Marine-space assemblages: Towards a different praxis of fisheries policy and management

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A B S T R A C T

In this paper, we discuss the intent and purpose of Magnuson-Stevens Fishery Conservation Management Act/National Standard 8 and examine how it reinforces problematized conceptualizations of marine-space(s). We then discuss shifts in sensibilities around marine-space, especially with concern to notions of fishing communities and their inclusion in planning and management processes. Through this, we underscore a problematic pervasive in conceptual models used to account for relations between humans and marine-spaces and how this contributes to failures to fulfill regulatory responsibilities to fishing communities. We then draw on new materialist insights into assemblages and affect and emotion to offer alternative ways to think about, research, approach, and manage marine-spaces through more nuanced and informed considerations of their broad, complex, and ever-present human and socio-cultural components.

Introduction

In recent years, geographic sensibilities around the qualities and nature of marine-space(s) have shifted. Where geographers once treated marine-space largely as a means of mobility and travel, essentially an "unregulated transport surface" (Steinberg, 1999, p. 16) that served as a mode for linking terrestrial spaces, today conceptual shifts account for more complex human-marine dynamics and relations by approaching marine-spaces as components of "linked social and ecological systems" (Berkes, Folke, & Colding, 2000). In this context, and over the last decade and a half, there has been growing interest among geographers in developing pragmatic ways to confront the management challenges posed by marine-spaces and associated coastal ecosystems (Steinberg, 1999). These challenges are particularly acute as they relate to fisheries, where:

[j]ever the course of its development, much of fisheries-management science, both in theory and in practice, has had a misplaced emphasis. Whereas its first concerns should have been the human beings who utilize fisheries resources, its cornerstones were instead … the conservation of important marine-biological species … [and] allocating fisheries resources and maximizing the economic benefits from them (McGoodwin, 2001, p. 1).

In working towards correctives to this “misplaced emphasis,” there has been the vital recognition that socio-cultural considerations and concerns must be conceptually understood as fundamental components of both marine-space(s) and practiced as part of marine management policies and conservation programs (Lundquist & Granek, 2005). Those working in these arenas have attempted to move beyond a strictly ecological focus that concentrates on baselines and a return to them in very applied and politically inclusive ways (Symes & Phillipson, 2009).

Such political inclusion is particularly important in fulfilling the mandates of National Standard 8 (NS8) of the Magnuson-Stevens Fishery Conservation Management Act (MSFCMA) and associated local initiatives and mandates concerned with fishery management and conservation. In attempts to fulfill regulatory responsibilities, many researchers and fishery managers have called for necessary engagements with “fishing communities” to provide correctives to the lack of human concern or consideration (Helvey, 2004). It is our position, however, that dominant notions of “fishing communities”
and their “inclusion,” and what they imply in and through the MSFCMA/NS8, do not offer adequate recourse — in part because the inherent and fundamental human and socio-cultural dimensions of marine-space(s) are still conceptually lacking and, as a consequence, pragmatically neglected. Sarah Whatmore (2002, p. 161) has explained how there are tendencies to create false demarcations between “human/subjects and nonhuman/objects,” resulting in an “exclusive preserve of a ‘Society’ from which everything but the universal human subject has been expunged.” In dominant characterizations of marine-space(s), the inverse is true. With the inherently spatial nature of fishery management plans and regulations—they are, after all, connected to specific locales and the associated (time and space) dynamics that influence them—the need for both new conceptualizations and management practices of marine-spaces are especially urgent at this time.

