in terms of:

Semiotic rationality: where the site of study represents a network defined by the

mediation of its actants

Heterogeneity: the distribution of agency across all actants populating the network

of study

Materiality: the understanding that the nonhuman agency participates in the

network of study without dependence on their discursive representation

Process and Precariousness: the assumption that the network of study represents a

live practice that is stabilized only by the continuing, but not guaranteed,

interrelations of its actants

Power as an Effect: where the mediating power embodied by the network of study

is a function the mediating power of the actants who populate it, and their

stabilization

Space and Scale: the focus on how the network of study transforms, and is

transformed by, the relationship between other real actants and networks.

Grounded in the How: that ANT, is above all, an attempt to integrate the above

concepts into an explanatory cartography of the network of study's real practices.

(2009)

Latour simplifies Law's tenets into three stages of practice: to flatten the ontology of

networks in order to quantify and qualify the participating actants; to follow how a

network is constructed and stabilized through the exchange of agencies; and to analyze

how the networks of study might be reconstructed or reorganized in order to better

understand the place of particular actants, or to develop more sustainable iterations of the

network (2005). Taken together, these cornerstones of ANT offer a means of describing,

"socially and materially heterogeneous systems in all their frailty" (Law 2009, p.143).

For object-oriented rhetorical analysis the central tenets of ANT represent a productive

means of registering the invaluable material components of rhetorical ecologies.

In practice ANT represents a method for reading texts and for producing representations of networks that is centered on the act of 'tracing'. Latour describes these two elements of ANT in terms of multiplication and unification (2005). Multiplication asks the ANT or object-oriented rhetorical scholar to, literally, multiply the number of actants seen to be participating in a given ecology. Unification asks that the object-oriented scholar to reimagine how that ecology might be assembled with the expanded pantheon of actants. As an explanatory cartography ANT stresses the practice of following the "work, and the movement, and the flow, and the changes" (Latour 2005, p. 142) that result from material mediation. Because material mediation alters the ontological reality of the associating actants, it produces indelible marks that can be observed and followed. Doing object-oriented rhetorical ANT work then begins by approaching the texts produced by a rhetorical ecology with an eye trained on the marks and changes left by material articulation.

ANT differentiates itself from other close reading strategies by taking these marks or changes not as the final artifact or evidence of analysis, but as its starting point. For ANT the observable changes in the agentic trajectory of actants represent the stepping-stones through which the development of rhetorical ecologies can be described, or traced. Sarah Read elaborates how, "to trace … means to understand how one thing becomes another through being interdefined or mediated by other entities" (2015, p. 256). The goal of ANT's approach to texts can be understood as a sort of metaphysical accounting; as the practice of identifying and unpacking the work of mediation in order to identify and follow the actants at work. This work of tracing mediation clarifies what Latour means when he asks ANT scholars to, "follow the connections, 'follow the actors'" (2005, p. 179). The goal of this work is to literally multiply the amount of actants and agencies,

especially those non-human actants historically overlooked or marginalized, that can be seen to act in a given ecology.

For object-oriented rhetorical scholars the second implication of ANT tracing, that of reconstruction or unification, represents a practice of ontological cartography that works to build maps of the associations that comprise a given rhetorical ecology. After multiplying the actants and agencies that can be observed participating in a rhetorical ecology ANT asks the object-oriented rhetorical scholar to reconstruct representations – to trace new maps – of the ecologies with the expanded pantheon actants participate. The inclusion of nonhuman actants into the stories we tell ourselves about our rhetorical ecologies is not an insignificant move. As Casey Boyle notes, "[w]riting intervenes in ontological politics as a practice in posing relations, performing repetitions, and making differences" (2015, p. 206). By tracing out – now in the literal sense of drawing and connecting lines – the work of actants what ANT offers are representations of the chains of mediation through which rhetorical ecologies are constructed and maintained.

Speaking of actants Latour (2005) makes a vital distinction between "intermediaries" and "mediators." For Latour "intermediaries" describe the classical distinction of nonhumans in an anthropocentric system of agency; they are simply vehicles that transport meaning and agency without influence (2005, p. 39). Mediators, conversely, designate fully agentic actants that, "transform, translate, distort, and modify the meaning or the elements they are supposed to carry" (2005, p. 39). When nonhuman actants and their agencies are incorporated into and represented in the analysis of rhetorical ecologies they are welcomed as true mediators. By embracing and evidencing the powerful work that mediators offer ANT creates the conditions for developing

enriched maps that better capture the true, living work of building and maintaining rhetorical ecologies.

Latour's work demonstrates that such associations "rarely consist of human connections … or of object-object connections, but will probably zig-zag from one to the other. (2005, p. 75). To construct more detailed and enriched maps of rhetorical ecologies ANT scholarship asks the rhetorical scholar to move freely and quickly from contexts to networks, from practices to actions, between humans and nonhumans. Mapping as many agencies, actants, and mediations as possible creates representations of rhetorical ecologies that undoubtedly better reflect the reality of which actants are participating and how their participation influences and maintains the ecologies. And getting closer to that reality is of real analytical value. As Latour notes

> The 'making' of any enterprise – films, skyscrapers, facts, political meetings, initiation rituals, haute couture, cooking – offers a view that is sufficiently different from the official one. Not only does it lead you backstage and introduce you to the skills and knacks of practitioners, it also provides a rare glimpse of what it is for a thing to emerge out of inexistence by adding to any existing entity its time dimension. (2005 p. 89)

Here Latour's work exemplifies the benefit of slowing down and using ANT as a rhetorical method: a more developed picture of the entire set of skills, materials, and practices that develop rhetorical ecologies is revealed. What ANT provides rhetorical studies is a way to make them "sensitive again to the sheer difficulty of assembling collectives made of so many new members once nature and society have been simultaneously set aside" (Latour 2005, p. 259). The great addition of ANT to rhetorical

studies is it's dogmatic insistence that we keep our analytical gaze fixed firmly on both the discursive - for which we have a long tradition and many tools - and on the material – for which we are in need. As Latour makes clear in <u>Reassembling the Social</u> (2005), the discursive agencies that dictate human sociality are, without their material counterparts, fleeting and desperately fragile utterances. The material – the pantheon of nonhuman actants which circulate within our rhetorical ecologies – act as "stabilizing tools" (Latour 2005, p. 198) and provide the critical linkages that buttress the discursive. While, as a discipline, we have developed many tools and sensibilities for understanding the semiotic and the effects of the discursive on the material, we have been much slower to embrace and track the effects of the material on the discursive. With Rickert's ambience the agentive pantheon of nonhuman agencies is welcomed into rhetorical analysis. With Latour's material mediation the work of those nonhumans is clarified, and a vocabulary for describing their participation is assembled. With ANT object-oriented rhetorical scholars gain a method for describing more clear and compelling lines of influence between nonhumans and the development and maintenance of rhetorical ecologies.

Mapping the Seatrout's Mediation

Now, with object-oriented rhetorical theories, lexicon, and methods in place it is easier to clarify and describe how agentive the seatrout - the individual fish themselves, their ontological data, their habits, their preferences, their dislikes, their actions - are in the formation of their own policy ecology. Reading the textual evidence produced by the FWCC's seatrout fisheries policy ecology with ANT eyes trained on the seatrout shows Mike Murphy, David Chagaris, and Dustin Addis' "An assessment of the status of

spotted seatrout in Florida waters through 2009" as a ripe thread with which to follow the seatrout's ecological mediation.

During the course of the FWCC seatrout fisheries debate, the commission directly and repeatedly defers to the scientific evidence generated from the Mike Murphy, David Chagaris, and Dustin Addis' "An assessment of the status of spotted seatrout in Florida waters through 2009" as the principal indicator of the seatrout fishery's health, and thus as the primary evidence on which to base their decision. Murphy et al.'s study and its findings are referenced by Canion and Sempsrott, the architects of the revisions to rule 68B-37, in their March, 4 FWRI report; August, 1 FWRI Draft Rule Proposal; and October, 10 FWRI Proposed Rule Amendment. The FWCC Commissioners defer to Murphy et al.'s findings either directly or indirectly during the April, September, and November public meetings as both their primary scientific evidence and as their primary source of confidence. Murphy et al.'s work is also publically referenced in the SGF's September 8 "Seatrout Alert" statement, and in Ed Killer's September 22 TCPalms article.

Murphy et al.'s stock assessment, which reported the health and abundance of the seatrout's fishery as exceeding the minimum standards set by the FWCC, modelled the seatrout's Spawning Potential Ratio (SPR) – a metric used to describe breeding strength of a fish population by measuring "the number of eggs that could be produced by a fish incorporating fish mortality over its lifetime divided by the number of eggs it could produce if there were no fishery" (Canion, 2011a). In order to model the seatrout's SPRs Murphy et al. required commercial and recreational landing data as well as number of baseline biological variables, such as average maximum age and average weight per age (Murphy et al., 2011).

Tracing the seatrout's chain of mediation we find that the biological variables utilized in Murphy et al.'s "2010 Spotted Seatrout Stock Assessment" were originally computed in Murphy et al.'s "An assessment of the status of spotted seatrout in Florida waters through 2005." Murphy et al.'s 2005 stock assessment, in turn, draws directly on marine fisheries field research of Durbin Tabb, and of Alan Moffett who originally quantified metrics such as the maximum ages and growth rates of Spotted seatrout (Murphy et al., 2006). Without Tabb and Moffett's work Murphy et al.'s 2005 and 2011 research would have required different historical and scientific precedence by which to estimate fish sizes, growth rates, and mortality rates; all of which would have fundamentally altered Murphy et al.'s computations and findings, and thus the entire policy ecology.

Tabb and Moffett's cited work reveals enormously interesting and affective sites of the seatrout's material mediation: the collection methods used to sample seatrout more than 50 years ago. Recognizing that the, "[m]anagement of a fishery requires knowledge of the biology of the species and the rate of exploitation," (Tabb 1961, p. 7) Tabb conducted extensive survey and sampling of seatrout in the Florida's Indian River system in order to deduce the seatrout's average growth and spawning rates, as well as spawning habits (1961). Samples for Tabb's study were taken using "gill net and hook and line" (1961, p. 8). In the "Growth and Age" section of Tabb's report, as he describes the seatrout's behavior and its effect on the study's methodology, he confronts an issue of the seatrout's material mediation:

> The tendency of the spotted seatrout to school by size in certain localities required large samples from many schools to use size frequency distributions for age analyses. It was discovered that in excess of 600 fish per month from all gears and

as many different areas and depths as possible were necessary in order to obtain

representative frequency distributions for all lengths and age groups. (1961 p. 7)

From an object-oriented perspective this passage bears considerable meaning. Tabb

effectively acknowledges and evidences the seatrout's agentic mediation as he recognizes

that it is the seatrout's actions, distinctly separate from his human intent and agency,

which have dictated the terms of his study and analysis. It is the seatrout's *tendency* to

school by size in certain localities that *required* particular collection methods. It was the

seatrout's extra-human active mediation that made certain human behaviors *necessary*,

and which dictated the terms of collection, and therefore of analysis.

Moffett's 1961, "Movements and Growth of Spotted seatrout, *Cynoscion*

nubulosus (Cuvier) in West Florida," also echoes loudly with the lasting effects of the

seatrout's material mediation. In the process of tagging 5,345 seatrout, Moffett also

signals the impact of the seatrout's seasonal habits on the data collection methods and

materials. Embracing local commercial anglers' knowledge that, "[d]uring the colder

months spotted seatrout move into rivers and deeper streams," (Moffett, 1961, p. 10)

Moffett notes the seatrout's agency by recognizing that the explanation for variances in

tag collection rates, "lies in the seasonal nature of the fishery" (Moffett 1961, p. 18).

Moffett documents the material mediation of the seatrout's wintering habits on the

practices of local commercial fishing communities that revolve around the seatrout's

habits, and thus his choices of where, when, and how to sample fish. Moffett records in

detail how the regular practice of drifting grass-flats with hook and line gives way to

motor-assisted trolling in the Fall months, then to gill and trammel net fishing in the

winter. In the Cedar Key area, Moffett again describes how hook and line fishing in the

spring, summer, and fall months transitions into trammel net fishing during the winter.

During each shift in season it is the seatrout's actions that, in large part, *determine* the actions of angler and researcher.

In order for Murphy's research team to generate the Spawning Potential Ratios that were so central to FWCC as scientific evidence, they also utilized data generated from the Florida's Marine Fisheries Information System, the Marine Recreational Fisheries Statistics Survey, and the FWCC's Fishery-Independent Monitoring program (Murphy et al. 2005). From an object-oriented perspective the results of these surveys are also conduits for the seatrout's material agency. Florida anglers generally agree that fishing for and catching Spotted seatrout, sometimes hailed as "the most popular sportfish in Florida," (McNally, 2011), is a "pretty special endeavor" (Killer, 2011). seatrout are renowned for being easy to find and catch, for the quality of their fight, and for the delicacy of its table fair. Known as an 'everyman's fish' the seatrout is often a go-to choice when fishing with children because of their eagerness to strike and the quality of their fight. The seatrout, an ambush predator, explodes on artificial lures in a flash of its wide yellow mouth and a spray from its deep green, speckled tail. Even when hooked the seatrout thrashes and writhes to free itself – a feat it often accomplishes when the prize seems all but won. The only caught seatrout is one in the boat. Even when the tidal-flats are quiet from cold in the dead of winter, when other species are dormant, the seatrout will still thrill and challenge anglers. If the seatrout weren't as eager to strike at anglers' lures, if they weren't as challenging to land, if they weren't as delicious as to encourage publics to seek them – the surveys crucial to Murphy et al.'s studies would have very different data to contribute regarding the species. Different data would directly correspond to an alternative stock assessment, and likely an alternative outcome to the FWCC's policy debates.

