

The Impact of “Community” on Fisheries Management in the U.S. Northeast

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ABSTRACT

The discourse of fisheries science and management displaces community and culture from the essential economic dynamic of fisheries. The goal of this dominant discourse is to enclose fisheries, to constitute it as within the singular and hegemonic economy of capitalism. Alternative economies, such as those based on the presence of community, are always seen as either existing before or beyond the dominant economic formation. The category of community is, nevertheless, being incorporated into contemporary fisheries science and management where it has the potential to disrupt the ontological foundations of the current management regime. To avoid disruption, community is situated such that it is the domain of anthropology while the essential economic dynamic of fisheries remains the purview of fisheries bioeconomics. Community can be identified, documented, and analyzed but always only as a site of economic impact and never as a constituent of the economic itself. Curiously, this disciplining of community has a literal geographic dimension: the discursive domain of bioeconomics corresponds to the spatial domain of fisheries resources themselves while that of fisheries social science/anthropology corresponds to the terrestrial locations where fishers reside. Fishing ports become the place of community while the actual common property resource remains the site where the essential economic dynamic reigns uncompromised.

Keywords: economic discourse, community, political ecology, commons, fisheries, space

“Economics does not so much abolish the other (for it needs it as a reference point with which to assert its own self), as it controls its location in the social space” (Callari 2004 p. 118).

INTRODUCTION

It has become a commonplace to assert that the sustainable use of common property resources is possible (both historically and presently) via the existence and health of local communities and community-based economic practices. Indeed, processes of community are given credit for averting common property overuse and degradation across a wide variety of societies and places (e.g. Berkes 1989, McCay and Acheson 1987). While there are many empirical examples that point to the importance of community and other social processes (e.g. culture and kinship) as factors that constrain individual appropriation of resources and serve to mitigate an otherwise inevitable “tragedy of the commons” (Hardin 1968), they most frequently originate from traditional, pre-industrial, and pre-capitalist locations. In these sites community is seen as strong and central to both social organization and local economies. Elsewhere, community and community-based economies are seen as eroded and displaced by modern, individualist, and capitalist forms of society/economy. In the discourse of common property resources, as community and community-based restrictions on resource use are weakened and eroded the necessity for privatization and the logic of individual property rights, resource appropriation, and accumulation strengthens and grows.

In terms of policy and politics, the presence of community suggests the possibility of community-based solutions to the overexploitation of common property resources. Its strength and centrality make it, in many cases, the ontological starting point for imagining effective and sustainable commons resource management. In addition, community managed natural resources suggest local economies that are a function of community rather than strictly the needs of capital (Gudeman and Rivera 2002). Common property resources are here clearly intertwined with local and community-based economic processes. In contrast, the erosion and absence of community suggests only neoclassical and individual rights based solutions to commons degradation; the commons must be privatized and subordinated to the rational logic of capitalism. This binary representation of commons futures is nowhere more evident than in our stories of marine fisheries. There the binary of fishing community/individual “fisherman”¹ is associated with a host of other binary pairs (e.g. artisanal/industrial, pre-capitalist/capitalist, local knowledge/scientific knowledge, cooperative/competitive, third world/first world) such that those locations associated with community are open to a variety of (particularly community-based) economic futures while those associated with individual competitive behavior necessitate neoliberal privatizations and a singular capitalist future (St. Martin 2005).

Despite a binary logic that relegates community-based economies to distant third world locations, community is increasingly visible and relevant to industrialized, first world locations. This paper seeks to explore the emergence of community at several levels. At a theoretical level, community is emerging from feminist and anti-essentialist readings of the economy. There, the

¹ Here, and throughout the paper, I use the term “fisherman/men” to signify the imagined individual, independent, and competitive fisher of fisheries science and management discourse. The term *fisher*, also used throughout this paper, refers to all people who work as harvesters of fish within commercial enterprises regardless of their position and assumes nothing about their relationships with each other (e.g. cooperative or competitive). A fisher may be any one of several crew members (e.g. captain, mate, engineer, deckhand) and may or may not own a fishing boat.