In what follows, we approach the conceptual problematics flowing through MSFCMA, and specifically NS8, by providing an overview of its intent and purpose to illustrate common policy-related conceptualizations of marine-space(s) and associated definitional questions and discussions of “fishing communities.” We then discuss how management shifts and sensibilities around human components of marine-space(s) are practiced with concern to these communities. Through this, we explain how conceptual models used to account for the relations between humans and marine-space(s) contribute to failures to fulfill associated regulatory responsibilities. We then draw on new materialist insights into assemblages and affect and emotion to offer alternative and pragmatically productive ways to conceptualize, research, approach, and manage marine-spaces and better consider and account for their broad, complex, and always-present human and socio-cultural dynamics and conditions. As part of these discussions, we offer initial steps that can be taken to enhance the capacities (e.g., resilience, knowledge, efficacy, etc.) of marine-space environments and associated management regimes, with particular attention to fishing community inclusivity and empowerment. While calls to shift focus to sociocultural components are not new (see Martin, McCay, Murray, & Johnson, 2007), and agency efforts have been increasingly attempting to account for such components (see Abbott-Jamieson & Clay, 2010), it is our goal with this paper to contribute to and enhance these efforts and facilitate a more inclusive lens through which planning and management take place by nuancing the idea of “fishing communities” and offering pragmatic views of the always-assembling nature of socio-cultural components and marine-space(s).

**Magnuson-Stevens Fishery Conservation Management Act (MSFCMA) and National Standard 8 (NS8)**

Initial interest in rethinking marine-space and the need for it to be “managed” was largely a result of an increased public awareness that oceans are not “endlessly resilient,” as they were once naively believed to be (Steinberg, 1999). During the second half of the twentieth century a new environmental awareness of marine-space(s) arose, largely due to three factors: (1) expanded understandings of how marine biodiversity contributes to the functioning of ecosystems; (2) advances in fishing technologies leading to the noticeable depletion of fish stocks (such as the disappearance of the Newfoundland cod, once believed to be impossible to overfish); and (3) increases in pollution that were now visible along coastlines and marine surfaces (Bolster, 2006; Psuty, Steinberg, & Wright, 2002). Policies and regulations that emerged out of this new awareness and concern for marine-space resulted in considerable impacts to fisheries.

The foremost piece of legislation detailing the management of fisheries in the United States is the MSFCMA (Gehan & Hallowell, 2011). Originally passed in 1976 as the Fishery Conservation and Management Act, it has been amended several times. MSFCMA mandates that “[c]onservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry” (Magnuson-Stevens Fishery Conservation Management Act, 1976, p. 39). Although MSFCMA originally focused on the conservation of fish species and maximum economic yield numbers with less consideration for the social or cultural nature of fishing communities, with its amendment through the passage of the Reauthorization Act of 2006, which strengthened the stipulations of NS8 that call for the monitoring and mitigation of socio-economic impacts on groups who depend on fishing and fishery ‘resources’ for their livelihoods, social and cultural concerns gained increased attention (Gehan & Hallowell, 2011). NS8 states:

> Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities by utilizing economic and social data.... to:
>
> (a) provide for the sustained participation of such communities, and
>
> (b) to the extent practicable, minimize adverse economic impacts on such communities (emphasis ours; Magnuson-Stevens Fishery Conservation Management Act, 1976, p. 39).

Following the Reauthorization of 2006, economic and social data must now comply with National Standard 2 (NS2), which mandates that “conservation and management measures shall be based upon the best scientific information available” (Magnuson-Stevens Fishery Conservation Management Act, 1976, p. 39). This, at least superficially, strengthens the reach of NS8 mandates. However, it also erodes an explicit NS8 stipulation by limiting valid information to a scientific framework, discounting the multitude of ways fishing communities can sustain participation in conservation and management measures.

While “community” can be defined in a number of ways, MSFCMA defines a fishing community as:

> ...a community that is substantially dependent on or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew, and fish processors that are based in such communities. A fishing community is a social or economic group whose members reside in a specific location and share a common dependency on commercial, recreational, or subsistence fishing or on directly related fisheries-dependent services and industries (for example, boatyards, ice suppliers, tackle shops) (emphasis ours Magnuson-Stevens Fishery Conservation Management Act, 1976, p. 8).

Whereas, on first glance, this definition may appear to be comprehensive, in reality it belies some of the very fundamental elements that render fishing communities, communities. It also elides the varying (gender, ethnic/racial, generational, age, etc.) power dynamics and cultural practices that continually inform and negotiate community identities (see Jacob, Farmer, Jepson, & Adams, 2001; Olson, 2005).

