

2016

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### Repository Citation

McGreavy, Bridie, "Resilience as Discourse" (2016). *Publications*. 53.  
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# Resilience as Discourse

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## Abstract

Resilience as a frame is increasingly appearing in grant funding, news stories, academic journals, and organization missions. Across these sites, resilience is positioned as an ability to cope, characterized by bouncing back, regaining control, and reducing vulnerability to change. How did resilience come to be understood in these terms? What are the problems with resilience's frames and the practices that produce them? How might we become resilient differently? Using a Foucaultian archaeology, I examine sites and practices that produce resilience as discourse. I analyze resilience's origins in biophysical sciences, systems perspectives that define ways of knowing, visual models that constrain the emergence of new ideas, and persistent dialectics that narrowly order relationships within the world. I propose changes in the discourse for more affective and ecological modes of becoming resilient.

Keywords: resilience; Foucault; archaeology; dialectics; vulnerability; materiality

## Introduction

Following Hurricane Sandy, a storm that caused massive flooding in New York City in October, 2012, President Obama called on citizens to be resilient. He said that when we “respond with strength and resilience, when you see neighbors helping neighbors, then you’re reminded what America’s all about. Now we go through tough times, but we bounce back” (Obama, 2012). This refrain was repeated in multiple articles about Hurricane Sandy. Two stand out for how they correspond with broader patterns in resilience as discourse. The first article, “Born to Cope” (Waldman, 2012), quoted Rebecca Solnit’s (2010) *Paradise Built in Hell* which asked readers to imagine a situation where “the fate that faces [people], no matter how grim, is far less so for being shared...where people feel important, purposeful, at the centre of the world” (Chapter 1, Section 1, para. 9). Here, resilience is positioned as an ability to cope, no matter how dire the circumstances. Resilience as coping relies on humans working together to *bounce back* to normal as quickly as possible. Normalcy means finding ourselves at the center of the world. Our strength to weather the storms, our resilience, grows as we find ways to reduce vulnerability and resist the world as it changes.

The second article, “An Oyster in the Storm,” also positions resilience as coping, vulnerability as weakness, and where the necessary response to avoid harm is to find ways to resist and reassert control (Greenberg, 2012). However, this article hints at another path to resilience, one that might recompose vulnerability and de-center the human within a broader material ecology. As this piece describes, four centuries ago the U.S. coastline from Washington

to Boston was covered with trillions of oysters. These oysters' uniquely folded shell helped absorb storm surges like the one that inundated the streets of New York. The oysters' vulnerability, their ability to be affected, created their capacity to respond to these storms. Accounting for the participation of the oysters and material ecology of the tides that affect us all may well be crucial for becoming resilient.

In this essay, I bring environmental communication's (EC) problem-posing mode of inquiry to an analysis of resilience discourse using Foucault's (1972) archaeological method. Environmental communication as a discipline *of* crisis offers tools of judgment to engage other crisis disciplines, like resilience, to "model the kinds of thinking and feeling needed to help move from conditions of crisis to conditions of sustainability" (Schwarze, 2007, pp. 96-97). Archaeology extends these critical tools because, as Butler (2002) describes, the method produces a form of ethical questioning that goes beyond judgment to a "riskier practice that seeks to yield artistry from constraint" (p. 20). Bringing resilience, EC, and archaeological method together opens possibilities for such artistry in three ways. First, archaeological method helps problematize and contextualize resilience (Howarth, 2002) and contributes to a growing body of critical scholarship on resilience (Bean, Keränen, & Durfy, 2011; Walker & Cooper, 2011; Pezzullo, 2014). Second, archaeology helps advance EC's commitment to avoid predictable evaluative claims because this method resists defining resilience as a unified entity (Schwarze, 2007). An archaeological analysis does not attempt to define resilience but instead explores "the implications of the struggle over its meaning and its dialectical relationship with vulnerability" to ask how resilience could become different (Bean et al., 2011, p. 454). Third, as

Pezzullo (2014) argues, “resilience should not just be concerned with bouncing back, but also learning our limits and avoiding precarious futures when possible” (p. 19). Adopting a problem-focused mode of inquiry orients archaeology so that subsequent genealogies of resilience may address systems of power to enable more democratic and sustainable futures (Pezzullo, 2014).