Or, extending this line of reasoning further back to the biological differences between snook and seatrout described at the end of the previous chapter, if the seatrout embodied a different biology the FWCC's policy debate would also take on a different form with potentially different outcomes. If the seatrout did not reproduce so young with its 1:1 sex ratio (Peebles 2016) the FRWI researchers, recreational anglers, and ultimately the FWCC would have an entirely new set of ontological data informing their understandings of the fish and its fishery. As the work of this chapter has demonstrated, such a new set of ontological data and the mediations that data support would contribute to an entirely new – not all together predicable – rhetorical ecology.
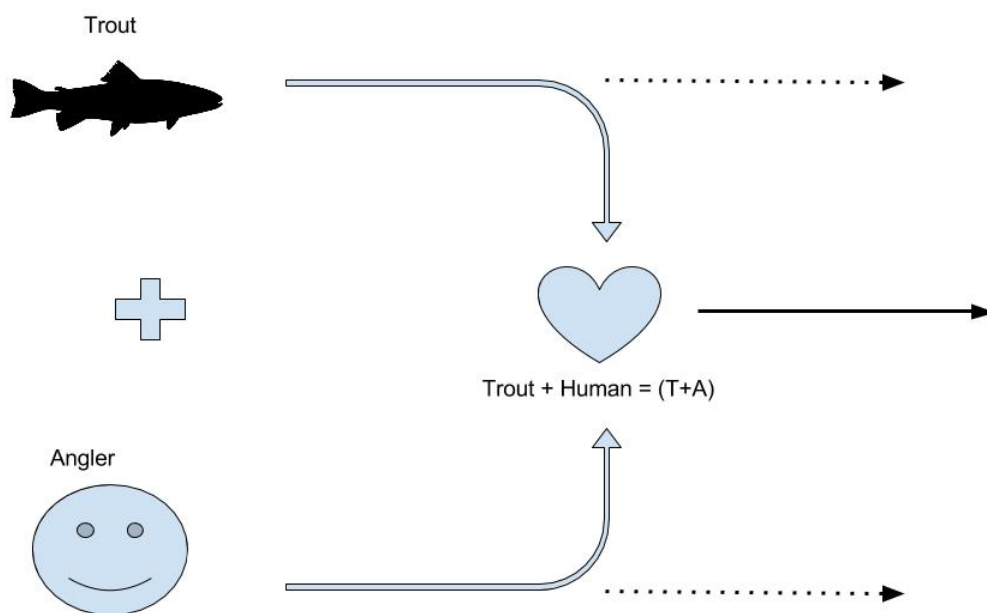

Trout

Angler

Trout + Human = (T+A)

Figure 5: Seatrout materially mediating the angler into a new actant

Starting with the very material extra-human action of a seatrout striking a hook or becoming lodged in a researcher's net the seatrout have mediated the entire rhetorical ecology of the FWCC's 2011 management debate. Each moment a seatrout struck an angler's lure or became snared in the researcher's net, their agency mediated the human counterpart (Figure 5). By providing the angler or researcher ("Angler," Fig. 5) with new ontological data through their association the seatrout ("Trout," Fig. 5) fundamentally alters the ontological character and agentic trajectory of the "Angler" into the new actant "T+A" (Fig. 5). When Tabb and Moffett's research teams or recreational anglers do catch their quarry they invariably obtain additional ontological data about the trout – the locations in which they school, the size of trout that schools there, what sort of equipment worked to ensnare the trout, and the connections between the season and the trout's behavior. The ontological data gained from the experience of catching trout mediates their human actant counterparts' agentic trajectory by informing, even dictating their future behaviors.

By embodying the mediation of the original association between fish and human the newly networked actant "T+A" (Fig. 5) serves to shift-down the agency of the seatrout as a technical delegate (Figure 6). When the technical delegate actant "T+A" (Fig. 6) completes their research or produces a "Catch survey" (Fig. 6) it perpetuates the mediating material agency of the original seatrout actant (Fig. 5) by sharing the ontological data generated from the first mediation with the angler (Fig. 5), generating

the newly networked actant, "T+A+S" (Fig. 6).

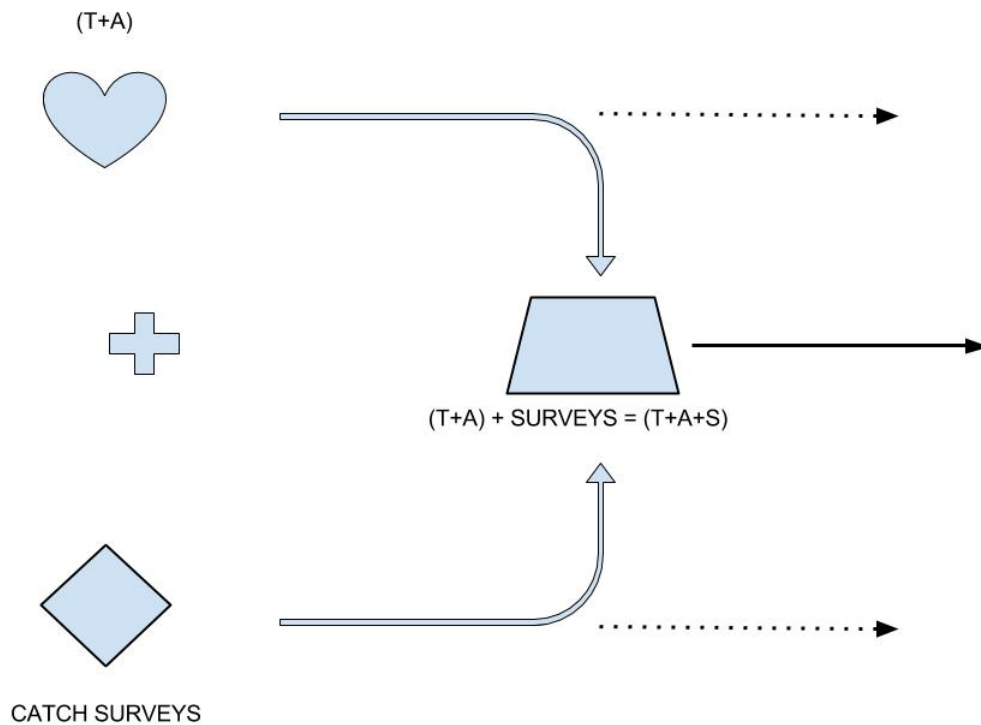(T+A)

(T+A) + SURVEYS = (T+A+S)

CATCH SURVEYS

Figure 6: Mediated angler serving as technical delegate for the seatrout in successive association with catch surveys

Had any material element of the original experience of catching seatrout (Fig. 5), so too would the information passed down into the research results or catch surveys

The completed research results or catch surveys ("T+A+S," Fig. 6), in turn, serves as yet another technical delegate of the seatrout's agency, mediating the F.W.R.I. ("FWRI," Fig. 7) via the inclusion of the survey data in Murphy et al. research (Figure 7).
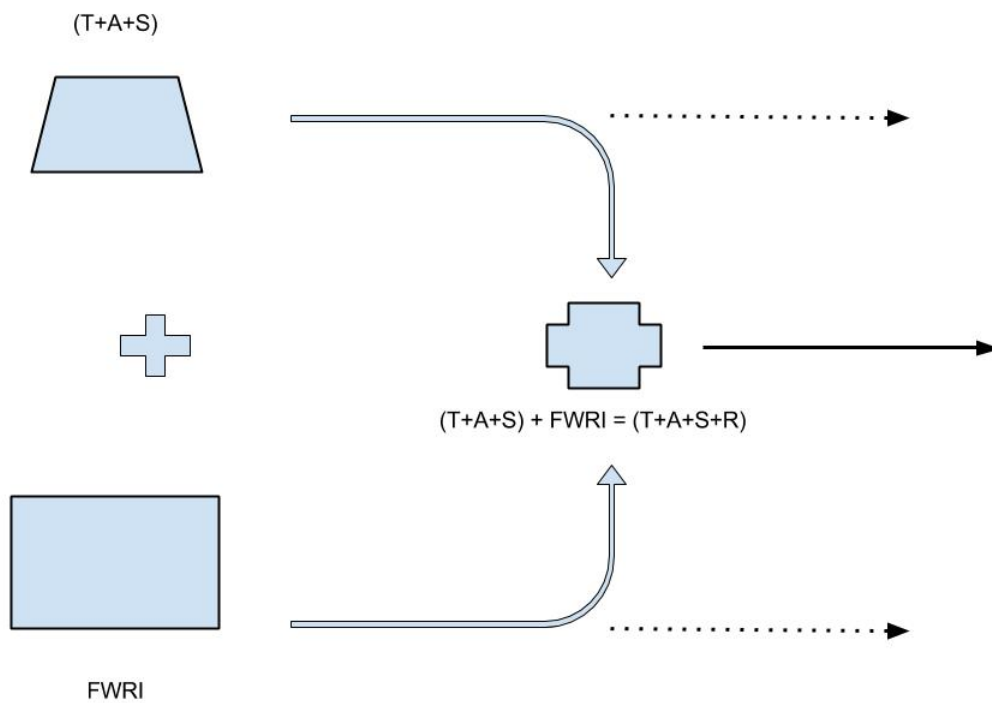
Figure 7: Catch Surveys further serving as technical delegate for seatrout to mediate the FWRI

By including the data from completed research or catch surveys ("T+A+S," Fig. 7) into

their calculations, Murphy et al.'s research ("FWRI," Fig. 7) is mediated by the agency of

the seatrout ("Trout," Fig. 5) that has been shifted-down through its technical delegates.

Finally, as the FWCC ("FWCC," Fig. 8) utilizes the Murphy et al.'s research

("T+A+S+R," Fig. 8) as its primary scientific evidence it is, in turn, mediated (Figure 8).

(T+A+S+R)

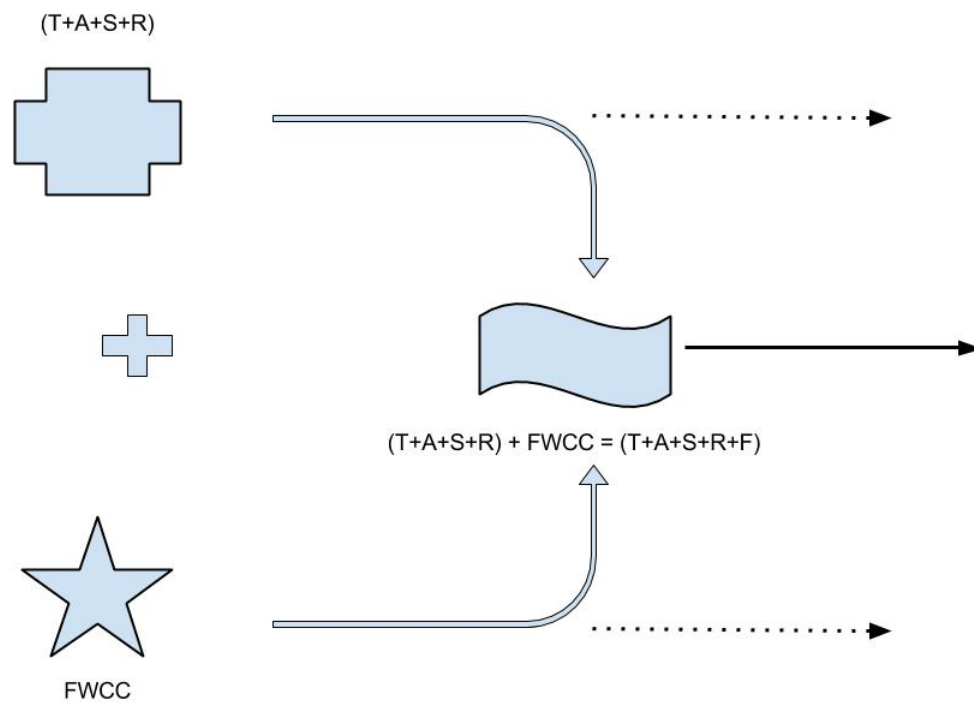(T+A+S+R) + FWCC = (T+A+S+R+F)

FWCC

Figure 8: FWRI research as technical delegate, mediating the FWCC

Even though the seatrout certainly aren't present in-the-scales for the FWCC meetings,

the effects of their agency on the commercial and recreational anglers, the catch survey's

those anglers generate, the FWRI research teams, and the FWCC Commissioners

certainly is. The seatrout – the fish themselves, in large part without human intent or

control - mediate the rhetorical ecology of their management debate actant by actant,

their agency cascading throughout the policy's ecological system (Figure 9).
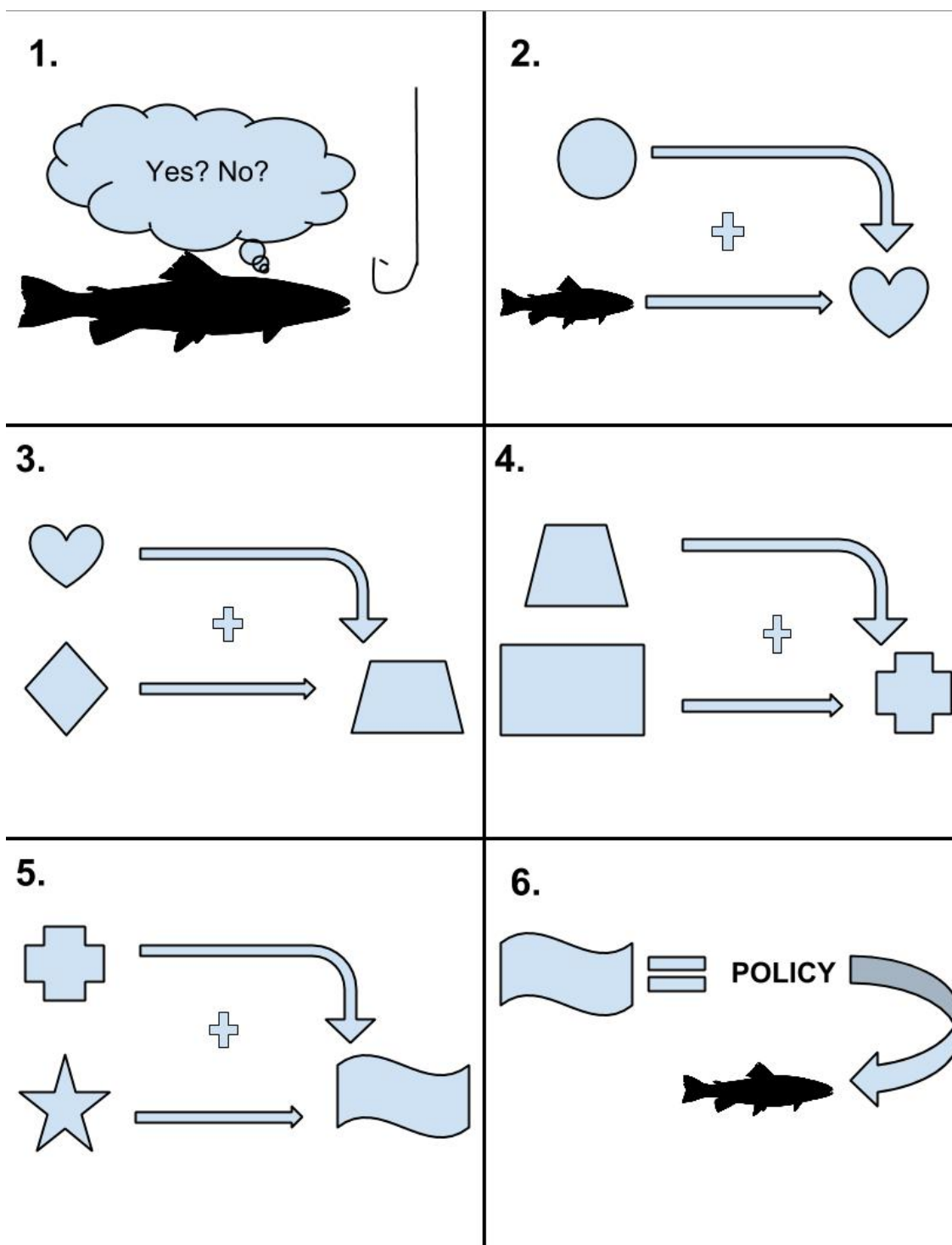
Figure 9: An ontological map tracing the seatrout's mediation of the FWCC fishery debate

From the moment that a seatrout strikes at the lure (1, Fig. 8), its agency begins a chain of

mediation that generates and holds influence over a cascading rhetorical ecology. By

generating a new, unique ontological experience the seatrout mediates the angler or researcher into a new, networked actant (2, Fig. 8). The newly networked actant in turn serves as a technical delegate of the original association, shifting-down the seatrout's agency to mediate a catch-survey or research findings (3, Fig. 8). The completed catch-survey further shifts-down the seatrout's agency by mediating Murphy et al.'s research (4, Fig. 8). Murphy et al.'s technical delegate research then mediates the FWCC as their scientific evidence (5, Fig. 8), which in turn directly influences the production of seatrout fishery policy (6, Fig. 8). It is now clearer how, in no small way, the agentic materiality of the seatrout has directly influenced the rhetorical ecology of the FWCC's seatrout fishery debate from times and locations long since displaced.