Just as problematic as this inattention to the complexities and nuances of community development, formation, and continuation—and central to our discussion here—is NS8’s essentialization of space/place. Olson notes that:
...communities at sea point to the social nature of ecological knowledge and the scope for community management, without implying stability or exclusive ties to land-based communities. Social practices of fishing are thus tied to many potential communities-in-process, akin to what Massey has termed community-as-becoming: “Instead, then, of thinking of places as areas with boundaries around, they can be imagined as articulated moments in networks of social relations and understandings. And this in turn allows a sense of place which is extra-verted, which includes a consciousness of its links with the wider world” (Olson, 2005, p. 26).

More acute attention to the implications of the language of MSFCMA/NS8 further underscores and expands the spatial and social problematics identified by Olson. By defining a fishing community as a “group whose members reside in a specific location”—while calling for the minimization of “adverse economic impacts” on fishing communities “to the extent practicable”—MSFCMA/NS8 conceptually reinforces three common, and troubling, representations of community life: (1) that the economic is a system that can be privileged over—and separated from—the social, cultural, communal, familial, and religious components of everyday life; (2) that community itself is nothing more than that which is “human,” ignoring vital insights such as Whatmore’s (2002, p. 159) that we all live “in a more than human world [and must] ... apprehend ... [our] being-in-relation with and through heterogeneous others”; and (3) that community—as a solely human and primarily economic preserve—is stationary, closed, bounded, and fixed in both space (i.e., to a location) and time (i.e., as the ‘primitive’ as opposed to the ‘modern’; see Olson, 2005, pp. 258–259).

As is evident in this, the representations of fishing communities put forth by MSFCMA/NS8 have clear implications for how humans interact with material and communities! Problematic; it may fail to recognize those who choose not to participate in the principle of inclusivity, it can also prove to be problematic; it may fail to recognize those who choose not to participate for a multitude of reasons, including pre-existing negative relations with acting agencies to a lack of faith and trust in dominant western political structures to disagreements with the forms of knowledge that are privileged in decision-making and management processes. Further, it may fail to recognize important socio-cultural and familial ties of those deemed ‘non-stakeholders’ to stakeholders. If the former support the existence of the latter should they appropriately remain outside stakeholder classification? Categorization further assumes a certain degree of homogeneity within these groups, which validates the notion that they can be represented at a table in the first place. Often who takes part are simply those individuals willing to participate and not someone who is trusted by a group. These individuals may have their own agendas that do not align with the majority and internal political dynamics are often shaded over by identification, representation, or the idea that an individual or group with a given self-identity speaks for all members of a larger group.

Returning to MSFCMA/NS8 in this context, it is important to highlight that the Act requires fishing communities to have sustained participation, which it defines as “continued access to the fishery within the constraints of the condition of the resource” (Magnuson-Stevens Fishery Conservation Management Act, 1976, p. 39). While this sustained participation merely implies resource access, in practice this has positively taken shape as continued...
part of the same marine-space(s) and human socio-cultural phenomena are in fact the complex feedback loops that exist in these relationships, we ecological systems are linked. While this approach acknowledges management needs to take a systems approach, where human and representations, Berkes et al. (2000) argue that natural resource associated challenges identified in MSFCMA/NS8 by adequately providing a con-

While there is not sufficient space in this paper to touch on the multiple lineages and nuances of new materialism¹ (see Braun, 2006; Coole & Frost, 2010; Curti & Moreno, 2014; Dolphijn & van der Tuin, 2012), it can generally be understood as a broad toolkit for investigating, analyzing, and understanding “emergent materialities of contemporary coexistence” (Coole & Frost, 2010, p. 28). To put it another way, it is a pragmatic and immanent understanding of various phenomena that provides insights into both the dynamism and relations of material bodies, even those that have been typically considered fixed, static, or imagined. Working through new materialist sensibilities requires an understanding that “[a] body can be anything” (Deleuze, 1988, p. 127), and historical and geographical “bodies of (m)any things meet up, interact, take flight and take hold...” and that “[b]odies of different constitutions are, together, communities of becoming” (Curti & Moreno, 2010, p. 416). Recent work intersecting new materialist insights and geography has illustrated its immanent and pragmatic relevance for both policy and governance (Berry, 2014; Curti & Moreno, 2010, 2014; Dallman, Thien, Laris, & Ngo, 2014; Moreno & Curti, 2012). We draw particularly upon the new materialist concept of the assemblage to highlight the multiplicitous components of marine-spaces and fishing communities that we have been discussing here.