A primary problem with resilience is that ignores its own discursivity which constrains how we might come to know and do resilience differently. A significant body of academic knowledge about resilience is produced within biophysical sciences which, as social studies of science have shown, generally ignore systems of representation (Rouse, 1993). In this essay, I argue that discursivity matters because resilience’s definitions and other ordering strategies influence how we become resilient. Coping, resistance, and bounce back are normative responses that foreclose other ways we might respond (Peterson, 1997; Pezzullo, 2014; Russill, 2008). Binaries that maintain “social” as distinct from “ecological” and that oppose resilience and vulnerability reinforce anthropocentric modes of control (Milstein, 2009). These ordering strategies promote responses that may simultaneously obscure and reinscribe dominant and unsustainable systems of power (Bean et al., 2011).

### Making Sense of Resilience

The focus on resilience in the above articles reflects a trend in news stories, funding initiatives, and academic studies to promote resilience. Billions of dollars are currently being funneled into resilience projects globally. Some of the more prominent efforts include the

Rockefeller Foundation's commitment to build resilient cities, the National Oceanic and Atmospheric Administration's coastal resilience networks grant program, the World Bank's climate and disaster resilience development program, OXFAM's business campaign to promote resilience and environmental preparedness, and the list goes on. Resilience is also a stated mission for groups working on the health and survivability of communities (Walker & Salt, 2006; Wilson, 2012; Zolli & Healy, 2012). Researchers study and inform resilience efforts as seen in the extensive open-source scholarship provided by *Ecology and Society* (<http://www.ecologyandsociety.org/>) and the Resilience Alliance (<http://www.resalliance.org/>).

These investments beg the question: what kind of a thing is resilience? How does it *make sense* to enact resilience as coping, which we achieve by bouncing back, regaining a sense of control, and reducing our vulnerability to future change? To address these questions, I investigated sites that produce, organize, and disperse knowledge about resilience using Foucaultian archaeology. I begin by describing regularities in the logics of resilience, focusing on definitions, disciplinary origins, and patterns of authorship and authority. I then analyze how resilience makes sense based on specific assumptions about reality. I look at ordering strategies connected to resilience's ontologies, including prominent visual objects and persistent dialectics. Within these sections, I highlight contradictions and transformations in the wrestle for control over what resilience is and what it might become. I conclude by proposing that resilience shift its definitions and ordering strategies to open up affective modes of response within material ecologies.

Within each section, I draw from the field of environmental communication and critical analyses of resilience to describe problems with the discourse. I also provide an example from my ethnographic research with the Frenchman Bay Partners, an organization whose mission is to promote resilience within coastal mudflat ecosystems in Maine. The example helps illustrate key concepts and also demonstrates how discourse is “renewed and reinforced by a whole strata of practices such as pedagogy...and the system of books, publishing, libraries; learned societies in the past and laboratories now” (Foucault, 2000, p. 1463) which necessitates weaving across diverse terrain to employ an archaeology.

#### Archaeological Method

Foucault (1972) describes archaeology as systematic description of discourse. This method treats discourse:

as practices that systematically form the objects of which they speak. Of course, discourses are composed of signs; but what they do is more than use these signs to designate things. It is this *more* that renders them irreducible to language (langue) and to speech. It is this “more” that we must reveal and describe.  
(Foucault, 1972, p. 49)

In this search, the archaeologist identifies practices that help “define what counts as meaningful statements ... [which] emerge from a field of possibilities” (Barad, 2007, p. 63). Discourse comes together, out of this field of possibilities, as momentary points of coherence



that are articulated and ordered through performances (Stormer, 2004). Focusing on the performances that give discourse its shape, for example specific publishing practices, scholars positioned as authority figures, or the use of visuals to convey meanings allows one to historicize order. From this history, which is one of many possible, archaeology exposes how ideas circulate through systems of power to constitute things, like resilience (Foucault, 2000). Thus, an archaeology can serve as a “necessary structural precursor” to investigate power and its bodily effects in a genealogical analysis (Howarth, 2002, p. 132).