image of a homogenously capitalist first world populated by utility maximizing individuals or corporations is being challenged by work that reveals the economy as a multiplicity of capitalist and non-capitalist relations, identities, and spaces (Gibson-Graham 1996; Gibson-Graham et al. 2000; Pavlovskaya 2004). The re-reading of economy as diverse suggests a focus on how economic subjectivities are constituted thus opening the space of the economy to a multiplicity of processes such as those of culture and community (cf. Zein-Elabdin and Charusheela 2004). From this perspective, where economy is not structured around the singular and exclusively economic dynamic of capitalism, a case study that examines the insertion of “community” might ask: does the emergence of community herald an opening/disruption in dominant forms of economic discourse such that community and cultural processes might be seen as fundamentally part of economies and the natural resource regimes they constitute?

The theoretical opening of economic space to culture and community in the first world (e.g. Community Economies Collective 2001) is a project that can clearly benefit from the experiences and insights of a political ecology that has long documented the existence of “community economies” in the third world (e.g. Gudeman and Rivera 2002) and are now looking increasingly to the first world (Walker 2003, Robbins 2002). There they are revealing and reifying the importance of community processes relative to common property regimes and resource management where none had been previously imagined (e.g. McCarthy 2002, Mackenzie and Dalby 2003, Walker and Fortmann 2003). Community, in these cases, counters dominant representations (e.g. those found in neoclassical resource economics) and assumptions about common property utilization as a site of only rationalist individual behavior. It would seem that categories, processes, and identities once documented only in the pre-industrial and pre-capitalist periphery are increasingly evident within the center of capitalism.

At the level of implementation and institutionalization community is also emerging; it is being ontologically defined and utilized within first world resource management regimes themselves (Kellert et al. 2000). It is now a vital category that is constituted through direct community participation in resource management via community-based fora for policy development, community assessment and review of policies, and even community-based science and a celebration of its associated local knowledge systems. This insertion of community, as an ontological category within institutions of science and management, suggests that we must examine the specifics of the use of community in particular resource management regimes. How is it being inserted into the practices of resource management (e.g. data collection, analysis, reporting, etc.) and what are the effects of such an insertion in terms of policy development? Does the transferal and translation of categories typically associated with third world natural resource policy development (e.g. community) indicate an erosion of the first world/third world divide? Does the emerging presence of community disrupt the binary of first world/third world? And does community suggest a new potential for alternative and community-based forms of common property resource management even in the heart of capitalism?

The case of fisheries in the first world provides insight into the way community as a category is moving from the third world to the first world. In terms of inquiry, fisheries social science, once restricted to neoclassical economic analyses based on individual behavior (Clay and McGoodwin 1995, Dyer 1994), is growing to include work that reveals and focuses on the presence of community in even the most industrial of first world fisheries (e.g. Apostle et al. 1998, Jentoft 1999 and 2000, Leal 1996, McCay and Jentoft 1996, Olson 2005, St. Martin 2001). This work ranges from analyses of the impact of management initiatives on communities (McCay et al. 2002a and 2002b) to the potential for communities themselves to management

commons resources (Acheson 1989, Kearney 1989, Wilson et al. 1994). In all cases, community and community processes are made visible and relevant where there was a once only individual fishermen. In addition to social science inquiry, community is emerging within the institutions of fisheries management in the first world. Within the United States, the federal government now mandates its consideration relative to fisheries' management such that defining it, making it visible, and assessing it are now unavoidable within the fisheries management regime. Therefore, there is a growing record of the ways that the category of community is being translated and utilized in this first world resource policy context.

Federal fisheries management in the U.S. Northeast (the site of this case) is, of course, focused on fish resources rather than fishing communities or even industry per se. Management is management of the common fish resources that lie within the U.S. Exclusive Economic Zone of the Northwest Atlantic. The insertion of community within such a natural resource management regime raises questions precisely about the relationship between community and the utilization of fisheries resources. How are they thought of relative to each other within the dominant discourse of fisheries science and management? What potential is there for community relative to the management of the resource? Similarly, what potential is there for the resource to be viewed and managed as a commons governed by and/or with community participation?² In addition, if as Gudeman and Rivera (2002) assert “[a] community economy, above all, makes and shares a commons”, then it is imperative to understand the relationship between community and commons as well as the constitution of community and commons themselves if one is to reveal in any detail the presence or potential of a fishing community economy in the U.S. Northeast. Indeed, a commons is arguably the necessary space within which alternative economic (e.g. community) subjects must find themselves.