Deleuze explains that an assemblage: “...is a multiplicity which is made up of heterogeneous terms and which establishes liaisons, relations between them, across ages, sexes and reigns — different natures. Thus the assemblage’s only unity is that of a co-functioning; it is a symbiosis, a ‘sympathy’. It is never filiations which are important, but alliances...” (Deleuze & Parnet, 2007, p. 69).

To put this in terms of marine-spaces, it is the dynamic processes by which its components come together, change, break apart, and reassemble in communion that needs to be of primary significance for policymakers and those working with(in) the MSFCMA. Drawing at least in part on Deleuze, Anderson and McFarlane (2011) identify four broad (and, often interconnected) ways “assemblage” has been put to work in geography: (1) as that which describes processes of groups coming together and breaking apart; (2) as an explanation of how groups and collectives (be)come together as irreducible and never-complete “organic” wholes; (3) as that which focuses on the emergence of a given community, never a fixed or consequent formation; and (4) as that which describes the fragility and contingency of a given group, community, or collective. Our purpose of working through the concept of assemblage here is to highlight how marine-space(s) and fishing communities are always emerging and never-complete, while being intimately produced through all four of these identified qualities and movements.

Marine-space assemblages

As we have worked to demonstrate above, confronting the problematics of artificial marine-space demarcations and the associated challenges identified in MSFCMA/NSB requires alternate sensibilities that can allow us to extract a different nature of marine-spaces, the indelible human/socio-cultural relations to them, and their mutual and shared co-implications that can never simply be limited to categorizable, compartmentalized, or measurable states. Taking on these challenges in management and policy arenas and opening new and associated avenues of praxis in “community” and “stakeholder” engagement and inclusivity, we feel, can most adequately—and most ethically—be accomplished through “new materialist” insights into what constitutes an assemblage, and, perhaps more importantly, what assemblages do and can do.

¹ One of the primary thinkers who has been vital to new materialist concepts, sensibilités, and practices is the French philosopher, Gilles Deleuze, who identified and drew upon a “minor tradition” in philosophy to traverse and rewrite “thinking as a whole, leaving nothing untouched, redirecting every possible idea according to its new sense of orientation” (Dolphijn & van der Tuin, 2012, p. 13). Those Deleuze identified as part of this “minor tradition” include philosophers such as Lucretius, Spinoza, Hume, Nietzsche, and Bergson (Deleuze & Parnet, 2007, p. 14) as well as writers such as Proust and Kafka (Dolphijn & van der Tuin, 2012, p. 95).
The components which constitute any given assemblage can both enhance or diminish capacities of other assembling components—often at the same time. The central significance of understanding this and engaging marine-space(s) as (an) assemblage is that human and socio-cultural elements conceptually become indelible parts of an always-emerging ecosystem of marine-space(s) rather than prescribed and prejudged categorized, marginalized subjects of judgment of what does—or does not—belong in a given marine-space. As this suggests, entering marine-space(s) through the conceptual pathway of the assemblage is not to lay it upon a pre-determined notion of what is healthy or unhealthy, but a conceptual toolkit that provides a different entrance—and lends a different ethics and politics—to marine-space policy and management.