Approaching discourse as momentary points of coherence produced and sustained through practices, and with *An Archaeology of Knowledge* in my back pocket, I searched for evidence of the practices that give discourse its shape. As Foucault (1972) describes, I found regularities, ordering strategies, contradictions, and transformations resulting from discursive practices. Paying attention to these intersecting features allows a mapping of how words and things are (re)produced (Foucault, 1972). First, in the focus on *regularities*, I examined logics of resilience and why these logics occur. I asked: what are the definitions of resilience, who defines resilience in these ways, and where do they get their authority to do so? These questions invite an investigation of how logics reinforce patterns of authorship and authority. Second, I looked at how meanings about resilience are produced through *ordering strategies* guided by underlying assumptions about reality and subsequent practices to visualize and organize that reality. As seen in the introductory examples, I wanted to know: how do assumptions about reality guide humans to the center in search of control? How, too, are humans and nature recognizable as discrete and different entities? Finally, what are the consequences of ordering

strategies that construct human vulnerability to nature as negative risk? Because discourse is also “the thing for which there is struggle” (Foucault, 1980, p. 1461), I paid attention to *contradictions* within regularities and ordering strategies, asking: who resists resilience as this kind of a thing and what do they say? The discussion of contradictions is woven into these sections because sites of struggle (re)produce definitions, authorship, authority, order, and meaning. Sites of struggle also promote *transformations*, making the concluding question simply: how is the discourse changing?

Thus, archaeology is non-linear and follows a process of embodied intertextual weaving that looks for specific patterns in the production and circulation of ideas about resilience across sites (Foucault, 1970). Following this method allows us to “question our present certainties--about what we know, who we are, and how we should act--by confronting them with their histories” (Woolgar & Neyland, 2013, p. 25). Mapping the regularities, ordering strategies, contradictions, and transformations promotes a systematic description of resilience while at the same time keeping the points of focus and process of analysis open so that new and different histories may emerge.

### *Archaeological sites*

I examined academic, popular, and ethnographic sites within the discourse. The texts, visual objects, and websites associated with academic knowledge production about resilience constituted my primary focus. Sites that produce, concentrate, and disperse knowledge about

resilience can influence how ideas about resilience circulate within media, popular press, and funding organizations (Foucault, 1972). I looked for connections between practices of knowledge production (like citations of key figures, repeated visual models, and consistency in term definitions) with popular books, articles, and experiences in an ethnographic setting. I took systematic and extensive notes and organized these into reflective synthesis papers to develop my analysis over time.

I began by searching Web of Science using the key word “resilience.” From the more than 17,500 hits, I reviewed top papers by total number of citations (e.g. Carpenter, Walker, Anderies, & Abel, 2001; Folke et al., 2004; Holling, 1973). I searched *Ecology and Society* (<http://www.ecologyandsociety.org/>) and reviewed the 220 manuscripts that used “resilience” in their texts. A comprehensive list of these articles is not possible here so I provide extensive citations in the analysis. I reviewed websites that concentrate and share knowledge about resilience such as the Resilience Alliance which publishes *Ecology and Society* and the Stockholm Resilience Centre (<http://www.stockholmresilience.org/>). I examined books listed on the Resilience Alliance website (e.g. Berkes, Folke, & Colding, 2000; Cumming, 2011; Gunderson, Allen, & Holling, 2010; Gunderson & Holling, 2001; Walker & Salt, 2006, 2012). I reviewed the 102 abstracts in the Resilience Alliance thresholds database ([http://www.resalliance.org/index.php/thresholds\\_database](http://www.resalliance.org/index.php/thresholds_database)). I attended the Resilience2014 Conference in Montpellier, France in May 2014 (<http://www.resilience2014.org/>) where I observed embodied practices of knowledge production (like giving presentations and debating ideas) that helped refine my interpretations of texts.

For popular sources, I conducted a LexisNexis search of U.S. newspapers and magazines using the term “resilience” for 2012 and 2013 and reviewed the resulting 195 articles (26 magazine and 169 newspaper). I also read Zolli and Healy’s (2012) *Resilience: Why things bounce back* and related articles (Zolli, 2012, 2013). Finally, I compared the discursive patterns with observations drawn from a multi-year ethnography with the Frenchman Bay Partners, a group organized around a resilience mission (<http://www.frenchmanbaypartners.org/>).