Will the presence of community in first world fisheries imply a similar intertwining of community and cultural processes with the economic as it does elsewhere? Will it disrupt the hegemonic vision of a capitalist economy and its attendant neoliberal policies of privatization that are so dependent upon an ontology of individuals unconstrained by community? Does the presence of community enlarge our currently limited imaginary relative to fisheries management to include community-based management and community economies generally? To do so it is imperative that we continue to reveal the presence of community, of the other within the domain of the dominant (St. Martin 2005), and trace its effects. We must, however, also show the ways that that presence can be interpreted, categorized, and disciplined such that dominant systems of natural resource management and economy remain intact.

This article is, therefore, an interrogation into the emergence and subsequent disciplining of community in fisheries resource management. The paper begins with an examination of the discourse of fisheries science and management and the position of community within it. It relies upon a postcolonial interpretation of fisheries bioeconomic discourse. In particular, how this discourse has successfully distanced and made subordinate the category of community and related processes relative to an essential economic dynamic of fisheries. It then briefly outlines the mechanisms of insertion of community into science and management with a focus on the spatial aspects thereof. A review of recent initiatives to address community produces a distinct

² In this paper the word “commons” will be understood to mean a commonly held resource associated with and, indeed, constituted by a community. While common property is often perceived as devoid of community (e.g. open access fisheries), this paper theorizes the ways common property (especially open access fisheries) might be rethought in terms of community, i.e. how they might be or become a commons.

image of community as a site of regulatory impact that is separate from the resources upon which it depends. Community, while important to understanding the effects of fisheries policy, is not seen as resident or effective within either the literal or discursive economic domain of fisheries/bioeconomics. The implications of such a vision of community and resources are discussed and an alternative vision is suggested, one that emerges from a re-thinking of economy as never enclosed or explained by a single and exclusive economic dynamic but potentially open and interpretable in terms a diversity of processes such as culture and community.

THE DISCOURSE OF BIOECONOMICS AND THE STRUGGLE FOR ENCLOSURE

There is a dominant bioeconomic discourse of fisheries science and management that has been instituted in research, branches of government, and regional fisheries management councils in the U.S. during the last quarter of the twentieth century (on its origins and history see Cushing 1988; Smith 1994). The goal of this discourse is to produce a neoclassical understanding of fisheries that would be instrumental in the technocratic management of fisheries resources (Cushing 1977; Smith 1998). Fisheries bioeconomics, despite common perceptions of fishing as exceptional economically and/or culturally, implements the same essential economic subject and conception of space found within neoclassical economics and its representations of the hegemonic capitalist economy. The discipline of bioeconomics attempts to enclose fisheries within the discursive space of the economy proper, to capture it within standard neoclassical assumptions of subjectivity and space. In so doing, fisheries are reduced to a function of utility, to the behavior of individual fishermen, and community, culture, and other related processes are banished from the space of the economy. This section explores this process of discursive enclosure and resulting alterity; it examines the process by which fisheries are constituted in terms of a narrow definition of economy and other possibilities are silenced or made distant.