In a given assemblage, it is the very material relations through which existence comes about and sustains itself through an always emergent network that unfurls itself before and after any sense of identity is solidified that must be given attention. When identifying fishing communities as separate, static, fixed entities through limited indicators, important socio-cultural elements are artificially extracted from marine-spaces. To use an example from NOAA’s community profiles for the west coast United States (Norman et al., 2007), communities were selected based on a “quantitative assessment method” for which only two indicators for community were utilized. The profile methodology states: Determining fishing dependence and engagement involves considering multiple dimensions of fishing history, infrastructure, specialization, social institutions, gentrification trends, and economic characteristics. Due to the limitations of available data, the quantitative measurements of dependence and engagement have been based only on data about commercial fish landings, permit holdings, and vessel ownership for the West Coast and North Pacific fisheries. However, recognizing that such indicators only provide a partial picture of fishing involvement, historical, demographic, and other qualitative information have been included in the narrative profiles. Importantly, while each community profile is intended to stand alone, fishing communities are not economic or social isolates but contributors to regional (and often international) networks of labor pools, marine services, fisheries knowledge, and other socioeconomic phenomena (emphasis ours; Norman et al., 2007, p. 6).

While there is acknowledgment of connectivity and networking, these concepts are pragmatically ignored in the assessment itself. By basing community selection criteria entirely on limited quantitative data fixed to specific locations, community definition is severely limited. Clay and Olson (2008) discuss how “…community is a fluid concept with a critical basis in both social and ecological relationships not easily reduced to statistics on permits, landings and fishing-themed icons (147).” Given the scale of community profiles and the limited resources available to conduct them, it is not a mystery as to why these approaches are taken. St. Martin (2006) points out “[the social relations of production within which fishers are embedded are difficult to reconstruct given standard forms of data collection (174)].” These complex social relations became apparent while conducting outreach and ethnographic investigations with various fishing communities living along and working in (and with) the Gulf of Mexico (GoM) during the Deepwater Horizon Oil Spill from 2010 to 2012 (Curti & Moreno, 2014). Communities of fishers in the region extend far beyond just Euclidian locations and human identities; instead, they include the entire ecology and multiplicitorcous organic and inorganic components of the GoM as indelible elements necessary for community—in its broadest and most heterogeneous sense—to not only sustain itself, but to continually flourish in emergent ways. As explained elsewhere specifically of deep sea GoM fishers:

traditional GoM fishing practices combine with culturally important fishing areas to form different associations of networks connected to the deeper waters of the GoM. In these deep Gulf waters, fishing locations are not so much based on fixed or isolated physical properties, but rather the migratory patterns and seasonal movements of different fish species. The networks that emerge are complex and ever-changing rhizomic assemblages of relations between GoM traditional fishing communities, GoM biophysical processes, TK [Traditional Knowledge], technology, larger market demands and regulatory regimes, illustrating in very real and concrete ways how “a given network cannot present itself as unified, harmonious, and supposedly already completed order, for…fragmentary and ever-changing chains of relationships and practices constitute precisely what it is” (Curti & Moreno, 2014, p. 98).

As these experiences with GoM fishers underscore, within a given assemblage (or marine-space) what needs to be understood are not essential components or closed characterizations (e.g., stakeholder, habitat, ecosystem), but how different entities belong in a given marine-space. As this suggests, entering communities as separate, static, fixed entities is intended to stand alone, fishing communities and marine-spaces as two ontologically different entities is nonsensical; and understanding that marine-spaces are constantly assembling zones of co-functioning make static, prescriptive policy and conservation initiatives largely ineffective and detrimental to not only conventionally understood fishing communities, but to marine-space ecological components—of which humans are always-assembling parts. This is, in a sense, what adaptive management is hinting at, but in reality has difficulty accomplishing largely due to the bureaucratic nature of the political structures in which management systems lie (see Armitage et al., 2008) and their associated conceptual over simplifications. It is the very symbiosis, the very ‘sympathy’ that fishing communities have with associated marine-spaces, that must be taken into account to even begin to approach how unique economic and socio-cultural relations are connected to—and impacted by—marine-space regulatory regimes and management practices, or to better comprehend the qualities of a non-artificially demarcated and given marine-space ecosystem and (its importance to) fishing communities.