As this diverse set of sites shows, an archaeology “is not a science, a rationality, a mentality, a culture; it is a tangle of interpositivities whose limits and points of intersection cannot be fixed in a single operation” (Foucault, 1972, p. 159). In other words, archaeology is a method that resists stability in its texts and interpretations. This method offers a way to attend to the complexity of how practices constitute discourse, those that continually create, shape, and change what something, like resilience, becomes.

## A History of Becoming Resilient

### *Logics of resilience: definitions and centers of authority*

*What are the definitions of resilience?* As shown in the introduction, definitions of resilience generally emphasize coping which relies on reducing vulnerability, resisting and adapting to change, and returning to a desirable situation as quickly as possible. This characterization

resonates with common definitions within Social-Ecological Systems (SES) literature (Carpenter et al., 2001; Folke et al., 2002; Holling, 2001; Walker, Holling, Carpenter, & Kinzig, 2004). The following definition from the Resilience Alliance is representative:

A resilient ecosystem can withstand shocks and rebuild itself when necessary. Resilience in social systems has the added capacity of humans to anticipate and plan for the future. Humans are part of the natural world. We depend on ecological systems for our survival and we continuously impact the ecosystems in which we live, from the local to global scale. Resilience is a property of these linked social-ecological systems (<http://www.resalliance.org/>).

Definitions of resilience within SES usually begin with ecosystems and then include humans as agents affecting ecological change. In Burke's (1969) terms, environments are scenic and humans are the primary agents endowed with agency to act within these scenes. The ecological and social interactions are functional, where resilience is a *property* of systems that promotes SES capacity "to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure and feedbacks... in order to maintain the same identity" (Folke et al., 2010, p. 3). The ability to maintain a system depends on the *stability* of functions and structures (Briske et al., 2010; Gunderson & Holling, 2001; Walker et al., 2006).

What are these functions and structures and how do they stabilize? Resilience scholars describe communication as a key structural-functional interaction. They rely on a linear model of communication as information exchange (Carpenter, Brock, & Hanson, 1999; Janssen, 2013),

memory as storage (Barthel, Folke, & Colding, 2010; Tschakert & Dietrich, 2010), and identities as relatively fixed and stable (Holling, 1973; Walker et al., 2006), though there are notable exceptions to this pattern (Davidson-Hunt & Berkes, 2003; Goldstein, 2012; Loring, 2007). Janssen (2013) demonstrates an information model of communication in his experiments where “the level of *information* about the actions of others affects the level of cooperation...Previous studies did not include *communication* in which people could coordinate their activities” (Janssen, 2013, p. 2, emphasis added). Walker and Salt’s (2012) comparison of forests and farm governance demonstrates memory as storage. They describe how a forest may be destroyed by a fire but if it remains connected to other forests or has a seed bank stored in the soil “the system as a whole has a ‘memory’” and can regenerate following the disturbance. They go on to compare forest regeneration and social memory where “a farm may go bankrupt, for example, because of inappropriate land policy, but when it rebuilds (or a new farmer steps in), it is still constrained by those same policies ... Memory can be both good and bad” (Walker and Salt, 2012, p. 16). In this example, an ecological understanding of memory as stored within a system is used to explain a social situation produced through complex power relations of land and banking policy.

The following example from Frenchman Bay shows how resilience scholarship characterizes communication, memory, and identity of clam harvesters as they respond to an event (Carpenter, et al., 2001). In 2012, waves of green crabs *Carcinus maenus*, a species native to Europe *invaded* Frenchman Bay decimating soft-shell clam populations. When an event like this occurs, the harvesters’ resilience is affected by interactions that promote adaptive capacities

(Hanna, 2000). Resilience is improved if they have a loosely connected network (structure) in which they can share information (function) about how to respond (Bodin & Prell, 2011; Janssen et al., 2006; Newig, Gunther, & Pahl-Wostl, 2010). Sharing information may allow them to figure out where to dig, how to trap crabs to reduce populations, or how to develop markets to sell crabs. Harvesters who hold memories of how people responded to previous events may draw on these memories to promote their ability to get back to the situation they desire.

In these characterizations, communication helps maintain recognizable and stable identities of parts of the system, like harvesters, mudflats, and clams. Maintaining these identities is produced by pushing back or finding ways to adapt. Resistance in this case is not rigidity or inflexibility. The resistance to change comes at the level of identity, where response and adaptation seek stability and maintenance within a specified state. A system losing its resilience is one where the ability to push back or absorb changes is compromised to the point that the identity of the person or the ecosystem may cross a threshold to a new regime (Walker et al., 2004 ). This new regime can then become highly resilient, i.e. resistant to further change. Resilient identities are thereby constructed through a continually deferred process of resistance to change.