Conclusions

The true affective rhetorical power of the seatrout that was, under more traditional conceptualizations of the rhetorical, seemingly silent is now plainly audible. Armed with an object-oriented theoretical perspective, vocabulary, and method this rhetorical analysis of the seatrout fishery management ecology has developed and traced a compelling chain of influence between the seatrout's fishy agency and the Florida Fish and Wildlife Conservation Commission's ratification of changes to the seatrout fishery. Whether it be the seatrout's regular wintering habits mediating Tabb and Moffett's 1961 research teams into a narrow set of research practices and tools or the survey records of the intimate material interactions between angler and fish, had the seatrout's agency influenced the cascading chain of mediation any differently– if their basic biology were any different, if they had wintered somewhere other than where they were expected, or if they had

become wise to the particular tricks of anglers and researchers - the entire rhetorical ecology surrounding the FWCC fishery management debates may have taken on a different shape and generated different results.

The experience of everyday life reminds us constantly that the humans and nonhumans with which we interact have significant effects on not only our lives in that kairotic moment, but in the future as well. What careful object-oriented rhetorical studies provide is a greater sensitivity to many of the more tangible sources of rhetorical action and power that were all too easy to ignore. This is, at base, what Rickert's term "attunement" means. Being in-touch with the objects and materiality provides rhetorical analyses a level of pragmatic ontological realism that increases the likelihood of forming meaningful and potentially productive analyses. As Latour reminds us, "c]oncreteness does not come from choosing some figuration over some other ones in the place of actors, but from the increase, in the accounts, of the relative share of mediators over intermediaries" (Latour 2005, p. 61). When we add as many mediators to our studies as possible, the better we reflect and describe the ecologies we participate in.

Object-oriented rhetorical theories, vocabulary, and methods allow for rhetorical studies that are capable constructing more thoughtful, thorough, and effective rhetorical analyses by helping to account for how intimately our lives are bound to, and influenced by, the whole pantheon of actants with whom we share our networks. By providing nonhumans a legitimate home in analyses and descriptions of rhetorical ecologies, by embracing and welcoming them as the powerful mediators they are, object-oriented rhetorical studies gain an invaluable set of tools to chart and navigate once impassible straights. Applying the object-oriented rhetorical theories, vocabularies, and methods to create ontological maps of how fish mediate their fisheries management ecologies should

provide new and unexpected insights into the problem of stakeholder expertise and

participation in the snook and seatrout debates.

Chapter 4: Material Expertise

An Ontological Gap in Expertise

Despite long-running advocacy for the value of 'lay expertise' in matters of public deliberation and many calls for increased stakeholder involvement in environmental policy settings such as fisheries management, evaluating and utilizing the expertise of non-credentialed stakeholders remains a vexing task. This chapter suggests that, from an object-oriented rhetorical perspective, at least one root of this difficulty stems from the relative lack of scholarship that interrogates expertise ontologically. While epistemological analyses of non-credentialed stakeholder expertise have done excellent work to explain *what* lay expertise is, and *why* it is important to environmental policy deliberation, they ultimately neglect *how* such expertise develops. Without thoroughly exploring the ontic process of how non-credentialed expertise is formed, the development of actionable heuristics for qualifying the value of non-credentialed expertise and for integrating that expertise into policy development are also likely to remain uncharted. This materialist understanding of how expertise develops is important to policy issues like the two cases taken up in this dissertation.

This chapter utilizes an object-oriented rhetorical approach to trace the material process of how non-credentialed stakeholder expertise develops. Using Latour's concepts of material mediation, translation, and inscription to trace out the process by which expertise develops from stakeholders' experiences with material agency, this chapter offers a material ontology of expertise that provides a non-normative means of qualifying

expertise in matters of technoscientific deliberation such as marine policy. This material ontology is demonstrated by following ways that the Snook and Gamefish Foundation (SGF)'s stakeholder integration programs in snook and seatrout policy deliberations. Finally, by contrasting the SGF's successful implementation of a more materially oriented approach to stakeholder expertise in the snook fishery debates with their relatively subject-oriented failures in the seatrout debates, this chapter suggests a materially-oriented heuristic for identifying and evaluating stakeholder expertise in marine policy settings.

Non-credentialed Expertise, Stakeholders, and Environmental Policy

Frequently understood in terms of phronetic knowledge (Linke and Jentoft 2014), tacit knowledge (Collins and Evans 2007), experienced-based expertise (Collins and Evans 2002) or lay expertise (Irwin and Michaels 2003), environmental policy studies have worked to detail the epistemology of such knowledge (Carrozza 2014; Evans 2010; Healy 2009; Nev and Teshner 2013), as well as that expertise's value to development and implementation of environmental policies (Brewer 2013; Jentoft et al. 1998; Kaljonen et al. 2010; Linke and Jentoft 2014; Phillipson et al. 2012). However, the ontological assumptions concerning stakeholder knowledge have gone largely uninterrogated. By approaching non-credentialed expert knowledge as a process, an ontological account of non-credentialed expert knowledge demonstrates that expertise is an emergent process rather than as a 'ready made' that is either possessed or not. By detailing *how* expertise emerges from experience, and by pairing an object-oriented rhetorical perspective with Bruno Latour's work in the ontology of science suggests new ways of assessing the

quality of non-credentialed expertise and of operationalizing that expertise into policy deliberation.

Epistemology of non-credentialed expertise

In Science and Technology Studies (STS) and sociology of scientific knowledge (SSK), two of the dominant focal points for the analysis of lay expertise are its epistemological origins and its use-value in matters of techno-scientific deliberation. Although watershed studies of expertise in the public sphere like Wynne (1989) and Fischer (1993) primed public expertise as an issue of study, the work of Collins and Evans (2002) and Irwin and Michael (2003) perhaps best represent the epistemological analysis of expertise located outside of traditionally sanctioned systems; I will refer to this as 'non-credentialed expertise.'

Reflecting on the treatment of expert knowledge in SSK, Collins and Evans (2002) suggest that the origin of both credentialed and non-credentialed expertise be understood as based in experience. Although Collins and Evans are clear that experience "cannot be the defining criterion of expertise," (2002, p. 251) they are adamant that the kind of "specialist abilities" (2002, p. 238) that emerge from prolonged experience with technical matters does warrant recognition as expertise. Once a person or group of people, by virtue of their technical experiences, can demonstrate or exercise "enough experience to contribute to the science of the field being analyzed," they can be recognized as processing "contributory expertise" (Collins and Evans 2002, p. 254). Speaking on the epistemology of non-credentialed expertise, Irwin and Michael (2003) further develop the informal origins of expertise. Once again drawing on the SSK platform that "all knowledge is derived from its particular cultural and social context"

(Irwin and Michaels 2003, p. 33) and reaffirming Irwin et al.'s 1999 observation that "local people actively create forms of understanding as they negotiate the conditions of everyday life" (p. 1322), Irwin and Michael dissolve the boundaries between formalized scientific expertise and that of non-credentialed publics. Through their concept of "lay epistemology," Irwin and Michael note that, like their legitimized counterparts, non-credentialed publics are often "engaged in a complex of judgments about trustworthiness, credibility, usefulness, [and] power" (2003, p.28). Irwin and Michael's combined focus on the contextual origins of expert knowledge and their embrace of the public's ability to critically reflect on that knowledge allow them to frame non-credentialed publics as "experts in areas of everyday experience" (2003, p. 37) worthy of both legitimation and utilization in technical discourses. As Fischer (2000) further notes, such non-credentialed publics, "have the potential to provide new knowledge – in particular local knowledge – that is inaccessible to more abstract empirical models" (p. 2). The epistemologies of non-credentialed expertise generated by STS and SSK scholars all generally confirm, "the solutions to many complex problems are found through more rather than less interaction between citizens and experts" (Fischer 2000, p. 33).

Stakeholder Expertise

Environmental policy studies have utilized these developments on non-credentialed expertise to offer a wide body of scholarship advocating the importance of including stakeholder knowledge in the formation of public policies. Scholars have continued to explicate the social and contextual epistemology of stakeholder expertise (Carrozza 2014; Evans 2010; Healy 2009; Nev and Teshner 2013), as well as stakeholder expertise's value-added to development and implementation of environmental policies

(Brewer 2013; Jentoft et al. 1998; Kaljonen et al. 2010; Linke and Jentoft 2014; Phillipson et al. 2012). For environmental policy scholars, stakeholders possess valuable expertise concerning their experiences and practices with and in their local ecosystems. Scholars of marine policy have been particularly active in exploring and describing the value of incorporating stakeholder expertise (Hartley 2010; Hommes et al. 2009; Kaplan and McCay 2004; Mackinson et al. 2011; Wilbur et al. 2004). Within marine policy studies, scholars are deeply invested in developing theoretical frameworks for the integration of stakeholder expertise through concepts such as co-management (Brewer and Moon 2015; Jentoff et al. 1998, Wilbur et al. 2004) and co-production of knowledge or participatory research (Kaplan 2004; Kraan et al. 2014; Phillipson et al. 2012; Wilber et al. 2009). Advocates of community-based approaches to marine policies make compelling cases for how the input of local stakeholders can improve the sciences undergirding policy (Wilber et. al, 2004) and the quality of governance established by policy (Mikalsen e. al, 2007). Common among these arguments is an understanding that in issues of marine policy, the knowledge of stakeholders such as fisher peoples – both local and indigenous – does possess technical, objective merit (Negev and Teschner, 2013; Wilber et. al 2004; Kraan et. al., 2014); even if such knowledge is most commonly valued in terms of very simple kinds data.

However, despite this scholarship's breadth, depth, and quality, the task of integrating the expertise of non-credentialed stakeholders remains a difficult task. Fischer (2000) observes part of the difficulty as emerging from not only a resistance to democratic forms of participation by increasingly technocratic system, but also from the growth of public distrust in such expert-driven systems of science and policy that have largely failed to provide the kinds of effective solutions once advertised. The integration

of non-credentialed expertise also faces serious challenges in terms of finding common ground between stakeholders, scientists, and policy makers for communication within complex techno-social systems, of overcoming deep cultural differences and perceptions, and addressing grave ethical issues of access, legitimacy, and power (Mackinson et al. 2011; Varjopuro et al. 2008; Milakson and Jentoff 2001).Even though the epistemological origins of stakeholder expertise in environmental policy settings have been well explicated and its use-value well advocated, its application remains problematic.

And why shouldn't it? Collins and Evans' (2002) warning about the dangers of depending too heavily on experience as the primary criteria for expertise is difficult to heed. The vast spectrum and intensity of human experience makes delineating the event horizon of "enough experience to contribute to the science" (Collins and Evans 2002, p. 154) a serious quagmire. The danger of sinking too deeply into the quicksand of experience as the foundation of expertise is made doubly perilous when the environment is the focus of study or debate. Additionally, in marine policy settings, such as fisheries management, the stakes are heightened by crises of ecological health and resource abundance. When the intractable complexity of ecosystems is paired with the infinitude of human subjective experiences, demarcating valid perspectives from extraneous ones is a Sisyphean task and yet a vital one. This is also one of the lasting lessons of Wynne's (1989) much celebrated study of the Cumbrian sheep farmers: in the end the non-credentialed experts and the credentialed experts were not able to communicate well. While STS, SSK, and environmental policy scholars are aware of and actively engaged in addressing this difficulty, at least one obstacle emerges from an ontological gap in the scholarship on non-credentialed expertise. The ontic process of *how* the experience of

non-credentialed stakeholders becomes expertise has gone largely unexplored. Without attempting to understand *how* expertise emerges from experience, actionable heuristics for qualifying non-credentialed expertise and for integrating that expertise into policy development will remain underdeveloped.

A Material Ontology of Expertise

As the work of the previous chapter on object-oriented rhetoric demonstrated, a concern for the material ontologies that buttress rhetorical ecologies is of critical analytical value. Being 'in-touch' with the material objects, relations, and processes that contribute to the formation of rhetorical ecologies allows the object-oriented rhetorician to trace new and detailed maps that have both great explanatory power of *how* rhetorical actions happen, and great power in helping reimagine *how* those actions might happen differently. Armed with theories that highlight the value of nonhuman rhetorical actants, a vocabulary for describing their participation, and a method of developing an ontological map of that participation, it becomes possible to develop an ontology of expertise that explains how expert knowledge emerges from experiences with the material world.

Bruno Latour's early work describing the ontological activity of science draws explicit attention to the importance of science's mundane activity. Reversing the common paradigm of scientific-objectivism, Latour signals that science's objects of study are not simply its subject, but rather its product. While Latour's focus on scientific knowledge as product may, at first, resemble a rehashing of SSK's privileging of contextual practice, his focus on the materiality of that practice represents a significant departure. The ontological activity that Latour explicates to describe how "phenomena *are thoroughly constituted by* the material setting of the laboratory" (2013, p. 64) is, here, valuable for

better understanding the process through which expertise develops from experience.

Latour's ontological concepts of mediation, translation, and inscription help detail a more

precise understanding of *how* expert knowledge emerges from the experience of

negotiating with the agency of the material world. This process-based approach to

expertise demonstrates expert knowledge as a built product rather than as a 'ready made'

that is either possessed or not.

Material Mediation of Representation

In addition to serving as a designator for the basic agentic work of affecting a

rhetorical ecology, Latour offers a more nuanced understanding of mediation to explain

the importance of materiality's influence on the construction of scientific facts. In

Pandora's Hope (1999) Latour explicates mediation's role in the representation of

substance. Contrary to semiotic models of representation that take the distance between

signified materiality and signifying form as a yawning, impassible gap, Latour describes

the representation of the material by the discursive in terms of a "circulating reference"

(Fig. 10) (1999, p. 73).
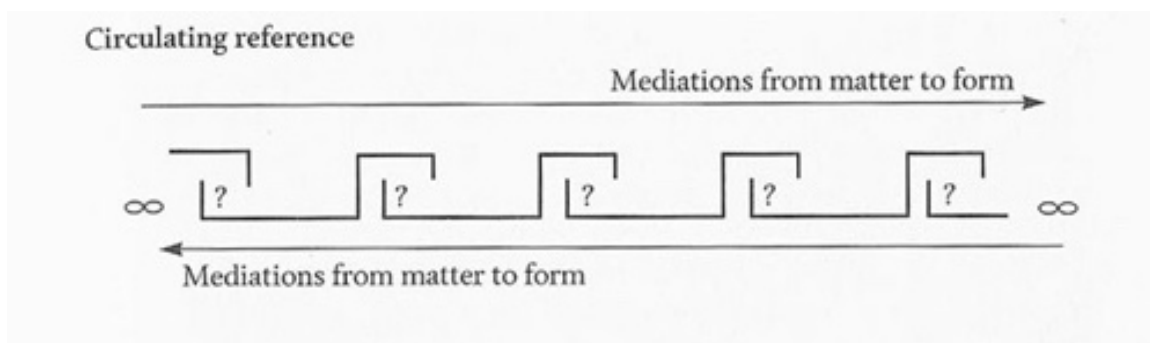

Figure 10: The circulating reference as a chain of mediation

Inherent in Latour's "circulating reference" is the understanding that forms of

representation (top line, Fig. 10) are stabilized by the recalcitrance of their material

counterparts (bottom line, Fig. 10). In this way the process of constructing facts, knowledge, or expertise can be seen in terms of a 'chain of mediation' through which each movement between the material and its representation - observable in the mundane work of laboratories – contributes to the reality of the claims being produced. The more mediation – the more contact points between materiality and its representation – the more real the claim becomes.