While regulatory regimes are overtly—and overly—concerned with extensive spaces—that is, what can be measured, cordoned off, and divided into “manageable” areas—intensive spaces of the affectual and emotional elements of everyday life must also be accounted for to adequately apprehend both the relations between fishing communities and marine-spaces and minimize adverse impacts—economic or otherwise—on fishing communities. In other words, for policy to be truly effective it must account for what Dallman et al. (2014, p. 42) have called “a political ecology of emotion,” which “offers to … resource policy decision making… the ability to dive beneath the surface to uncover multi-layered relationships, perspectives and meanings of place.”
Affect and emotion

While we have been clear that understanding what a community is and does requires far more consideration than just the human, our concerns here are expressly with and for the human; or, to be more specific, with and for enhanced consideration of human components of fishing assemblages. To best understand both the impacts of regulatory regimes and management practices that have quartered extensive marine-space(s) to the exclusion of their socio-cultural and human components, and to most adequately take into account the importance of fishery resources to fishers themselves, shifts in focus to the embodied and material realities of affect and emotion—including the differences between them—are vital.

Massumi explains that emotion and affect are both bodily intensities (remember, in a new materialist ontology a body can be anything) through which we (as humans) take part in, relate to, and, ultimately, make sense of the world; but he makes an important distinction between the two: emotion is a “qualified intensity” (2002, p. 28) while “[a]ffect is autonomous to the degree to which it escapes confinement in the particular body” (2002, p. 35). What this means is that affect is shared between different bodies while emotion is affect taken up, recognized, and defined, often in relation to a given identity (e.g., a fishery community, a part of a given marine-space collective, etc.). Because affects (of individuated and collective bodies) always presuppose effects (of other bodies) (see Deleuze, 1988; Massumi, 2002), and because affects and effects have capacitational implications for how communities function and what they are able to do as (part of) a system, particular marine-space (eco-)systems can be understood as assembling affects/effects of particular relational and emergent capacities; that is, there is a process to the emergence of the given qualities of an assemblage by way of capacities to affect and be affected, and how they co-relate and co-produce other components in and of the system through both qualitative and quantitative changes to sustain or transform what it the system is and does. To demarcate the human from marine-space(s), conceptually or otherwise, is to neglect these correlations and co-productions and ignore the most vital way fishing communities are affected by, and are part of, marine-space assemblages.

It is important to reiterate that affects, like assemblages, refer to much more than the human—but are central to understanding how humans relate to and take part in the world. In a sense, to discuss assemblages is to discuss affect, at least as it relates to their differential emergence (see Massumi, 2002, p. 43). When intensities of affect are taken up, owned, and recognized, they are understood and defined as emotions. Assemblages, then, can be tentatively understood by and ‘mapped’ through their relational components and their capacities to affect and be affected. Any component of an assemblage has certain open and relatively emergent capacities to affect and be affected only in conjunction with other components of the assemblage, working together to increase or diminish capacitional qualities. Therefore, how changes in marine-space capacities intensively affect fishing communities can only be adequately grasped in policy development and management implementation by including emotion and emotional frameworks. Anderson and Smith (2001, p. 9) underscore that:

... a return to relevance and the quest for a ‘policy turn’ in geography seem[s] to ... be [a] key area ... where an awareness of how emotional relations shape society and space is important ... social relations are lived through the emotions, but the emotional qualities of social life have rarely been made apparent within the lexicon of social research. Tackling this requires us to confront a methodological as well as a conceptual challenge.

The central importance of this challenge in the applied geography of marine-space assemblages is reinforced by Bondi, Davidson, and Smith (2012, p. 1), who make the case that:

A new interest in, and upsurge of, emotion is evident in writings about people and places, and surely signifies more than a passing academic fad. This emerging body of work is obviously critical of past presuppositions that emotions are not materially important. However, it also tries to recover something of those aspects of geographical and allied traditions that have implicitly, if not always explicitly, acknowledged the presence of emotions in our interpretations and understandings of the world. Thus, perhaps the recent ‘emotional turn’ in geography results as much from positive recognition that emotions already have an important place in our own and others’ work.