The harvesters in Frenchman Bay do not use SES terminology to describe their situation. Social networks and information transfer are terms articulated in discourses of knowledge production about resilience. But harvesters cope with change and they see vulnerability as negative risk. The response across harvesting communities, state agencies, and news media has

been one of resistance, control, and attempts to return to normalcy. I argue this pattern is influenced by ordering strategies within the biophysical sciences, a point I now address.

*Who defines resilience and with what authority?* Resilience is a property of SES's that depends on communication as structural-functional interactions that maintain a system's identity. These interactions emphasize linear information exchange and memory as storage. Examining who talks about resilience and with what authority helps clarify how resilience came to be understood in these terms. Citations throughout resilience scholarship trace to a single source, namely C.S. Holling's 1973 paper on *Resilience and the stability of ecological systems*. This paper is a touchstone as demonstrated by the centrality of how other scholars describe it and by the more than 2,100 other papers in the Web of Science that reference this piece, frequently in the first paragraph of the article (Cabell & Oelofse, 2012; Wallace, 2008). Walker, Anderies, Kinzig and Ryan (2006) demonstrate how scholars within the field characterize this early contribution in the first line of their paper: "The concept of resilience in ecological systems was introduced by C. S. (Buzz) Holling (1973), who published a classic paper in the *Annual Review of Ecology and Systematics* on the relationship between resilience and stability" (p. 1). In certain domains, and especially in science, attribution of authorship creates and reinforces societies of discourse (Foucault, 2000). These societies then define the field of possibilities within which other authors construct their ideas.

Authorship in this discourse society tends to be by professors associated with research institutions in biophysical sciences like ecology, zoology, forestry, biology, and environmental



engineering. Parker and Hackett (2012) confirm this pattern in their longterm ethnographic research with the Resilience Alliance. The locus in Holling's (1973) paper, the regularity in the scholarship that references this piece, and the institutional sites that produce and concentrate resilience scholarship help define what becomes possible for subsequent knowledge production about resilience. This is a discourse with a locus in biophysical sciences, characterized by specific ways of understanding, measuring, visualizing, and otherwise ordering reality (Foucault, 2000).

*Ordering strategies: metaphysics, visuals, and dialectics*

*How do assumptions about reality guide humans to the center in search of control?* Nothing in resilience makes sense without systems as a starting point for reality. Information-based models of communication largely depend on systems ontologies. Systems as an ordering strategy connect with resilience's roots in ecology, as Holling (1973) describes: "Our traditions of analysis in theoretical and empirical ecology have been largely inherited from developments in classical physics and its applied variants" (p. 1), including mathematics. Yet, this trajectory from physics to resilience is neither linear nor simple, as systems theories are also complex and intersecting discourses (Walker & Cooper, 2011). Different systems ontologies offer fine-grained distinctions related to constituent components, the relative agency of these components as they interact, and the relationship between interactions and outcomes for what the system becomes (Morgan, 1997; Ramage & Shipp, 2009).

In resilience discourse, there are at least two primary systems ontologies that can be differentiated based on components, relative agency, and outcomes. These are cybernetic and complex adaptive systems (Walker & Cooper, 2011). Both complex adaptive systems and cybernetic models emphasize interaction and outcomes that continually influence system trajectories. However, a key difference between the two is the assumed level of human control (Morgan, 1997). With its etymological roots in *kybernetes*, meaning to steer, cybernetic systems assume that humans have a degree of control. In cybernetics, humans largely define system boundaries and can steer to stay within them. In contrast, in complex adaptive systems humans learn and adapt but they do not ultimately have control over system boundaries or trajectories (Ramage & Shipp, 2009).

Walker et al. (2004) provide a representative example of a cybernetic commitment to human agency when they say “although the system as a whole self-organizes without intent, the capacities and intent of the human actors strongly influence the resilience and the trajectory of the SES” (p. 7). Metaphors also illustrate the finer assumptions about agency and control. Chapin et al. (2009) demonstrate this when they describe an SES as being:

like a box or a board game, with explicit boundaries and rules, enabling us to quantify the amount of materials (for example, carbon, people, or money) in the system and the factors that influence their flows into, through, and out of the system.