While the concept of materiality as a formative component of environmental knowledge could be seen as subsumed by the theories of non-credentialed stakeholder expertise described above, drawing materiality's agency to the fore serves to highlight it as the source from which expertise emerges. In Latour's arrangement, materiality is recast as the central active ingredient in the development of expert knowledge about the environment. In other words, Latour's material mediation offers expertise studies a more nuanced understanding that expert knowledge is not simply *about* the environment but formed *from* and *with* that environment. This perspective on materiality signals that expert environmental knowledge, because it emerges as the result of the back-and-forth of material mediation, can be at least somewhat more objectively qualified with reference to the material.

Fishing is an ideal practice for illustrating how the material mediation of representation contributes to the ontic development of expertise. Like laboratories, the material conditions of fishing do not simply influence its experience, practice, and results; it is mediated and constituted by them. As any angler worth their salt would tell you, a pantheon of material contexts - the air temperature, water temperature, tidal flow, lunar stage, water depth, bathymetry, salinity, barometric pressure, cloud cover, water oxygenation, turbidity, wind speed and direction, and water quality – play a critical role

in fishing's success or failure as a practice. Indeed, these material conditions in large part determine the choices of an angler. In this way the material conditions of fishing mediate its practice and are represented by the choices and actions of anglers. For example (see Fig. 11), the material condition of very poor water quality (bottom line, Fig. 2) can mediate an angler's choice of lure color; and that affect is represented by the angler's particular lure color selection (top line, Fig. 11).
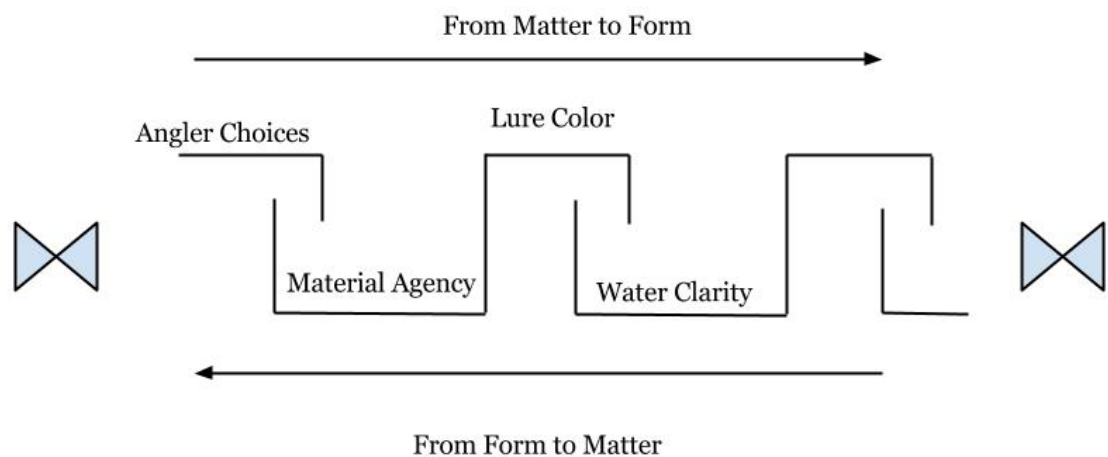

Figure 11: The mediation of materiality on angler practice

As anglers continue to experience the agency of materiality their choices and actions are modified further. Through prolonged experience this modification builds chains of knowledge about the affects of materiality's mediation. With reference to the example above, when an angler encounters the same very poor water quality their past experiences with the mediation of that materiality makes it likely they will select the same lure that produced the most bites in the past. While this chain of knowledge alone may not constitute expertise in any formal sense, anglers' experience with fishing's

material conditions is the basis from which they are judged by the SGF as stakeholders

and as potentially valuable sources of knowledge for deliberating fisheries policy.

Material Translation of Actants

The specific role of materiality's mediating force in developing expert knowledge

is more thoroughly explicated through Latour's principle of translation. Described as the

"[f]irst meaning of mediation," (Latour 1999, 2005) Latour offers translation to highlight

the process through which associations between actants fundamentally alter the real

potentiality and possibilities of the actants involved, and any new network that
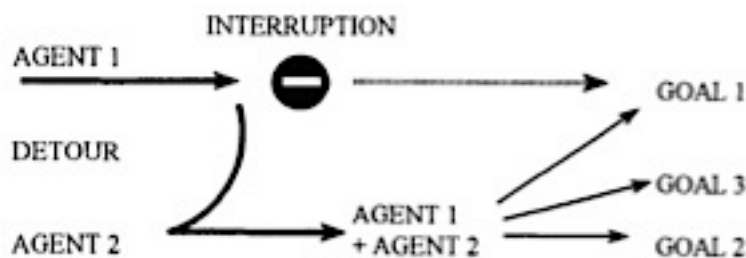
association might foster (Fig. 12).

Figure 12: The generation of new ontic possibilities as a result of translation (Latour 1994, p. 32)

While mediation's second meaning, described in Chapter 2, signals the composite nature

of agency and its symmetrical distribution across associating actants, the first meaning of

translation draws the results of actant association to the fore. Every time an actant

("Agent 1," Fig. 12) associates with another ("Agent 2," Fig. 12), the new composite

actant ("Agent 1 + Agent 2," Fig. 12) is imbued with an entirely new set of potential

agentic trajectories ("Goal 1," "Goal 2," "Goal 3," Fig. 12). Whereas Agent 1 and Agent

2 in Figure 2 can be observed to possess their own distinct trajectories – represented by

the arrowed rays prior to the "Interruption" of Figure 3 – their association generates the

potential for a new set of indeterminate possible actions – represented by "Goal 1," "Goal 2," and "Goal 3"). In other words, the mediating materiality of an actant not only generates a new composite actant but also translates the ontic trajectory or destiny of that composite actant, allowing that actant to do, be, or embody actions not available to either actant alone.

Latour and Woolgar stress that the laboratory's most critical and fundamental function is as a provisional space for this exchange of agencies, and the alteration of potential which is insured from the comingling of material and discursive practices, contexts, and agents (2013). By collecting mediating agencies, the laboratory serves as an incubator for translation. What Latour's process of translation offers expertise studies is a means of linking experiences of material mediation and the knowledge generated as a result of those experiences. By highlighting the effect of material mediation to alter the potential of actants, Latour's translation more precisely demonstrates how experience with an environment generates knowledge about that environment.

While the alteration of an angler's agentic trajectory by material translation does not necessarily equate to the production of knowledge, it does represent the process by which the conditions for generating new knowledge are established. As chapter 2 described, the comingling of agencies as a result of mediation provides both actants with additional phenomenological and experiential data that represent the building-blocks for developing new knowledge. It is the sustained *successful* negotiation with and of such material agencies that constitutes expertise as an angler. Through experiences of success and failure applying the information gained through material mediation anglers come to gain an expert knowledge about their art, its subject, and the material agencies that support it. Through prolonged experience and practice anglers gain expert knowledge

about where to fish which tides, the color or kind of lure appropriate for which water

conditions, the seasonal availability of bait and game species, the effect of weather on

fish location and behavior, and so on. The ability to transmute the mediation of material

agencies into the successful negotiation with those agencies is precisely what translates

an angler from a fisher to a catcher, or vice-versa. Returning to the previous example, the

angler's expertise is constituted by their ability to successfully match their lure color

choice to the affects of the water clarity. The lure color selection that more accurately

addresses the mediating conditions of the water quality contributes to an experience of

successful catching. The experience of an "Angler" (Fig. 13) successfully catching the

"Fish" (Fig. 13 translates that angler into a new actant, the "Successful Angler" (Fig. 13).
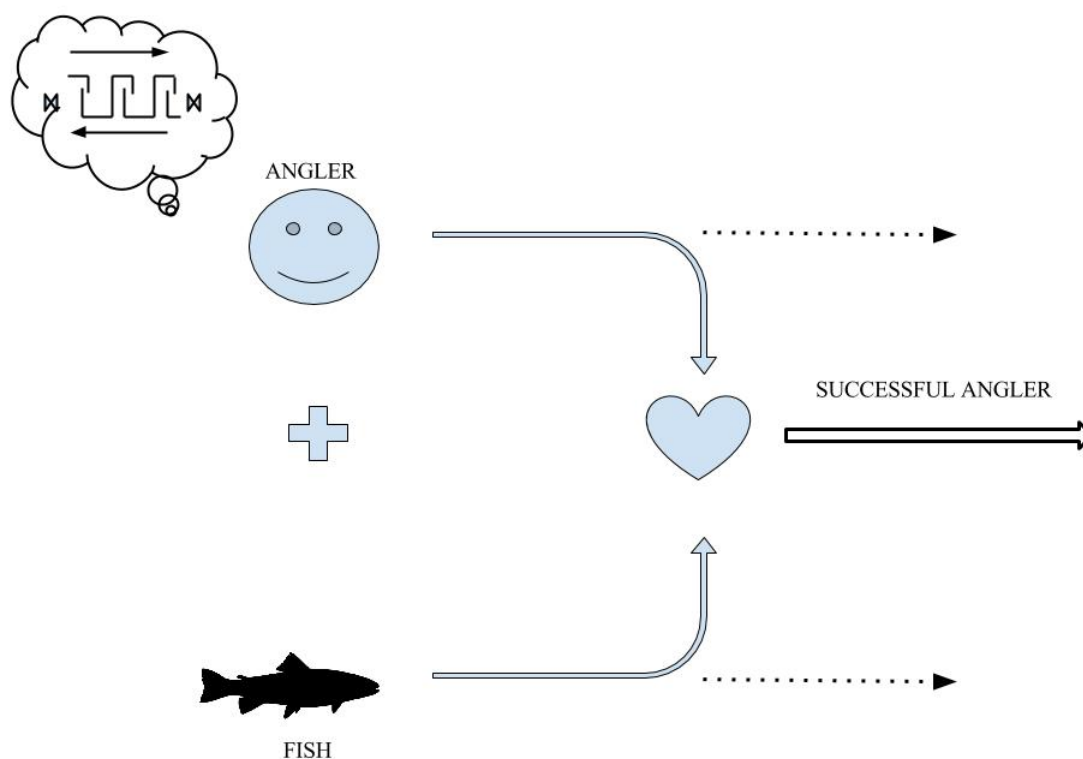

Figure 13: The translation of material mediation into expertise through experience

In this way the angler is, because of their experiences of material mediation, translated into a more experienced, more expert version.

With material translation the lines between anglers' experiences and their expertise are made clearer. While the mediating agency of fishing's materiality such as weather or water conditions influences the chain of knowledge production, it is the translation resulting from the experience of successfully apply those mediations through successful fishing – or rather catching - that generates expert knowledge. An angler's ability to successfully negotiate the mediating experience of fishing is what results in new, productive translations that literally generate new, more expert versions of that angler. Additionally, successful translations allow the now successful angler to multiply mediating experiences, which in turn creates the circumstances for more translations and the generation of more expert knowledge. While material mediation indicates the general agentic influence of materiality, translation speaks more directly to a sense of causality where one actant can be seen to 'cause' another to translate into a new actant. Even without a notion of linear causality, translation offers expertise studies an indispensible understanding that the changes that result from material experience are both attributable and perceptible. In terms of the example above, the shift from "Angler" (Fig. 4) into "Successful Angler" (Fig. 4) is a perceptible change that can be attributed to the material experience of catching the "Fish" (Fig. 4) and perceptible in the (even momentary) physical contact or procession of the "Fish." By solidifying the lines of causality between an angler's fishing experiences and the expertise about fishing that angler might claim, translation offers the analyst a means of describing and qualifying the process.

With material translation the seemingly mundane experiences of mediation between non-credentialed stakeholders and their environment are seen in the same light

as science's laboratories – as moments where the exchange of agencies alters those stakeholders into new, more knowledgeable subjects. In this way material translation helps the social scientist understand, describe, and potentially build lines of influence between the experiences of stakeholders and the expert knowledge they might claim. The ability to draw these lines of causality between materiality, experience, and expert knowledge is critical to the ability to differentiate between competing knowledge claims.

Inscription of Translating Experience

As a means of securing mediating materials and of multiplying translating acts, Latour and Woolgar describe the laboratory in terms of a "system of literary inscription," whose product is, "the occasional conviction that something is a fact" (2013 , p. 105). As Latour and Woolgar explain,

> The problem for [laboratory] participants was to persuade readers of papers …
> that its statements should be accepted as fact. To this end rats had been bled and
> beheaded, frogs had been flayed, chemicals consumed, time spent, careers had
> been made or broken, and inscription devices had been manufactured and
> accumulated within the laboratory. This, indeed, was the very raison d'entre of
> the laboratory. (2013, p. 88)

The mundane work of negotiating between the materiality of scientists' practice and the contexts of their discourses is distilled, by virtue of its duration and intensity, into facts embodied by an inscription. For Latour and Woolgar it is the power of inscribing the constant mediating presence of the material world that fuels science's ethos and expertise. The strata of translations through which agencies are exchanged, networks affected, and realities constructed within the laboratory are recorded by inscriptive texts (Fig. 14).
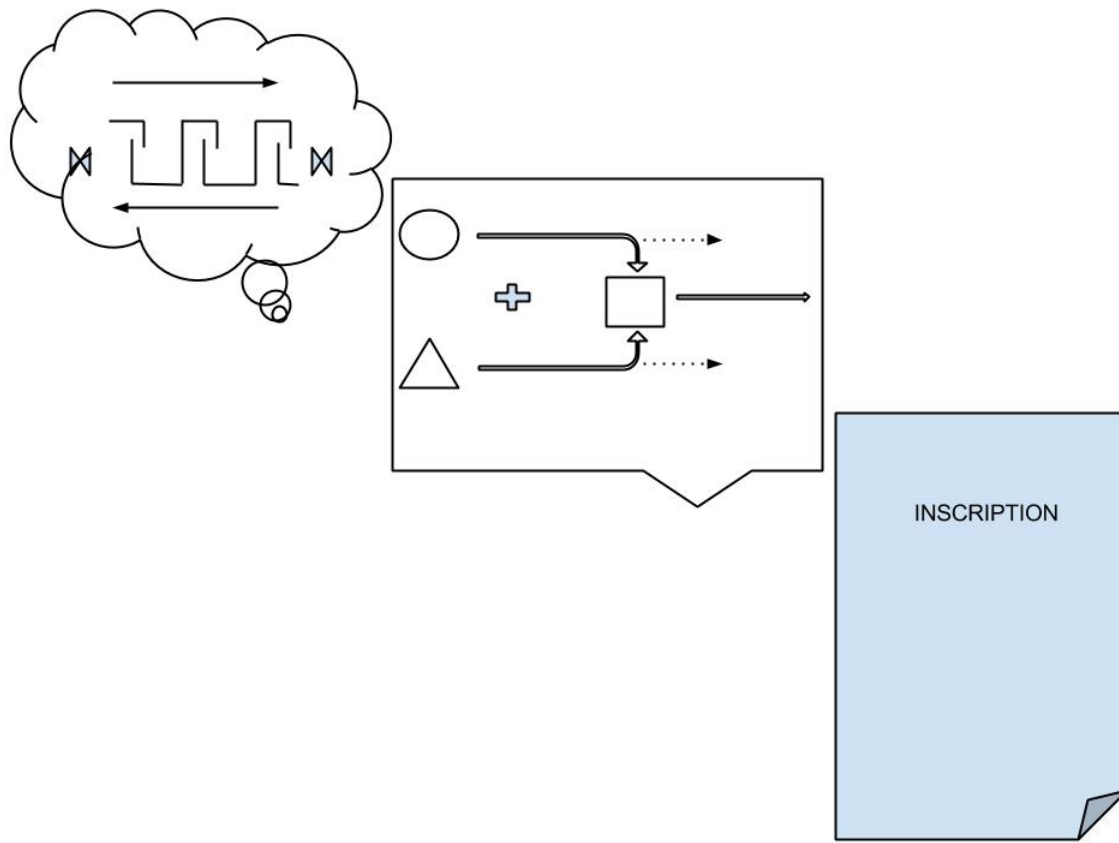
Figure 14: The representation of material mediation and translation by inscription

The power of the inscription, however, is only as effective as its degree of intimacy with

the mediation and the acceptance of the translations that comprise it.