ENCLOSING ECONOMIC SPACE³

The discursive enclosure of fisheries is intertwined with a desire to literally enclose fisheries as transferable property rather than the technically open access resource that it is now (Charles 1988; Eckert 1979; Keen 1988; Scott 1988; van der Berg 2000). Indeed, the uniqueness of bioeconomics relative to standard neoclassical resource economics revolves around the absence of property rights in fisheries. This absence suggests a need to discipline fisheries and to produce a modern-day enclosure of the commons (Apostle et al. 2002). Without such property rights and relations modern industrialized fisheries remain not-fully-developed and, without some intervention or exogenous management, will inevitably suffer a “tragedy of the commons” (Hardin 1968). Hardin’s article, although concerned with population growth, was partly inspired by the work of fisheries economists during the two previous decades (McEvoy 1986). In particular, the work of H. Scott Gordon, cited by many as the founder of fisheries economics (Smith 1994), foreshadows Hardin. While there are extensive disputations, commentaries, and discussion of the Gordon-Hardin model, I am here interested in how this model at once inscribes fisheries as deviant yet captures fisheries and sees it as within the same economic space and

³ The term “economic space” refers to the discursive domain that is claimed by economics. This space is bounded such that beyond the boundary is the location of any economic others. Where space is discussed without the modifier “economic” the reader should assume a geographic space (e.g. the space of fishing). The sometimes blurred distinction between these spaces is seen here as unavoidable.

within the same disciplinary understanding of economy found in descriptions of the hegemonic/capitalist non-fishing economy.

While the Gordon-Hardin model points to the flaw inherent in common property, it can do so only by speaking of fisheries (or other common property regimes) as already within the space of a marketized and capitalist economy. The model suggests an ontological frame by which to know and understand fisheries; a frame built upon a particular economic subject and a particular notion of an economic space, familiar neoclassical representations of the economy generally (also see Kirby 1996 on the mutual constitution of subject and space). The subject in fisheries bioeconomics is the fisherman who is equivalent to the utility seeking economic man of neoclassical economics. In addition, the corresponding space of fishing is a container of objectified and available-for-appropriation resources; this is the Cartesian space that serves as the template for capitalism (cf. Boelhower 1988). Subject and space combine such that fishermen are individual, mobile, and competitive utility maximizers who work within and throughout an abstract statistical space containing quantities of fish (St. Martin 2001). Where in this space they might go, with whom, and from which port are irrelevant considerations relative to the enumeration and aggregation of fish and fishing effort across space. The economic space constructed and governed by a single economic calculus is dependent upon the reification of these particular ontological elements.

That such an economic understanding of fisheries would emerge is not surprising given the economic-like language and the centrality of equilibrium modeling in early fisheries biology. What is interesting, however, is the degree to which this particular economic discourse with its attendant ontology of fishermen and resources becomes foundational for understanding fisheries across a variety of institutions. Academic, governmental, and international organizations have all adopted this vision of fisheries and have designed data collection initiatives, performed scientific analyses, and developed management strategies based upon it. The basic elements of this singular fishing economy have been identified and are made knowable through a variety of practices and performances; the fishing economy, stripped bare of other processes, becomes obvious, natural, and uncontested. Other processes such as those of culture, society, or community are decidedly outside of this narrowly drawn economy of fisheries.

An important aspect of this economic vision of fishing is the necessarily developmentalist nature of fisheries interventions. The loss of economic rent due to a deficiency in property relations is a deficiency relative to modern forms of private property and capitalist relations generally. Fisheries, by virtue of their common property nature (whether open access or otherwise) are seen as pre-capitalist or not-yet-fully capitalist economies that are necessarily less efficient and productive than fully capitalist economies. The former can only aspire to the latter through the advent of private property relations or management schemes that simulate such relations (cf. The Ecologist 1999; Escobar 1995; Shiva 1990; Yapa 1991). Given the ontological assumptions outlined above, the singular economy of fisheries is predestined to mirror an equally singular capitalist economy that, once implemented vis-à-vis private property institutions, will solve the problems of fishing both in terms of dissipated rent and environmental degradation. The dominant discourse of fisheries, then, inscribes a particular economy *and* economic future as the fundamental understanding and way of knowing fisheries.