The frequent use of the term “management,” even in contexts where management-based approaches are being challenged or revised (Walker et al., 2002), reinforces assumptions about human agency and control. Christensen and Krogman (2012) critique management models in resilience and similarly note that “most sociologists would likely wonder if social-ecological resilience is simply a repeat of functionalism” (p. 3), referring to early systems concepts that informed the development of cybernetics (Ramage & Shipp, 2009). This pattern reflects a discourse that has been actively shaped and constrained by these systems perspectives. In resilience’s ontology, the human is both embedded within *and* an autonomous entity able to exert an inordinate amount of influence over the system. While resilience scholars generally describe their research as occurring within a complex adaptive systems model, the discursive traces of cyberneticism still show up in dominant assumptions about human agency.

The influence of the cybernetic ontology can also be seen in the basins of attraction visual model (Figure 1). An early representation of this diagram appeared in Holling’s (1973) paper and was later advanced in key texts (Gunderson & Holling, 2001; Holling, 1996; Walker et al., 2004; Walker & Salt, 2006). The model depicts the SES landscape as a space of dynamic change, with two concave “pools” enclosed by dotted “threshold” lines. A small dot indicates the state of an SES at any given moment. The viewer is to imagine that the dot shifts throughout the plane space of the regime. The ability of the small dot to bounce around yet stay within the threshold boundaries is the SES’s total resilience (Walker et al., 2004).

Visualizations like basins of attraction matter because they define the surface of emergence for subsequent ideas (Foucault, 1972; Russill, 2008). Visual objects also produce sites of struggle as others contradict these representations. For example, in the growing use of the term in mainstream press, grant funding, and as demonstrated in the opening media articles, resilience is commonly described as “bouncing back.” Bouncing back as a frame connects with the basins visualization and the etymology of the term (Goldstein, 2012; Zolli & Healy, 2012). Yet, several resilience scholars disagree with these frames for how they promote ecological concepts to explain social change (Davidson, 2010; Goldstein, 2012; Wilson, 2012). Goldstein (2012) argues that this frame “is too simplistic, because the dynamics of a bouncing ball and a society in crisis are not the same” (p. 373). Similar disagreements about the basins model echoed throughout the Resilience2014 conference in plenary sessions, Q&A following panels, and social gatherings. These contradictions have a space within the discourse, as interdisciplinary scholars participate in this conference, list their books on the Resilience Alliance website, and publish articles in *Ecology and Society*. Yet the disagreements resist the more dominant, and largely cybernetic, constructions of reality.

In a related way, Russill (2008) shows how tipping points in climate change discourse may obscure complex social issues. Tipping points reinforce a confined “epidemiological imaginary” (Russill, 2008, p. 135) where public health responses take precedence over other possible interventions. Further, when tipping points are used to explain “physical processes, life systems, and social behavior” this risks reducing “complex social behavior to physical or biological models in a positivistic fashion” (Russill, 2008, p. 145). The confined imaginary in

tipping points corresponds with how ecological concepts, like systems ontologies, basins models, and memory as storage, are used to describe social interactions. Responses aimed at promoting resilience may then be defined by largely techno-scientific solutions aimed at reducing vulnerability, resisting change, and getting back to normal (Kasperson & Kasperson, 2001).

Focusing on simple fixes masks the ideologies, inequities, and other complex factors that may also need to be addressed. Returning to the case of Frenchman Bay, the seemingly effective response is to try to trap green crabs to either sell or kill them. As genealogies of resilience have begun to demonstrate, neo-liberal market-based solutions to different types of crises may be influenced by complex systems theory as a methodology of power (Walker & Cooper, 2011). These patterns--origins, authorship, and authority in biophysical sciences; systems models based on control; and visual depictions of reality--are shaped within a complex web of influence that promotes some responses to the exclusion of those that may be more difficult but also potentially more transformative and sustainable.