Indeed it is the scientists' laboratory as incubator, with its panorama of vital

translating material agencies that enable them to inscribe the quality of their work into

facts. Inscriptions of material mediation and translations via the laboratory are, in large

part, science's answer to Collins and Evans' "Problem of Extension" – for deciding

"[h]ow far should participation in technical decision-making extend?" (2002, p. 237). As

Latour and Woolgar's work demonstrates, the inscriptions laboratories and their teams

develop are the very objects of scrutiny over which scientific validity is judged.

Inscriptions judged as successful means continuing participation in the construction of

scientific facts. Inscriptions judged as failures mean rejection, perhaps even banishment

from the process. In practice then, science-writ-large's answer to the problem of extension is to multiply the number of mediating actants and their translating power until the produced inscriptions or claims' network is so overwhelmingly dense as to either convince naysayers into acceptance, or to discourage them from attempting to replicate or disprove the claim.

And yet Latour and Woolgar are also adamant that the ontic source of science's ability to produce knowledge be no different than any other (2013). This same onto-logic can be safely extended toward other material practices that experience or exercise the same kind of intimacy with their objective world. In terms of non-credentialed expertise studies then, material inscription signals the production of tangible end products from which the quality of that expertise might also be judged. Just as the deliberation of scientific factual validity is conducted over the laboratory inscriptions so too might the expertise of non-credentialed stakeholders be deliberated using inscriptions understood as the product of material translations generated from material mediation. The experience-based inscriptions of non-credentialed stakeholders, however, will likely take many shapes and come in many different mediums beyond the refereed articles and reports.

In terms of expertise, the merit of an angler – the level of their expertise – is made evident through the multiplication of inscriptions that showcase their ability to successfully negotiate the translations of their practice's mediating material conditions. Returning once again to the running example, the translation of successfully matching lure color to the mediating effects of water clarity is often inscribed as GPS coordinates that record where the experience took place (Fig. 15).
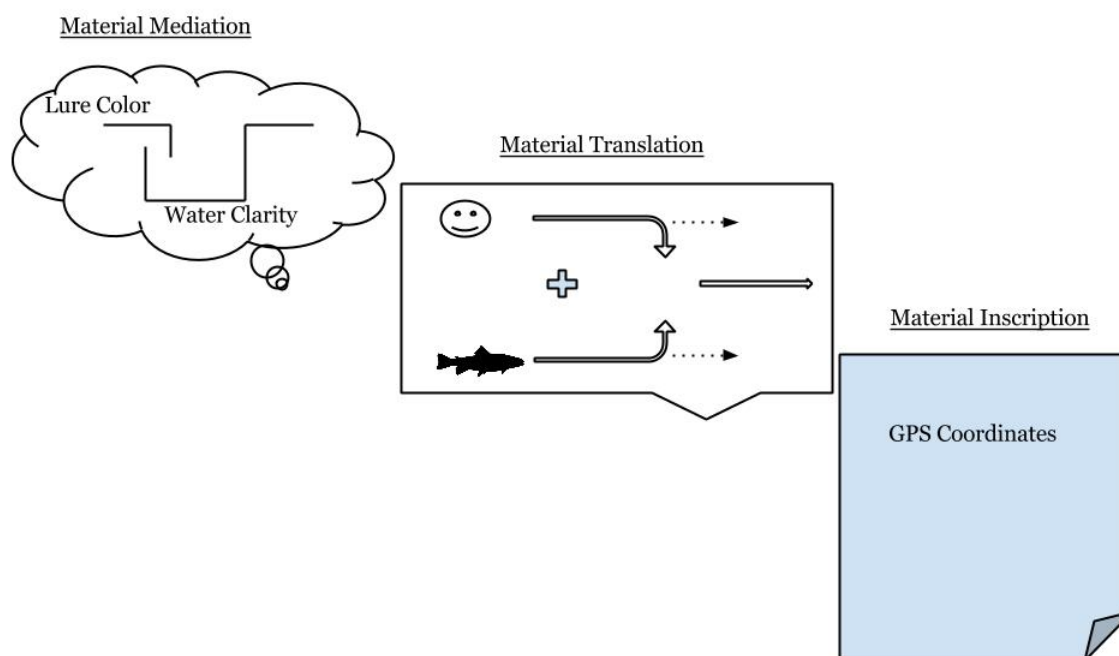
Figure 15: GPS coordinates incribing the mediation and translation of fishing's material practice

In this way an angler's GPS coordinates aren't simply a means of returning to a profitable fishing spot; they are a record of the translating experience of successfully interacting with materiality's mediation. Whether in terms of an empty ice-box, a labored dock scale, a GPS loaded with secret coordinates, a carefully assembled assortment of tackle, or a collection of treasured catch photos, an angler's ability to translate their experience with materiality into expertise is readily inscribed. In this way inscriptions are not only the product of material mediation and translation, they are the embodiment of the entire ontic process by which expert knowledge is developed.

Applying the ontology

The material ontology for expertise described here explains why the SGF failed to effectively operationalize the expertise of their non-credentialed stakeholders in the seatrout fishery, and yet met success in the snook fishery. It is first, however, helpful to recall the specifics of the SGF's stakeholder integration campaigns.

In reaction to the Florida Fish and Wildlife Conservation Commission's (FWCC's) proposed amendments to deregulate the seatrout fishery the SGF developed a stakeholder participation campaign and released a 'Take Action' plea to their members and to the public via their website. The 'Sea Trout Action Alert' asks that concerned stakeholders lend their opinions to the FWCC debates and urges that, 'FWC NEEDS TO HEAR YOUR VOICE!' (Fitzgerald 9/8/11). After directing readers' attention to the proposed amendments to the seatrout fishery, the 'Action Alert' offers a four-step method, including the necessary links and a prefabricated but customizable text, for contacting FWC Commissioners. The letter asks the FWC to not increase the per-boat limit of 75 seatrout to 150, to limit the commercial fishery to hook and line only, and to limit the commercial seatrout season to a defined season and region (Fitzgerald 9/26/11). Yet, on February 1st, 2012, the FWCC finalized the policy changes to the seatrout fishery by increasing the commercial limits from 75 to 150 seatrout per vessel, increasing the recreational seatrout harvest in many regions from 5 to 6 fish per day, and extending the commercial seatrout season by two to three months for most of the state (FWCC 2011e). Despite having collected the voices of more than 3,500 stakeholders (FWCC 2011c) the FWCC effectively ignored the SGF's 'Sea Trout Action Alert,' deregulating large aspects of the seatrout's commercial and recreational fisheries.

Conversely, in reaction to the January 2010 cold-water snook kill and the emergency reopening of the FWCC's snook fishery management program the SGF released the "Snook Watch Angler Action Program" to help channel the expertise and opinions of its stakeholders in the FWCC management debates. The 'Angler Action Program' represented a "data collection program [to] shed more light on to the actual status of our snook population today," and offered to "give anglers a chance to bring vital information to the table as future regulations are considered" (SGF 3/3/10) in the form of catch surveys. The 'Snook Watch Angler Action Program' surveys asked anglers to record trip locations, catch numbers (including zero-catches), catch lengths, as well as photographs of any catches (SGF 4/19/20). By September 2010 the "Snook Watch Angler Action Program" had amassed 358 unique angler reports representing 1,085 hours of fishing, and recording 932 caught snook (SGF 9/2/10). These reports were shared with FWCC researchers and brought to the public forums. While the effects of the "Snook Angler Action Program" reports are difficult to qualify in a specific sense, their general gravitas is made clear in the subsequent regulatory actions taken by the FWCC. As a result of the SGF's " Snook Angler Action Program," and their continued involvement in the snook fishery policy debates, the Gulf snook fishery – the area of the state most heavily impacted by the 2010 cold-water fish kill – remained completely closed for harvest until 2014 (FWCC 2010d; FWCC 2011a; FWCC 2012; FWCC 2013).

While, from an object-oriented perspective, the two stakeholder campaigns obviously differ in terms on the fish species that could be seen as the primary mediating actants – a detail that cannot be understated – the ontological development of expertise at the heart of their campaigns remains remarkably similar. As the conclusion of chapter 2 illustrated, the SGF's stakeholder programs share so many deep similarities in terms of

actors, agencies, publics, and interests that the difference in inscriptions produced and embraced stands out as making the critical difference. In terms of public marine fisheries policy, the SGF is clearly adopting the field of marine policy's proposed 'best practices' by seeking out and facilitating the inclusion of the non-credentialed stakeholder expertise possessed by its constituency. In doing so the SGF consciously or not nods to the specialized local knowledge processed by its angling communities in both fisheries, which itself is generated out of the same model of mediation and translation offered above. By valuing the expertise of its angling communities the SGF effectively validates the ontic process through which the material experiences of anglers translates them into more valuable, expert stakeholders. Indeed, in terms of material mediation and translations the seatrout and snook anglers share virtually identical ontic paths. Both sets of anglers are judged to possess valuable knowledge and opinions about their respective fisheries precisely because they have endured the mediating materiality of those fisheries and because they have been translated by their negotiation of those mediating experiences into more knowledgeable, expert versions of themselves. The critical difference between the two stakeholder integration programs lay in their management of the final stage of expertise's development: the generation of expert inscriptions.

The SGF's reliance on the singular "seatrout Action Alert" inscription failed to persuade the FWCC. By contrast, the SGF's multiplication of inscriptive texts through the "Snook Angler Action Program" proved eminently convincing. Viewed from an ontological process perspective, the "Seatrout Action Alert's" call for stakeholders to share their "voice" is simply that; a call to share a singular, a-contextual expression of an opinion. The "Seatrout Action Alert's" form-letter ("Inscription," Fig. 16) cannot be unpacked any further than the opinion of the participating stakeholder ("Subjective

Perspective," Fig. 16), obscuring the real source of that opinion ("Question mark," Fig.

16) and preventing further analysis of that opinion's substantiality.
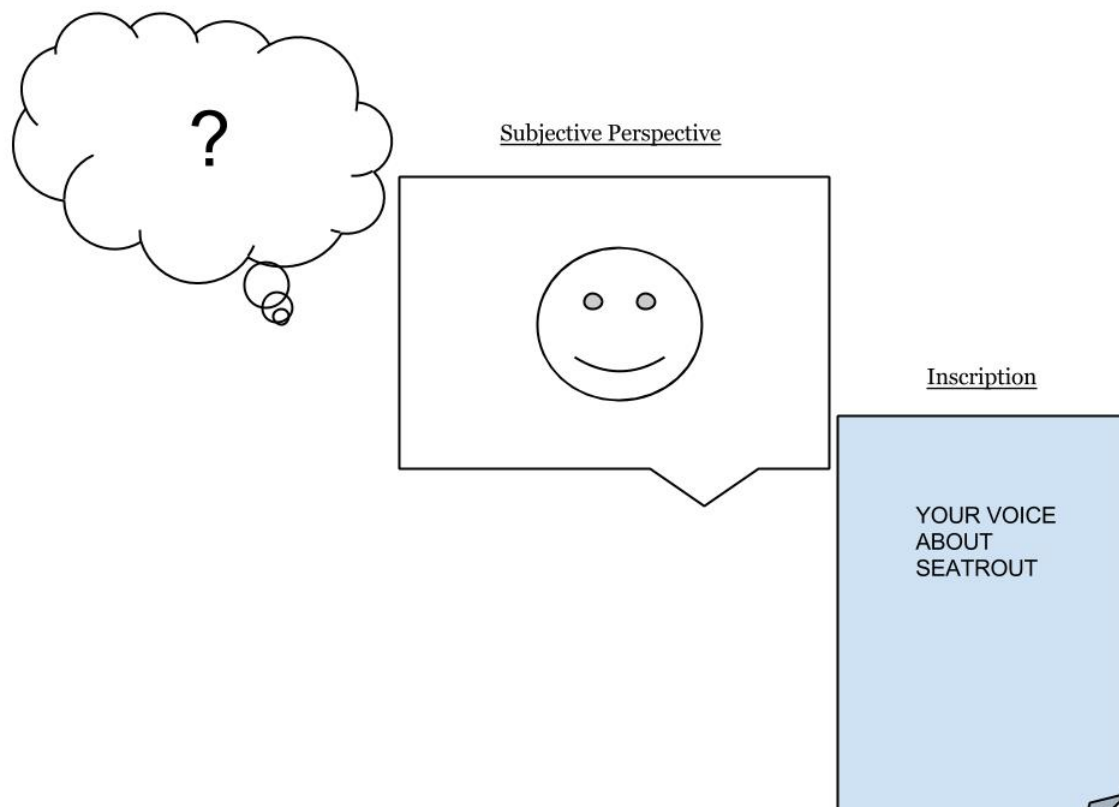
Figure 16: Subjective Expertise

The "Snook Angler Action Program," by contrast, seizes upon the mediating power of

the angler's material practice by producing inscriptions that more obviously showcase the

translating power at work. By asking anglers to record and report the banal details of their

translating 'laboratory practices' in the form of catch reports, the SGF effectively and

persuasively laid bare the material processes and practices by which their anglers

generate their expertise (Fig. 17).
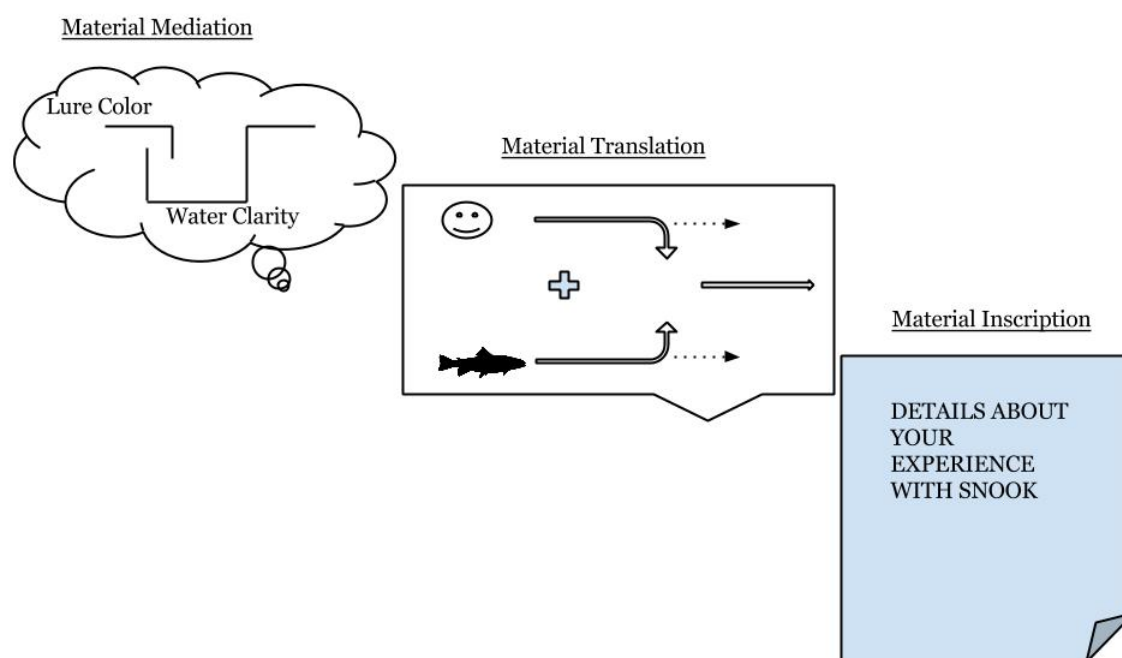
Figure 17: Material Expertise

Unlike the "Seatrout Action Alert's" black-boxed form-letter inscriptions, the "Snook Angler Action Program" asked its stakeholders to produce inscriptions that could be easily unpacked from the stakeholder back to the mediating moments of material translation that generating their expertise. Here, by asking anglers to record the precise material details of their interactions with snook ("Material Inscription" Fig. 17) the SGF creates the conditions for inscriptions from which the translating experiences ("Material Translation" Fig. 17) that result from materiality's agency ("Material Mediation" Fig. 17) can be traced. By developing materially rich inscriptions the SGF effectively generated statements of expertise that could more easily be evaluated by the FWCC. Fishery policy scientists and policy makers can, with the material inscriptions of the "Snook Angler Action Program," trace the expert knowledge of stakeholders back through the translating

experiences to the material reality of the snook populations, allowing them to judge more easily the value and usability of that information.