They continue, “An emotional geography, then, attempts to understand emotion — experientially and conceptually — in terms of its socio-spatial mediation and articulation rather than as entirely interiorised subjective mental states” (Bondi et al., 2012, p. 3). It is this very socio-spatial mediation informed through the intensive emotional realities fishing communities experience as affecting and affected (i.e., co-functioning) parts of marine-space assemblages that can provide informed and invaluable insights into the importance of fishing resources to these communities—a central—and often unrealized—stipulation of NS8 that we have been stressing here. In this context, it worth noting that while the NOAA west coast fishing community profile methodology recognizes that “fishing dependence and engagement involves considering multiple dimensions of fishing history, infrastructure, specialization, social institutions, gentrification trends, and economic characteristics” (Norman et al., 2007, p. 6), it still limits the multiplicity of dimensions to realms defined by available “quantitative data” and neglects the ways humans understand, define, and live their own connections to and communions with marine-spaces.

Considerations

The current language of MSFCA/NS8 and the methods by which it has been implemented render the legislation largely impotent when it must account for the socio-cultural impacts—adverse or otherwise—that fisheries management has on fishing communities as always-assembling components of marine-space(s). While stakeholder involvement is discussed as a participatory process, it often operates on a spectrum somewhere between public participation and public relations. If agencies already have very specific parameters regarding a given initiative in mind, what they are really looking to acquire at best is community support to ensure the long-term viability of the initiative and to facilitate positive community relations in the future. At worst they are simply seeking to minimally satisfy regulatory stipulations such as those outlined in MSFCA/NS8. We should be clear that it is not our position that this is the intent of the vast majority of those working to satisfy the MSFCA/NS8, but rather an existing limitation continually (re)produced due to the dominant deficit notions, ontological groundings, and discursive practices related to “fishing communities” and their “inclusion” and what they imply.

Understanding that measuring, cataloguing, and demarcating extensive spaces do little to account for the always—present human/
socio-cultural components of marine-space(s) has clear implications for the goals of MSFCMA/NS8, including what counts as "economic or social data" and how these can provide for the sustained participation of fishing communities as well as simultaneously minimize adverse economic impacts on such communities. Because the economic cannot be separated from the socio-cultural (Gibson-Graham, 1995, 2006; Massey, 2005, 2007)—and because both are always intimately tied to the emotional, affective, and their socio-cultural realities (Anderson & Smith, 2001, p. 9)—adverse economic impacts must be considered in all of their multifaceted, collective, and communal components.

While what we have discussed here certainly provides no panacea, it may offer a somewhat novel way of thinking about and engaging with marine-space(s), a praxis that recognizes its ever-assembling and fluid nature ecologically, epistemologically, and ontologically inclusive of the human and socio-cultural. With this in mind, we present the following four suggestions on how to pragmatically work through new materialist insights for enhancing fisheries policy and management in fulfillment of associated obligations presented in MSFCMA/NS8:

1. Ontological and discursive shifts must take place that provide conceptual capacities for engagements with marine-spaces ever-assembling, irreducible, multiplicitous, emergent, and contingent natures. Throughout the development of policy and management and strategic plans, the socio-cultural is still largely treated as a separate entity, reinforcing the separation between that which is human and all else. While strides have been made for the inclusion of socio-cultural components by managers and policymakers alike, there is still much progress to be made conceptually and in practice.

2. Moving away from the exclusivity of "scientific" ways of knowing are fundamentally necessary to understanding the values, importance, and relations fishing communities have to marine-spaces. Rather than approaching marine-spaces as always-assembling horizontal phenomena, current applications of MSFCMA/NS8 apply vertical and hierarchical lenses, privileging those with "scientific knowledge" over different forms of knowing and doing, such as Local Ecological Knowledge (LEK) and associated practices and modes of understanding that have been produced and gained through decades, if not centuries, of intensive co-relation with particular marine-spaces. Only when LEK and its variants are honestly and sincerely engaged through helpful conceptual entrance points and praxis informed through the assemblage, can the nature of marine-space(s) begin to be wholly considered, accounted for, engaged with, and properly managed without marginalization of the co-relations and co-functionings of both human and natural components of marine-space assemblages.