*How are humans and nature recognizable as discrete and different?* Concern with resilience in SES takes a “humans-in-nature perspective” (Folke et al., 2010, p. 3). This is a response to management models where human activity was held apart from ecosystems (Cosens, 2013). The addition of social to ecological is an attempt to create a more holistic view of ecosystems in which humans are nested as actors and managers. This ontology reaffirms the dialectical relationship that defines the human as connected to but also distinct within the world (Milstein,

2009). Resilience theorists sometimes recognize dialectics, like when Berkes and Folke (2000) say “the delineation between social and natural systems is artificial and arbitrary” but go on to note that “such views, however, are not yet accepted in conventional ecology and social science” (p. 4). Given the perceived absence of an alternative, they emphasize connectedness with the hyphen, acknowledging yet then forgetting the illusory quality of this truth (Nietzsche, 1989).

The constitutive boundaries drawn, through language, between humans and nature has been a sustained focus of inquiry for decades (Rogers, 1998; Williams, 1980). This space of inquiry was opened up by those who expressed an interest in “the different modes by which ... human beings are made subjects” (Foucault, 2000, p. 326). This interest was widened beyond the “human” by Williams who, in 1980, posed the question: “‘Nature is ...’-what?” His response to this question explored how differentiation, like “humans” and “nature,” orders meaning and relationships. Milstein (2009) similarly observes how dialectics of mastery-harmony and othering-connection construct relationships with nature in the context of zoos. Here, mastery and othering reinforce control and distance where harmony and connection attempt to loosen the grip and close the gap. Social-ecological dialectics maintain relatively stable, fixed, and oppositional categories. Pairing social-ecological, humans *and* nature, or humans *in* nature also depends on a deferred series of dialectics, like othering-connection, to maintain this stability (Milstein, 2009).

It is important to pay attention to dialectical tensions to “illuminate deeper conceptualizations of how such tensions may stand in the way of mutually beneficial human/nature relations” (Milstein, 2009, p. 43). When the constructedness of categories like these is ignored alternative ways to order ourselves become obscured. Alternatively, we might consider “how human interactions with the natural environment force us to confront its ... materiality” (Kinsella, 2007, p. 197). When we attend to how language participates in constructing our sense of order—like in the dialectic social-ecological—and how the world does not conform to our persistent attempts to order it in these ways, we invite the question of how to dwell differently *with* the world (Kinsella, 2007).

*What are the consequences of constructing human vulnerability to nature as negative risk?* The second prominent dialectic is resilience-vulnerability (Bean et al., 2011). Going back to the article where people were “born to cope,” those living through “hell” brought on by “disaster” experience vulnerability as a negative risk (Waldman, 2012). They are vulnerable, read weak, because they can be affected. Vulnerability is consistently the “flip side” of resilience where systems persist *in spite of* vulnerabilities (Folke et al., 2002; Kasperson & Kasperson, 2001). When vulnerability is always positioned as a negative risk associated with affectability, coping becomes the dominant mode of response to change. Coping is characterized by resistance and attempts to regain control because our inherent affectability is ultimately our weakness. The dialectic of resilience-vulnerability sets up affectability as negative risk, which reinforces the perceived need for control.

These dialectics constrain what we become because they require that humans attempt to avoid exposure by steering ourselves to the center and keeping our hand steady on the wheel. To be resilient then can only be enacted through practices that deny the very sources of our strength: our vulnerabilities to be affected. The oysters on the coastline of New York and clam harvesters in Frenchman Bay show how vulnerability within material ecologies creates capacity. The capacity to grow, but also suffer and die, depends on material ecologies, including the frames we bring to our experiences of life, death, and suffering. Said another way, the consequences of vulnerability are standpoint dependent and shaped by who comes together to respond, what happens in so doing, and how frames for human understanding also shape that emergence. For example, clam harvesters and green crabs are mutually vulnerable. They affect one another which creates their capacities for doing what they do. What emerges as potentially negative for the harvester (declining clam abundance, reduced livelihood) is positive for the crab (clam feeding frenzy, reproductive success). Differential capacities are made possible in the space of vulnerability because our inherent affectability produces capacities for resistance, for acceptance, and more broadly for subjectivity. Bodies come to matter when you: “surrender part of yourself to be alive as an interconnected being. Thus you have to be vulnerable in order to become a subject because, as in Spinoza, you have no awareness if you are not affected by others” (Stormer, 2009, p. 223). When vulnerability is always negative, our capacity for resistance becomes grounded in human autonomy, neglecting our ecological dependencies and the subjective standpoints from which we characterize and respond to what emerges.