By applying the material ontology of expertise developed here to the SGF's stakeholder integration programs, it becomes clear that the expertise of non-credentialed stakeholders is not a ready-made. Rather, such expertise is and must be built by processes of accretion. Contrasting the persuasiveness of the SGF's "Snook Angler Action Program's" subject-oriented inscriptions against the materially-oriented inscriptions offered by the "Seatrout Action Alert" illustrates the difference between a ready-made approach to expertise and an ontological approach. By taking expertise as a ready-made substance that one does or does not possess, the SGF's "Sea Trout Action Alert" fails to substantiate the value of those stakeholders' voices. Conversely, the SGF's "Snook Angler Action Program" gains legitimacy and persuasiveness for its participants by taking expertise as a built product, asking them to construct and offer inscriptions that explicitly reference the experiences that support their expertise, thereby creating the conditions from which lines of causality between the stakeholders' experiences and their expertise.

The contrast in the SGF's programs showcase Latour's premise that persuasiveness of science's facts is the result of the intimacy and frequency of the material contributors. The reliance of "Seatrout Action Alert" on the solitary opinion of the non-credentialed stakeholders fails to evidence the material practice that may, or may not, support their claims. The "Snook Action Alert Program," on the other hand, was able to lay bare the laboratory in which the non-credentialed stakeholders constructed their expertise by drawing the mediating power of fish sizes, numbers, and locations to the fore, and by multiplying the inscriptions of the angler's translating experience. Even as

Latour and Woolgar note that, "having an idea … represents a summary of a complicated material situation," (2013, p. 170) in terms of non-credentialed expertise, ideas do not speak for themselves. Alone, the voice of the non-credentialed expert does not speak well for its circumstances and is not persuasive. If, however, the process by which material situations mediate and translate ideas can be made evident, and if the inscriptions representing that process can be multiplied and mobilized, the expertise embedded in those ideas can be very persuasive.

This material ontology of non-credentialed expertise also helps address the difficulty of qualifying expertise developed in non-normative settings. Collins and Evans build from their warning concerning the over-reliance on experience as wellspring of expertise, noting that in issues of technoscientific deliberation "rights based on expertise must be understood one way, while rights accruing to 'stakeholders' must be understood another way" (2002, p. 249). From their perspective, "contributory expertise" should emerge from within the sanctioned rules of normative scientific paradigms. Without normative paradigms, Collins and Evans' logic goes, the slide down experiences' steep slope may not be prevented. Marine policies, due in large part to the vast social and physical ecological complexity inherent to such issues, blur the line between expert and stakeholder and thus the issue of who might be allowed to participate in decision-making processes. Indeed, marine policy debates comingle the demand for expertise and for stakeholder involvement in such a way as to make them nearly indistinguishable. Whether in terms of the general benefits of co-management or co-knowledge production described above, or of the specific value of fisheries dependent data collection for management, the inclusion of stakeholder knowledge in marine policy issues represents a critical project. Despite their segregation of stakeholder and expert knowledges Collins

and Evans do nod to the "special level of local discrimination" processed by local peoples about their environment, and that "in public-use technologies and planning, the involvement of the public as experts is 'integral' to the science itself" (2002, p. 267). Even with such validation, a principle challenge of integrating of non-credentialed stakeholder expertise remains developing means of weighing such expertise.

The material ontology described here suggests a logic of sufficiency, one that needs no a-priori paradigmatic normalization, as more than adequate for addressing Collins and Evans' "problem of extension" for non-credentialed expert stakeholders. Scholars or policy makers interested in accessing the quality and usability of non-credentialed expertise emerging from sites outside of normative framework such as fishing can direct their attention to the inscribed evidence of expertise generated out of the material practices of stakeholders. If the material mediations that enable, and that are represented by, inscriptions are taken seriously then the quantity and quality of the translations that can be unpacked from those inscriptions represent means of evaluating the expertise such inscriptions embody. In terms of the above case studies, the expert knowledge inscribed by the "Snook Angler Action Program's" fishing reports is easily unpacked and qualified. The 358 angler reports generated by the "Snook Angler Action Program" are inscriptions of the mediating materiality of 932 caught snook, as well as untold missing ones, and the 1,085 translating hours of practice exerted by the anglers. The sheer quantities represented by and embedded in those inscriptions made, and make, them enormously persuasive – and therefore worthy of credit. The valuation of those inscriptions, and therefore the value of the snook anglers' expertise, does not rely on any immediate normative scientific paradigm either; instead, it operates on a more direct rhetorical level of persuasion. From a materially ontological perspective, the quality of a

given stakeholder's non-credentialed expertise may be weighed in terms of a sufficient degree of persuasiveness represented by the both the quantity and intimacy of the translating materiality represented by a given inscription. In other words, by evaluating both the amount of translations that can be unpacked from an inscription and the degree of intimacy with which a human actant experiences material mediation embodied by that chain of translation, a person's level of expertise might be more easily judged. Critically, and divergent from Collins and Evans' prescriptions, the judgment of that sufficiency need not rely on the establishment of a priori normative paradigms. Instead the scientists, policy makers, and scholars at work can decide levels of sufficiency in medias res during the course of policy deliberations with the stakeholders. Rather than forcing the square-peg of stakeholder experience into the round-holes of paradigmatic validity, this material ontology encourages marine policy scholars to simply ask, 'what are we looking for and, how much is enough?' to determine the quality of expertise.

Conclusions

By better understanding the ontological process by which anglers develop and evidence their expertise, it is easier to approach methods of evaluating and operationalizing that expertise. Latour and Woolgar note that, in terms of scientific knowledge, "[t]he material setting both makes possible the phenomena and is required to be easily forgotten" (2013, p. 69). The inverse can be observed through the SGF's successful "Snook Angler Action Program"; the explication of the ontological process can serve as a legitimatizing move in non-credentialed settings. Remembering Latour's premise that the durability of science's potent facts is the result of the intimacy and frequency of the material contributors, the quality of non-credentialed expertise could

also be measured in terms of the quantity and quality of materially mediating translators with whom stakeholders negotiate their respective contexts. The more inscriptions that can be produced by non-credentialed stakeholders, and the more evidence of material translation that can be unpacked from those inscriptions, the more expertise they could be said to have obtained. Because inscriptions evidence the translation of material mediation, they render the process of constructing expertise traceable. By tracing the process of translation that undergirds an inscription, it is possible better understand the mediation process, and better conceptualize the quality of its construction.

So then the integration of non-credentialed stakeholder expertise, understood in terms of a 'material expertise,' becomes an issue of locating, or perhaps even aiding in the development of, quality inscriptive texts. This is a familiar practice for STS analysts. In many ways the location of quality stakeholder inscriptions can be simply understood as an extension of cultural theory's legacy of taking seriously diverse and unorthodox texts for study, but with two critical twists: an increased awareness and acceptance of the most mundane text and a greatly expanded understanding of what qualifies as a text. Latour and Woolgar's work, again, provides a model of this acceptance in the way they take seriously every inscription and translation; no matter how common or seemingly simple the act or its product may be, it is regarded as having real and meaningful influence on scientists' process. The banality to which Latour and Woolgar remain sensitive allows them to collect a fantastic range of inscriptive texts. The more diverse and banal inscriptions an analyst can assemble from the non-credentialed experts they study, the more convincing their claims can become.

But, more than simply finding and registering the inscriptions of non-credentialed experts, it is critical that rhetoric and marine policy scholars welcome and focus on those

inscriptions as the accumulation of stakeholders' specialized, intimate experiences with their material conditions. It is the materiality of this ontology that provides the most significant departure from traditional epistemological concerns. By focusing on the materiality of expertise - on the objects and things with which expertise is constructed – marine policy scholars can focus on its process, gain a means to assess its quality, and share in the persuasive mediation that materiality offers.

Chapter 5: Object-oriented Engagement

Engaging Public Policy of Things

As the discipline of Rhetoric has worked to reassess the traditional canon of rhetorical subjects and theories, its role in public spheres beyond academia ha also received greater attention. As Coogan and Ackerman note in their introduction to *The Public Work of Rhetoric*, "rhetoric is in the midst of discovering anew its usefulness… with emerging commitments in many quarters to democratic inclusion and to community engagement toward economic renewal" (Coogan and Ackerman 2010, p.1). Drawing historiographic connections between the widespread sociopolitical unrest of 1960's America and the revival of interest in public works, Coogan and Ackerman (2010) describe how Rhetoric has worked to, "broaden its unit of analysis beyond 'the speech' – beyond persuasion and the exalted status of famous orators – and headed into the wilds of political division, media proliferation and social movements, all the while swimming upstream against the swelling science of communication studies" (4). This expansion generated a revival of interest in doing rhetorical work *in* and *for* living public ecologies instead of simply *about* them for the sake of generating new scholastic knowledge.

While object-oriented rhetorics may approach public rhetoric from a distinct theoretical perspective, they are also very much located at the forefront of this push to reengage rhetoric's place and work in civic deliberation. Leading object-oriented rhetorician Nathanial Rivers even explicitly identifies his work as applying object-oriented theory to public rhetoric policy (Rivers 2014; Weber and Rivers 2011). More

typically, the link between public rhetoric engagement and object-oriented rhetorics rises from object-oriented rhetorics' concern for rhetorical production. As described in chapter 3, a focus on rhetorical production marks one of the shared central tenents of object-oriented rhetorical theory. Surveying the breadth of object-oriented rhetorical scholarship in hallmark works like Lynch and Rivers' (2015) *Thinking with Bruno Latour in Rhetoric and Composition* shows widespread interest in engaging rhetorical scholarship with the express goal of *doing* rhetoric. As an inheritance from their deep engagement with the work of Rickert and Latour, object-oriented rhetorics frequently embrace and operationalize a 'post-critique' disposition that understands the challenges facing many contemporary rhetorical ecologies as, literally, matters of survival. As such, object-oriented rhetorics develop a theory that both repopulates public rhetoric ecologies with materiality's 'missing masses' and offers means of constructing new rhetorical utterances with those material masses capable of *doing* work *in* and *for* their publics. In this way, object-oriented rhetorics represent a distinct methodology for public rhetoric as body of theory that explains and justifies a practical method of doing.

As Weber and Rivers (2014) argue, drawing on Edbauer's ecological metaphor, work in public rhetoric can be more productive when it "highlights the affective, social, distributed, and coordinating guts of public rhetorical action" (p. 202) because such an ecological perspective calls attention to a diverse, often overlooked spectrum rhetorical work. Object-oriented rhetorics aim towards explicitly political public participation and intervention by working to repopulate the public rhetoric ecologies with the guts, bones, and muscle of material agency. Latour critiques Sociology as having, "underestimated the difficulty of doing politics by insisting that the social consists of just a few types of participants" (2005, 250). As a result, Latour goes on, Sociology forewent the ability to

meaningfully engage in political matters by ignoring the true spectrum of sources for political action. Object-oriented rhetorics understand the same critique to apply in public rhetoric studies as well and that, "Latour's project of rediscovering a truly political ecology that negotiates the shifting relations of humans and nonhumans, and the uncertain membership in any collective is an attempt to reinvigorate the rhetorical deliberations of civic life" (Graham and Herndl 2015, p. 52). By largely limiting its focus to the discursive, Rhetorical scholarship has foregone the specific and unique opportunities for political action embodied by nonhuman agencies. As long as we deconstruct the discursive forms and forces of the snook and seatrout debates without acknowledging the agencies of the fish themselves, we truncate the spectrum of participants and overlook the enormous agentic variety in their ecologies. Without attuning our rhetorical analysis of fisheries management debates to the fish themselves we would, for example, miss the opportunity to rethink the relationship between those fish and their angling stakeholders, and in doing so could not approach the expertise of those stakeholders any differently. By welcoming nonhuman actants and their agencies into the analysis of public rhetoric ecologies object-oriented rhetorician gain an additional, and quite literal, set of things and objects with which to *be* rhetorical.

The benefit of including material agencies in rhetorical analysis is illustrated by Latour's analysis of the limitations created by Sociology's anthropocentrism. To counter the limitations of anthropocentrism at the heart of Sociology's political limitations, Latour's 'nonmodern' work brings two critical questions to the fore: How many are we? Can we live together? (2005). The first question asks that the sociologist multiply the number of political actants welcome as political mediators. The second question asks the sociologist to reimagine how the newly welcomed mediators might help reassemble more

sustainable politics. By welcoming a wider, more diverse spectrum of actants-as-mediators, particularly nonhuman actants, Latour's approach to politics is meant to offer a kind of material realism that focuses on developing pragmatic interventions through networked action. Object-oriented rhetorics' approach to public rhetorical ecologies embraces a similar project. For object-oriented public rhetorics, accepting the rhetorical agency of nonhuman actants multiplies the political actants, and therefore the avenues for political action. Like Latour, object-oriented rhetorics offer this multiplication as nothing less than an attempt "to reinscribe realism in political thought" (Gries 2015, p. 295).

Welcoming the seatrout and snook as vital mediators in their fisheries management debate ecologies not only makes their agencies more visible, it creates the conditions by which those agencies can be understood as potentially valuable sites of generating new rhetorical acts and political action. As the work of chapters two and three demonstrate, by welcoming the fish themselves as mediators in their own political ecologies the once banal and largely overlooked action between fish and their human-actant counterparts are revealed as enormously influential moments of rhetorical genesis. The interaction between fish and angler is thus recast as potential moments where political intervention in the fisheries management debates, whose future rests precariously on the results of such interactions, can be exercised. Instead of understanding the interaction between fish and angler as simply 'something that happened,' an object-oriented approach to both fisheries management debates demonstrates that those interactions are precisely the kinds of moments where the entire future of a rhetorical ecology can be influenced. In other words, by welcoming fish-as-mediators into their fisheries management ecologies they are welcomed as sources of *real* political action. Want to change a fisheries management debate? The object-oriented

work of this dissertation suggests that the material interactions between anglers and fish represent a means of influencing the entire cascading chain of mediation that sustains fisheries management debates. Multiplying the number of actants-as-mediators in a rhetorical ecology an object-oriented rhetorical perspective so too multiples the number of participants and associations that can be called upon or utilized to act politically. Further, the newly welcomed actants-as-mediators and the political potential they come to embody are not hypothetical, they are literal and very material; this is the realism offered by an object-oriented perspective. Want to find where and how to influence a fisheries management debate? Look towards the fish and the literal, material interactions they share with their associated actants and intervene in those associations a literal, material way. The affects of that intervention will literally and materially cascade throughout the life of that ecology.