3. A furthering of fluid and horizontally negotiated co-management is vital for the both the health and capacities of marine-space(s), including its myriad, ever-assembling components. Ultimately, within the context of policy development and management, the question must be: what is fishery management attempting to do; that is, what is it attempting to accomplish, and for whom? Without true engagement with and inclusion of the different human knowledges and associations forever co-produced with marine-spaces, fishing communities ultimately may become alienated, and subject to disempowering oversight, control, and regulation. Such outcomes often breeds anger and resentment among communities, and leads to diminishing powers to act, including the erosion of long-standing practices of informal fishery and local ecological management. True co-management, thus, must be an understanding that LEK as well as its familial, cultural, social, and affective and emotional components are indelible and intensive parts of the very ecosystem of marine-space(s). Fishing communities and their members are lastingly invested in the sustainability—the health—of marine-space(s); to rule over them 'from above,' from a position of scientific 'expertise' and to neglect legacies of informal management and ecological connections, is to erode, displace, and delimit some of the vital intensive (human) components and capacitation qualities of marine-space(s).

4. Policy must outline the guidelines of and be committed to an approach that functions as "the contingency of an encounter with that which forces thought to raise up and educate the absolute necessity of an act of thought or a passion to think" (emphasis ours; Deleuze, 1994, p. 139), rather than pre-determined processes or pre-designated criteria. What this implies is that the formation of policy, and its subsequent implementation and co-management, must serve as facilitation towards engaging difference(s) and the unique nature of each marine-space assemblage instead of outlining fixed, homogenized, and pre-scribed populations or designs. In other words, pragmatic policy means that it is particular to each circumstance and no pre-designed outline will provide adequate effort in engaging with, and encountering, specific communities. Instead of thinking of "stakeholder" or "community" engagement as a limited process whereby checkboxes are ticked in order to simply fulfill regulatory checklists, this process—and the open encounter which is required—can transform management regimes from top-down impositions to inclusive, negotiated, and emergent horizontal capacities that truly engage with the always-assembling natures and associated human socio-cultural components of marine-space(s). This is where data—how it is gathered, who and what is included in its production, and what it (ac)counts for—fundamentally matter. In order for this to be successful, agencies and people concerned with marine-spaces must be exposed to, engage with, and have adequate understandings of new materialist sensibilities, approaches, and practices.

Our discussion thus far only touches upon new materialist insights and what notions of assemblages, affect, and emotion have to offer in an effort to introduce such theories. We encourage readers to seek a deeper understanding of these concepts (see Anderson & McFarlane, 2011; Braun, 2006; Curti & Moreno, 2014; Dolphijn & van der Tuin, 2012). From what we have discussed, however, it is clear that engagements with fulfilling the responsibilities outlined in MSFCMA/NS8 need to shift in order to truly account for the human components of marine-space(s). To reiterate McGoodwin's (2001) point, the first concern of fishery management must be "the human beings who utilize fisheries resources." While MSFCMA/NS8 calls for the consideration of social and economic impacts to communities, it only requires that negative impacts are mitigated to the "extent practical" with regards to NS2. We have demonstrated here that what is and is not practicable cannot be adequately understood by fishery managers or researchers investigating marine-space assemblages until the socio-cultural, emotional, and affective components of co-production, co-functioning, and co-existence—whether it be economic or otherwise—are also accounted for.

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2 LEK is an awareness of geographical systems and environmental features developed through years of experience and observation. Fishers’ Ecological Knowledge (FEK) and Local Fisheries Knowledge (LFK), like Traditional Ecological Knowledge (TEK), can be understood as subsets of LEK, and respectively refer to local awareness of the seasonal, dietary, and behavioral aspects of fish and sea mammals and the business aspects of fishing, economics, social dynamics, and culture (see Begossi, 2008; Byg, Theilade, Nielsen, & Lund, 2012; Espinosa-Tenorio, Wolff, Espejel, & Montaño-Moctezuma, 2013; Silvano & Valbo-Jørgensen, 2008).
References


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