Conclusion: Becoming Resilient Differently



Contradictions promote change as I describe in the above discussion of definitions, systems ontologies, and dialectics. Contradictions appear when we when we *remember* that things, like resilience, could be otherwise (Woolgar & Neyland, 2013). Returning to one of the earliest articulations of resilience, Holling (1973) humbly acknowledges the tendency to privilege quantitative approaches in ecology and resilience, “may simply reflect an analytic approach developed in one area because it was useful and then transferred to another where it may not be” (p. 1). This acknowledgement creates an opening for interdisciplinary approaches within the discourse, a pattern clearly observed throughout the formation. The more recent emergence of journals and websites focused on critically engaging resilience is further evidence of transformation (Foote & LeMenager, 2013), as was the strong focus on integrating arts and sciences at Resilience2014. The constitution of this discourse was influenced by authors who from the earliest articulation acknowledged the possible constraints of quantitative models and origins in ecology (Holling, 1973). Later, others pushed back against attempts to confine resilience to ecology and within strictly scientific domains (Folke et al., 2010). Through these and other practices, resilience has become a potent and transformable space for sustainability to take hold.

How might resilience become different? I conclude with two brief examples from Frenchman Bay to illustrate how opening up affectability within material ecologies may enhance creativity and transformation. At the 2013 annual meeting, participants shared one word introductions that described their connection to the Bay. Words included water quality,

home, harvest, kayak, mussels, community, natural resources, eel grass, sustainability, and the like. Afterwards someone said, “I wanted to say poetry, the Bay gives me poetry. But I didn’t because I thought that would be silly.” Poetry, as a mode of communication that relies on affective and aesthetic inducements to change, may be just what we need for “ethical universe-building” (Burke, 1984, p. 250). Yet in resilience discourse, poetry does not fit linear information exchange and memory as storage that are the more normalized modes of response. As a material orientation that may change how we dwell in the world (Kinsella, 2007), poetry does not promote stable and fixed identities. Further, the participatory quality of the ocean, mud, and tides to capacitate in our response, be it poetry, information exchange, and beyond, is excluded from how we make sense of what we do. Yet, in the monthly shellfish committee meetings that occur in a rural town hall on the coast, most human participants arrive with traces of mud on their boots and arms. Depending on the tide, sometimes they have coolers full of clams waiting in their trucks. These things matter for what happens. The tides govern when the diggers work, when they can meet, and how much they can dig before the tide flows in again. The mud determines where the clams grow which influences priority conservation activities. The clams respond too, most recently to the green crabs by burrowing deeper into the mud to avoid predation. Accounting for the distributed agencies of this entangled group, where humans are one among many actors, could change how we do resilience (Barad, 2007).

Climate change, ocean acidification, and dramatic species shifts are material instantiations of our failed attempts at control. In this essay, I have worked through multiple sites to show how our collective responses to these types of changes, our resilience, are shaped and

constrained by discourse. How would we become different if poetry helped produce our resilience? What would change if the participation of mud, clams, and tides was more fully acknowledged within this material-ecological sensibility? This analysis of discourse is not a search for easy answers to these questions. Instead, attention to discourse allows us to dwell in the space “that precedes each breath before a moment comes into being and the world is remade again” (Barad, 2007, pp. 184-185). It is in these vulnerable moments where we find ways to do resilience differently.

## ACKNOWLEDGMENTS

The author is grateful to Nathan Stormer, Laura Lindenfeld, and Linda Silka for advising this piece; her collaborators in Frenchman Bay including Paul Davis, Jane Disney, Emma Fox, James Norris, Molly Miller, Chris Petersen, and Joe Porada; faculty mentors Stephen Depoe and Tema Milstein and students in NCA's 2013 Doctoral Honors Seminar; and three anonymous reviewers for their thoughtful and supportive feedback.

## FUNDING

This research was supported by National Science Foundation awards EPS-0904155 and #IIA-1330691 to Maine EPSCoR at the University of Maine.

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## FIGURES

Figure 1. Basins of attraction visual model from Resilience Thinking, by Brian Walker & David Salt. Copyright © 2006 Brian Walker & David Salt. Reproduced by permission of Island Press, Washington, D.C.