The political realism object-oriented rhetorics offer through the multiplication of participatory actants asks rhetoricians studying and engaging in public rhetoric ecologies to carefully consider how those newly welcomed political actants might be utilized to both deconstruct the problematic at hand and to reconstruct those ecologies in healthier, more sustainable ways. Drawing from other New Materialist and Posthumanist projects such as Mol's (2002) praxiography, Bennett's (2010) onto-stories, and Latour's (2005) dingpolitik, object-oriented scholars share the conviction that drawing nonhuman ontologies to the fore of political analysis is truly generative and actionable work. As Simmons, Moore, and Sullivan (2015) argue, the multiplication of agencies offered by object-oriented rhetorics "helps us notice the obvious or mundane or unremarkable in a complex and networked world and give it more actants, more actions, more potential

relations (ethical, political, social and so on). Our work can be better when we do so" (p. 290).

Pragmatically Object-oriented

While object-oriented rhetorics may seem to emerge from a theoretically esoteric space – even as it focuses on rhetorical production and public rhetorical scholarship – their drive to produce actionable scholarship for public engagement signals their commitment to a pragmatist approach to public rhetoric ecologies. In his 2007 *Pragmatism, Democracy, and the Necessity of Rhetoric,* Robert Danisch describes five central commitments of American Pragmatism:

1) a belief that the world is uncertain and contingent

2) epistemological anthropocentrism

3) an embrace of pluralism

4) a preoccupation with the individuals relationship to community

5) the requirement of a set of methods or tools for use by individuals and communities (7)

With the obvious exception of "epistemological anthropocentrism," object-oriented rhetoric also shares the same basic commitments. Object-oriented rhetoric embraces plurality by way of its engagement with non-Cartesian metaphysics and the disrupted notions of causality that accompanies them. Even as it focuses on nonhuman or material actants in rhetorical ecologies object-oriented rhetorics also share a preoccupation with relationship between those unique actants and the communal ecologies in which they participate. And, as noted above and in chapter 3, object-oriented rhetorical studies are also deeply committed to producing actionable tools and methods for use in civic

participation.

If, indeed, "pragmatism demands that its practitioners seek practical arts grounded on knowledge and experience to solve problems" (Danisch 2007, p. 2), then object-oriented rhetorics provide an ardent materialism that increases the potential to produce practical action. In other words, it is object-oriented rhetoric's preoccupation with literal materiality – as a tangible and operable force in rhetorical ecologies for the production of public and civic rhetorics – that grounds it most firmly as a pragmatic project. For example, Danisch (2007) describes William James' pragmatist philosophy as concerned with creating "an instrumental and useful set of ideas applicable to a wide array of problems – a pragmatic method," which "demands belief and action in the face of uncertainty" (p. 18). Object-oriented rhetorics mirror and compliment James' ideal pragmatist orientation by offering insights into how nonhuman actants can be used to accomplish rhetorical action in light of epistemological uncertainty.

Object-oriented rhetorics even provide their own work-around to pragmatism's problematic focus on epistemological anthropocentrism. Drawing on Dewey's conceptualization of knowledge as an active social construct Danisch notes how, "[w]hen people are brought into association, the meaning of the world they share is produced and regulated through knowledge as a practical activity" (2007, p.59). By flattening the ontology of the social, or in this case the public sphere, object-oriented rhetorical theories signal nonhuman actants as active participants that also contribute to the production and regulation of knowledge and of the social itself. This inclusion of nonhumans and materiality in the pragmatic works of civic affairs is preempted, albeit it not explicitly, as Coogan and Ackerman recognize that, "[t]o discover the coordinates of [civic] anxiety in its locally and globally material manifestations, rhetoric will have to reflectively imagine

itself outside of fixations on the discursive supplement within the logo-sphere" (2010, p. 5).

Object-oriented rhetoric capitalizes on this necessity by casting their analytical net well beyond the discursive into the rich waters of materiality. Paired with object-oriented rhetoric, pragmatism gains an invaluable means of registering and utilizing the widest possible spectrum of actants and agencies to form public utterances and civic action. In terms of pragmatic civic action Danisch highlights how, "rhetoric, through an act of public speech, can offer council, define problems, suggest solutions, provide means when all appears confused and uncertain, or persuade an audience to believe or act in a fitting and timely manner" (Danisch 2007, p1). As a pragmatic stance for public engagement object-oriented rhetoric signals the addition of nonhuman actants to the repertoire of available sources from which to offer council, define problems, suggest solutions, or persuade in civic imbroglios.

Pragmatically Wrestling RSTM's Wicked Objects

Object-oriented rhetorics' drive to develop pragmatic scholarship that reimages how networks can be assembled is especially important in the complex technosocial ecologies of public rhetoric of science, technology, and medicine (RSTM). Problems in science and environmental policy, or fisheries management need the ardent materialism that a pragmatic object-oriented rhetorical methodology can provide. Indeed, the objects at stake in the heart of RSTM and STS ecologies represent particularly vexing agents that are, themselves, deeply embroiled in matters of concern that represent "hybrid phenomenon where the natural, the social, and the political intersect" (Five Years Out, 2009). The technological and scientific complexity inherent in such hybrid phenomena

are so wicked as to move Herndl (2009) to suggest that, "technoscience rather than science is the site of [RSTM] work," and that, "material-semiotic practices rather than texts should be [RSTM's] object of analysis" (2009). In a similar vein Wynne and Walsh (2013) recognizes that "one particularly radical way that technological changes are beginning to affect the rhetoric on public scientific controversy is by calling into question notions of agency," and that, "rhetoricians of science may need to expand their notions of agency to embrace and assess these emergent features of controversy" (p. 17). Even as RSTM has already begun "shifting from a modern and humanist disciplinary focus to a non-modern and post-human focus" (Herndl and Cutlip 2013, p. 2) the living complexity of its ecologies of study echo Coogan and Ackerman's call for public engagement and intervention. Not only are public RSTM ecologies ripe with the kinds of material complexity that demand an object-oriented perspective, they also desperately call for active political intervention. Within the snook and seatrout management debate, for instance, the sheer amount of life at stake – the fish themselves, their ecosystems, the human communities that depend on those ecosystems – all demand the kind of careful analyses that shed light on how the entire ecology of actants might be more sustainably constructed; constructed so that fewer of the actants who depend on each other to survive, will survive.

Like other public rhetoric ecologies, RSTM ecologies are also finding a growing number of rhetoricians working to participate in their very public issues as embedded, engaged scholars. Indeed, the push to engage deeply in the living, real-world technosocial ecologies at stake marks one of the defining characteristics of emerging work in RSTM (Wynn and Walsh 2013; Five Years Out 2009; Walsh 2013; Herndl and Cutlip 2013; Goodwin 2014; Vernon 2014; Fahnestock 2013; Gruber, Keranen, McKenzie, & Morris

2011). Rather than simply studying RSTM's complex technoscientific ecologies a new generation of scholars like Caroline Gottschalk Druschke , Bridie McGreavy , Kenny Walker, and Scott Graham place themselves and their work directly in the making of such technoscience with the explicit political mission of *making* those systems and artifacts more fruitful, more sustainable, and more ethical for their publics, their economic and political systems, and their ecosystems. Speaking of the need to develop new rhetorical tools and methodologies for public participation, Coogan and Ackerman predict that, "to do rhetoric 'out there' requires a shedding of academic adornments, a different processional disposition, and new participatory and analytic tools, and a more grounded conception of public need" (Coogan and Ackerman 2010, p. 1). As rhetorical scholars move to develop appropriate dispositions, analytic tools, and grounded theories for participating more pragmatically in public RSTM settings they encounter technological and scientific imbroglios that demand their own pragmatic object-oriented methodological awls to untangle.

A Pragmatic Object-oriented Methodology

The way that object-oriented rthetorics describe the active agency of nonhuman actants and position those agencies as a source of rhetorical action suggest that they are themselves capable of providing a pragmatic rhetorical methodology for engaging RSTM's wickedly complex technoscience. Spinuzzi (2015) suggests that Latour's principle of symmetry, one of the foundational pillars of object-oriented rhetorics, "can be considered a methodological *move*, a limiting assumption, a premise that is provisionally accepted to better align the methodology with its methods" (p. 26). Simmon, Moore, and Sullivan (2015) similarly argue that the ontological theories at the

heart of object-oriented rhetorics contribute to, "a complex methodological strategy that better attends to collectives" (p. 289). In light of their drive to produce pragmatic scholarship for civic participation object-oriented rhetorics can be understood as a methodology that focuses the rhetorician's work on the tracing nonhuman actants so that their roles in constructing and maintaining public rhetorical ecologies might be not only understood, but also utilized to do work in public RSTM ecologies.

To move object-oriented rhetorics from a theoretical stance into a pragmatic methodology, however, it becomes important to differentiate between the object-oriented political theories outlined above and the methods offered in the previous chapters. In approaching public rhetorical ecologies the aforementioned object-oriented theories and scholars advocate for what is more aptly described as a 'thing-oriented' rhetorical approach. Herndl and Graham (2015) articulate the foundational assumptions of this thing-oriented focus well as they draw from Heidegger's terminological preference of the *gegenstand* over *objekt*:

> The first move of this distinction involves Heidegger's choice of *Gegenstand* over *Objekt*, both viable options for 'object.' *Gegenstand* (literally that which stands against) highlights an object's necessary positioning vis-à-vis a subject. It is relational. In contrast, Heidegger's 'thing' is akin to Bryant's virtual proper or Harman's real object in that it recedes from contact from other objects. It is resistant and recalcitrant. (p.48)

In other words, a Heideggerian approach to materiality that privileges the *gegenstand* understands materiality as 'gatherer;' as a particular agentic force whose rhetorical significance emerges primarily as a result of its ability to gather or network other actants. Approaching nonhuman and material agency in terms of 'things that gather' draws

attention to the interconnectedness of rhetorical ecologies, multiplying the opportunities for rhetorical action and agency. As Herndl and Graham note, "[t]reating objects as things opens them to deliberation and dispute and returns us to the possibility of a viable political ecology" (Herndl and Graham 2015, 49). While 'things that gather' represents a theoretically sound and productive approach to expanding the place and value of nonhuman actants and material agency in political rhetorical ecologies it ultimately delivers little in terms of the concrete tools for action in those ecologies that a pragmatist approach demands. Because a 'things that gather' approach to nonhuman actants focuses on their agency in terms of their networking potential and affects it unintentionally serves to displace the actual, literal actant from the analytical frame. In a 'things that gather' approach it is an actant's affective potential to perturb other actants that takes precedent over the direct agency of the material actant. By focusing on an actant's networking potential 'things that gather' approaches, therefore, offer little towards understanding the specific roles that unique actants play in rhetorical ecologies and how their equally unique agencies might be wielded rhetorically.

Alternatively, the object-oriented methods offered in the previous chapters gain a pragmatic methodological edge by drawing on the metaphysics of Alfred North Whitehead to an understand nonhuman actants as 'objects that object' that takes absolutely literally the *gegenstand* as 'that which stands against.' Rather than conceptualizing nonhuman actants primarily as 'networking things', Whitehead's metaphysics understands them as thoroughly unique, recalcitrant objects that are, "elements in nature which do not pass" (2014, p. 73). Understanding reality as a series of related but unique series of 'events,' and extending the consequences of his 'ontological principle' described in chapter 3, Whitehead goes so far as to suggest that the natural

world is itself the consequence of objects' unique metaphysical recalcitrance – the result of their 'standing against' other related objects:

> An object is an ingredient in the character of some event. In fact, the character of an event is nothing but the objects which are ingredient in it and the ways in which those objects make their ingression into the event… The discrimination of nature is the recognition of objects amid passing events. It is compound awareness of the passage of nature, of the consequent partition of nature, and of the definition of certain parts of nature by the modes of the ingression of objects into them. (2014, p. 73).

Whitehead additionally specifies that real objects, which he later classifies as 'sense-objects,' are "not the product of the association of intellectual ideas; [they] are the product of the association of sense-objects in the same situation. This outcome is not intellectual; it is an object of peculiar type with its own particular ingression into nature" (2014, p. 79). In addition to serving the thingly function of gathering and perturbing other entities then, Whitehead's 'objects that object' signals the opening for an object-oriented perspective on materiality that focuses itself on approaching and analyzing the forces that materially-physical objects apply in their rhetorical ecologies. While the move to understand nonhuman in terms of Whitehead's objects may seem slight, or as additionally esoteric, it represents the critical move towards legitimating object-oriented rhetorics as a methodology whose method of tracing the action of rhetorical objects is capable of generating pragmatic insights into civic rhetorical ecologies.

By approaching nonhumans and materiality in terms of Whitehead's 'objects that object', object-oriented rhetorics offer a pragmatic methodology that situates non-humans as a particular 'Daedalian thread,' to borrow yet another metaphor from Latour, through

which to understand, navigate, and participate in civic rhetorical ecologies. Understanding nonhumans in terms of 'objects that object' suggests that even as the uses, meanings, communities, and even ontological realities that swirl around, through, and with objects change, the objects themselves retain some degree of intrinsic stability. While the concept of 'intrinsic stability' is frequently understood as a problematic reference to metaphysical essentialism – what Herndl and Graham (2015) cite in terms of Levi Bryant's "subject-less object" (p. 46) – so long as that 'stability' is offered simply as representative of an object's real enduring physical presence as an origin of its agency it casts objects as a uniquely reliable thread through which to untangle rhetorical imbroglios. In other words, an 'objects that object' approach to nonhuman agency avoids the problematic of transcendental essentialism by focusing squarely on the material presence of an object rather than its metaphysical character.

Even as the ontologies of actants and their networked associations – what they do, what they are capable of doing, and how they do – are mediated, at a fundamental physical level, most of the time, the actants retain a degree of recalcitrance. While the ontic trajectories of both angler and fish are mediated as a result of their association, there remains an observably unique angler and fish during and after said association. The ability of both the angler and the fish to retain this physical recalcitrance through mediation, across time and space, from Whitehead's perspective, represents the one of the true sources of their agency and their ability to mediate one another. Even if, as Harman (Latour, Harman, and Erdélyi 2011) and Rickert (2013) and others variously argue, objects possess an essential quality that 'withdraws' from and exceeds its phenomenological presence, Whitehead's focus on an object's spatiotemporal presence in the 'event' of reality suggest that such an essence is a secondary ontological

characteristic inessential for understanding its immediate agentic affects. As 'objects that object,' the immediate mediation of an object that emerges primarily from its material presence take analytical president. In this way, even as object-oriented methods focus on tracing the mediation of agencies it is the literal material recalcitrance of objects that creates the conditions by which to follow such mediation.

As 'objects that object' nonhuman actants become the thread through which the object-oriented rhetorician can follow the development and maintenance of rhetorical ecologies. In this way object-oriented rhetorics approach objects very literally as "boundary objects." Wilson and Herndl (2007) articulate an understanding of 'boundary objects' as a "useful metaphor for understanding rhetorical activity in sociotechnical systems" (p. 135). As a rhetorical metaphor Wilson and Herndl's boundary objects serve as a means of approaching seemingly divergent, even antagonistic sociotechnical communities in terms of the objects, practices, and discourses they share (2007). By engaging shared boundary objects first, then working out to the communities that engage with and share them rhetorical scholars gain insight into the way communities overcome seemingly incommensurable paradigmatic differences; and, in doing so open the possibility of developing new tactics for inter-communal collaboration. As a pragmatic methodology object-oriented rhetorics take boundary objects as both the beginning and goal of rhetorical analysis. Rather than utilizing the boundary object as a reference point for engaging the communities that surround it, object-oriented rhetorics engage the object with the goal of understanding how *it* organizes and influences those communities.

This very literal approach to boundary object work has the additional advantage of highlighting avenues for pragmatic intervention in public rhetoric ecologies as well. With reference to ANT as a politically oriented project Latour, is adamant that the task of

welcoming the missing nonhuman masses as able participants represents only half of the work and stresses that ANT work should not only, "look for ways to register the novelty of associations," but also, "explore how to assemble them in a satisfactory form" (2005, p. 261). In other words, not only should nonhumans be welcomed into rhetorical ecologies as mediators, but also their agencies should be looked to in order to reimagine and reconstruct their associations and ecologies just as Latour's questions ask: how many are we? And how can we live together? Likewise, an object-oriented rhetorical methodology understands that objects represent pragmatic means of acting within public rhetoric ecologies.

In addition to creating the conditions to embrace and excavate the unique agentic contributions of objects in rhetorical ecologies, an object-oriented methodology's embrace of 'objects that object' suggests that the agency of those objects can be expected to exert similar affective agency in comparable ecologies as well. The myopic application of ANT methods to follow objects through their rhetorical ecologies and the tracing out of those agencies create ontological maps of *how* objects mediate other actants in their ecologies. Like their cartographic cousins, ontological maps offer at least a partial description and understanding of what can be expected as an object participates in a given set of conditions. Well-developed ontological maps should, therefore, offer suggestions about what and how an object might be expected *do* in similar ecological circumstances. Speaking of the natural sciences Whitehead describes how an 'objects that object' approach to materiality creates the conditions to predict future manifestations of material agency:

> in science we have found out that when we know all about the adventures amid
> events of material physical objects and of scientific objects we have most of the

relevant information which will enable us to predict the conditions under which

we shall perceive sense-objects in particular situations. (2014, p. 87)

Even as object-oriented rhetorics' engagement with disrupted notions of causality deeply

trouble their ability to make definitive predictions or judgments about 'what does what,'

understanding nonhuman actants in terms of 'objects that object' allows object-oriented

rhetorics to see how the agency of a particular object influences its wider ecology. While

object-oriented rhetorics may not *predict the future* of rhetorical ecologies in the same

problematically objective sense that Whitehead describes, as an inductive methodology

they should create the conditions to infer how a particular object *might* or *could*

participate in other, similar ecologies. A thorough enough ontological map of the snook's

influence in its fisheries management debate, for example, should offer insight into how

other fish *might* or *could* participate in their own fisheries management debates. This

logic is critical if an object-oriented rhetorical methodology is to offer any pragmatic

insight into the reconstruction of public rhetoric ecologies.

This is the methodology that supports the material ontology of expertise

developed in the previous chapter. The work of building an ontology of how non-

credentialed stakeholders developed material expertise began by focusing on the contact

points between the snook and their human counterparts. Even as the analysis of that

relationship moved towards describing the generation and movement of that anglers'

material expertise, the fish were never displaced from the analytical frame. The

movement from fish to angler was only accomplished by maintaining reference to the

real connections established by material interactions between actants. The snook

themselves became the golden thread through which to follow the genesis of anglers'

experiences and the accretion of their expertise in the fisheries management debate

ecology. Because the conclusions generated about expertise are founded in a rich

ontological map drawn by an unwavering eye on the snook as 'objects that object,' they

describe particular lines of influence between material agency of fish and the expertise of

anglers that can be pragmatically, actionably utilized in both the snook's particular

political ecology and other fisheries management debate ecologies.

With the goal of inferring pragmatic courses of action for reassembling fisheries

management policies, the snook and seatrout's ontological maps suggest that creating

more avenues for counting and measuring fish represents an actionable means of

including more material stakeholder expertise. As a critical element in the computation of

both fisheries' stock assessments 'fisheries dependent' data represents "data collected

directly on a fish or fishery from commercial or sport fisherman and seafood dealers"

(NOAA 2006, p. 16) that "provides the link between fishing and activity and the

resource" (ASMFC 2009, p. 9) and allows scientists to more accurately characterize fish

abundances and harvest rates a given fishery. This critical data is usually collected by

way of "fisherman and dealer reports, observer programs, and broad surveys of the

recreational sector" (ASMFC 2009, p. 9). For both the snook and seatrout fisheries, two

of the most valuable fisheries dependent metrics are the total recreational catch and fish

length samplings from that recreational catch. The more data collected under these

metrics the more robust and, assumedly, accurate the stock assessment.

Following the snook's ontological map shows the creel surveys used to collect the

snook's recreational fisheries dependent data as critical points of mediation between the

snook's angling stakeholders and the FWRI. The Everglades Catch Log Survey (ECLS)

and the Maritime Recreational Fishery Statistics Survey (MRFSS) represent the two most

productive surveys for collecting and calculating the snook's fisheries dependent data in

the for the 2012 stock assessment (Muller and Taylor 2012). The ECLS represents a long-term oriented data collection project. While permitted fishing guides are required to submit an ECLS each month, the survey is only made available for completion by private recreational anglers through the National Park Service's Everglades National Park website. The survey itself asks that anglers provide details about: date of fishing; number of hours fished; number of anglers onboard; top 3 species preferred; number and kinds of each species caught kept, released, the location of their catch, and direction the fish headed after catch (Department of the Interior). The MRFSS depends on two independent surveys, a telephone survey and live surveys of anglers at "fishing access sites;" usually boat ramps (Department of Commerce 1994). The telephone survey is directed towards "households located in counties extending within 25 miles of ocean coastline, including major bays or estuaries" (Department of Commerce 1994, p. 2). The telephone surveys are conducted between 10:00am and 9:30pm and ask information regarding: participation in marine recreational fishing, number of marine anglers in household, number of fishing trips, fishing modes, state and county of fishing trips, dates of fishing trips, and times of return (Department of Commerce 1994). The live surveys consist of "on-site interviews which gather catch and demographic data from marine recreational anglers in three fishing modes: party/charter boat, private/rental boat, or shore based" (Department of Commerce 1994, p. 3) and gather data on: state and county of angler residence; state and county of trip; fishing mode; water area fished; number of anglers contributing to catch; species caught; angler reported catch (number of released alive and number harvested, but not available for identification); and observed catch (number in catch, length, and weight) (Department of Commerce 1994). The MRFSS' surveys are conducted in 'waves' determined by "the amount of seasonal fishing activity expected" (Department of

Commerce 1994). The scope, depth, and centrality of these two surveys suggests that

affecting the snook's management ecology would require equally complex and

substantial data collection processes. However, as the snook's ontological map traces the

influence of the SGF's Snook Angler Action Program it highlights the valuable impact

that providing a simple means for stakeholders to contribute catch numbers and lengths

has on the fishery's political ecology.

The 2012 Snook Stock Assessment reports that in 2005 the fisheries dependent

dataset – compiled from the MRFSS, the ENP, the SFG's Angler Action Program, and

angler-supplied snook carcass and logbook data – calculated the total recreational fishery

catch at 2,884,767 snook (Muller and Taylor 2012). Of that catch the lengths of 85,938

snook were collected (Muller and Taylor 2012). In 2010 the fisheries dependent data for

snook fishery calculated the total recreational fishery catch at 816,564 snook (Muller and

Taylor 2012); a notable but understandable decline in the population given the 2010 cold

weather fish kill. Of the 2010 catch, the lengths of 85,938 snook were collected; a 1.8%

increase in the reported number of lengths from the 2005 collection, despite the halving

of the state's snook population. Because the 2012 Snook Stock Assessment directly

utilized the data generated from the SGF's Snook Angler Action Program to both

calculate the total recreational catch and provide length measurements (among other

metrics), the 1.8% increase in the reported number of lengths is directly, at least partially

attributable to the SGF's program. In other words, the SGF can lay claim to having

directly contributed to the generation of more robust fisheries dependent data, more

accurate fisheries science, and better fisheries management policy; a claim bolstered by

Commissioner Barco's expressed confidence in both the SGF and the FWRI (FWCC

2012) as well as explicit acknowledgement and thanks in Muller and Taylor's 2012 and 2013 snook stock assessments (Muller and Taylor 2012, 2013).

By providing a simple avenue for non-credentialed expert stakeholders to contribute fisheries dependent data on 0.11% of Florida's entire snook fishery the SGF's Snook Action Angler Program was able to affectively intervene in the snook's fishery management debate. In object-oriented rhetorical terms, the SGF's Angler Action Program succeeded in influencing public fisheries management policy by creating the conditions for non-credentialed expert stakeholders to serve as technical delegates for 0.11% of Florida's snook fishery.

The ardent analytical focus on the agency of the snook as the source of Snook Angler Action Program's success allows the extension of inductive lines of influence to other fisheries as well. By focusing squarely on the snook as 'objects that object' the conclusions offered about the Snook Angler Action Program's affectivity say nothing about the character and nature – about the *what* or *why* – of the mediation, only the shape of their particular mediation and *how* it affected the ecology. The extension of this object-oriented rhetorical analysis' conclusions, then, will say nothing about the potential character and nature of the material mediation of other fish in other fisheries management ecologies. The extension of these conclusions suggests only the likely course of mediation to be found and utilized.

Extending the object-oriented insights offered here to fisheries management writ-large suggests that incorporating the material expertise of non-credentialed stakeholders the way the Snook Angler Action plan did can provide vital fisheries dependent data. The ECSL and MRFSS are either nested deeply in the National Park Service's website or depend on sporadic random phone or boat-ramp interviews. By contrast, the Snook

Angler Action program collects fisheries dependent data directly from their angling stakeholders. Renamed the Angler Action Program post-fishkill crisis, the program now features an independent domain name (angleraction.org) and even its own mobile smartphone app. Given the Snook Angler Action Program's influence on the FWCC's fisheries science and policy, fisheries management researchers should provide anglers more, easier avenues to serve as technical delegates for their ichthyologic counterparts. Like the Snook Angler Action Program and its evolved Angler Action Program, fisheries scientists and policy makers should take advantage of digital affordances and spaces where anglers share their many material inscriptions that evidence their own translation at the fins of fishy material mediation.

Other fisheries could also benefit from the facilitation of easier, more direct fisheries dependent data collection from stakeholders. For example, the fisheries dependent data for the 2005 Spotted seatrout – compiled from the same survey sets, with the exception of the SGF's Snook Angler Action Program – calculated the total recreational fishery catch at 1,629,925 seatrout (Murphy et al. 2011). Of that catch the lengths of only 2,872 seatrout were collected for analysis by the FWRI (Murphy et al. 2011); meaning that only .2% of the Florida's recreational seatrout fishery was sampled for length. Outside of traditional fisheries dependent data collection sites –beyond the random phone call or boat-ramp visit - social media spaces like Instagram are ripe with anglers' material inscriptions. For example, on March 2, 2016, Instagram, one of the most dominant social media platforms and one that is focused primarily on sharing images, registered 48,242 images organized under the hashtag "#seatrout" (Instagram). While there is undoubtedly a significant degree of 'noise' affecting such a data set such as inappropriately labeled images, if only 6% of those images represent pictures of actual

seatrout from the Florida fishery the Instagram data set alone doubles the pool from which to survey fisheries dependent data. If half of that 6% of the appropriate Instagram seatrout dataset users would respond to a catch survey and provide the same basic information as the Snook Angler Action program, the seatrout fishery would gain the same proportional increase in fish measured for length in its fisheries dependent data pool.

Using object-oriented rhetorics as a methodology offers pragmatic avenues for participating and intervening in fisheries management science and the management debates that depend on it. By diligently following and mapping the agency of fish in terms of 'objects that object' the work of chapter 3 constructed an ontological map that described the process by which the mediating force of snook contributed to the development of anglers' material expertise. Retracing the snook fishery management debate's ontological map highlighted fisheries dependent data collection as a direct avenue for increasing the inclusion of their human technical delegates' expertise through fisheries dependent data collection was highlight. Finally, by maintaining a strict focus on the agency of nonhuman actants the work offered in this chapter proposed concrete, actionable deliverables to facilitate the production of more inclusive and productive fisheries management science and policy.

Epilogue

Now that nonhuman actants have been re-welcomed into our study of rhetorical ecologies the snook and seatrout's fisheries management debates are no longer nearly as murky or perplexing. Since we have embraced an object-oriented perspective on the agency of the fish at the heart of both debates we gained a truer and more realistic image of the spectrum of actants at work and stake in the fisheries debate ecologies. By applying Latour's vocabulary of material mediation and ANT's arduous tracing methods we gained the means to follow and describe how the snook and seatrout worked to build and influence their rhetorical ecologies. By developing an ontological map of the snook's mediation of their angling stakeholders we gained a material ontology of expertise that explains how non-credentialed stakeholders develop expertise, and that can help qualify the expertise of such stakeholders. Finally, by understanding nonhuman actants in terms of 'objects that object' we articulated an object-oriented methodology that promises to deliver pragmatic scholarship and theory for public rhetoric action. The inability for the Snook and Gamefish Foundation to translate their seemingly effective seatrout Action Alert stakeholder integration program into successful policy intervention, once troubling compared to their relative success in the snook fishery, now appears directly related to their failure to fully embrace and operationalize the more persuasive force of their anglers' material expertise. By applying object-oriented theories, methods, and methodologies the work of this dissertation has evidenced not only the power of the fishes' agency to contribute to the expertise of their angling stakeholder, but also

provided means of both contribute to the recognition and development and deployment of such material expertise in other fisheries management debates.

It is my hope that the object-oriented work offered in this dissertation illustrates how object-oriented rhetorics, as a unique sub-field of rhetorical studies, represents much more than an esoteric niche. At the conclusion of *Ambient Rhetoric*'s (2013) final chapter Rickert notes that his work on ambience and attunement, "are only preparatory," (p. 269) and that

> such work brings us in touch with the world's primordial affectability, and disclosing this transforms how world comes to us in a way that shifts our manner of being in that world. (p. 269).

By pressing hard on the materiality of nonhuman agency, by driving object-oriented rhetoric to be even more attuned to the extra-human forces, things, and objects that all too subtly substantiate and hold influence over our rhetorical being in the world this dissertation marks object-oriented rhetoric as a valuable and pragmatic rhetorical stance capable of generating real rhetorical action. While object-oriented rhetoric by no means represents a panacea to rhetorical problems, it does embody a unique and powerful set of theories that can help unravel complex issues for which traditional discursive analysis alone is ill equipped to address. By engaging and employing object-oriented rhetorics offer a set of tools through which to understand, navigate, and interact with the materially rhetorical actants of our rhetorical ecologies. It is my hope future rhetors and rhetoricians will object-oriented rhetoric as a legitimate and productive stance into their own rhetorical ecologies to both study and materially act within them.

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