The discourse of bioeconomics produces a bounded economic space, it encloses a particular notion of subjectivity and space such that the retention of an open access regime of property will inevitably result in tragedy. The subject and space produced also suggest a single

route to a non-tragic future that involves the literal enclosure and privatization of fisheries resources. As with past enclosures of common property, the discursive enclosure clears communities and their associated social/cultural relations from the domain of economy and produces a resource open to discursive and literal appropriation.⁴

*THE SILENCING OF COMMUNITY*⁵

While the subject and space of the dominant discourse clearly have utility as well as limitations, I am here concerned with the silences produced by this discourse (cf. Harley 1988). The reduction of fishers to competing individual fishermen and of space to a container of aggregate resources makes statements about the economic agency of community or the embeddedness of economy in unique places difficult if not impossible to insert into fisheries science and management. While there are many silences within any discourse, the absence of community in this economic discourse of fisheries is, perhaps, not surprising if community is the other to the economic subject of the dominant discourse. It is community that has long represented an alternative yet subordinate approach to the privatization of fisheries. Celebrated by anthropologists and others working beyond the boundaries of the dominant discourse, community and culture complicate and divert the inevitable rent dissipation and environmental degradation of common property regimes (see examples in McCay and Acheson 1987). Relying upon case studies that are primarily from the third world, these researchers point to the resourcefulness of communities to manage common property such that a tragedy is avoided without the imposition of private property or capitalist relations of production. As examples that might inform first world policy development, however, these studies are stifled by the ontological absence of community from the dominant discourse, the solutions to the problem of fishing that they represent are seen only as distant curiosities. How is it that community and place are made distant and invisible in this sector of the economy that is so closely associated with popular notions of “fishing communities” and intimate knowledge of environment and place? In terms of the subject of fishing, how is the silence relative to community produced?

Curiously, reading bioeconomics one does not easily find individual “fishermen” despite their centrality in the discourse. Rather one finds an aggregated “fishing effort” which is the outcome of the utility maximizing behavior of individual abstract economic (fisher)men (e.g. Anderson 1986; Clark 1985). Fishing effort is an essential variable in the economy of fisheries; it is the variable most responsible for mortality rates of fish and the variable that must be technocratically controlled such that fish populations can recover (from a state of overfishing) or be sustained (given the propensity for fishermen to always increase effort on an open access commons). The essential economy of fisheries revolves around fishing effort and the solution to fisheries problems revolves around its control.

Fishing effort, as the product of aggregated individual behavior, is, quite literally, distributed across the space of the economy, the demarcated spaces of various science and management regimes (e.g. any number of spaces that correspond to statistical areas for scientific assessment and, often, technical management). The distributed nature of fishermen (cf.

⁴ For an analogous story of enclosure and appropriation via cartographic and literary representations see Boelhower (1988), Harley (1992), and Michie and Thomas (2003).

⁵ This section is largely informed by the author’s experience as a National Research Council Associate located at the DOC/NOAA/NMFS Northeast Fisheries Science Center, Woods Hole, MA 2000-2001.

Amariglio and Ruccio 2001), as fishing effort, works to erase individual and unique fishers in all their fullness and complexity; fishermen, individual yet originating nowhere, are thus unconstrained by culture or community. In addition, the even distribution of effort across space erases the unique places within which and through which fishers might work and live; the space of fishing, understood to be everywhere subject to fishing effort (or other essential quantities), is devoid of any trace of community or community territory. Institutionalized practices of data collection and analyses in these terms act to reify the essential ontology of fishing and produces a silence relative to community. What can be said about community if all fishing effort originates from nowhere and is distributed across the entire scientific/management space?

In addition, there is a similar silencing of community even when it is viewed as a set of social relations rather than a location of origin (e.g. port) or territorial domain at sea. The social relations of production within which fishers are embedded are difficult to reconstruct given standard forms of data collection. For example, most federal fisheries data collection initiatives are designed to support the assessment and management of the resource as such (hence the focus on fishing effort and fish population dynamics generally). Data (e.g. landings data which give insight into fishing mortality) is collected not by individual fisher but by fishing vessel (Pierce and Hugel 1979). While this again points to the absence of “fishermen” per se within the discourse, it is clear that to represent fishermen as aggregated and distributed fishing effort one must have a basic unit for data reporting and collection. Fishing vessels are that unit, and since the discourse assumes a universe of individual fishermen, the vessels come to represent those individual fishermen themselves. This merging of fisherman and vessel makes the multiple positions associated with fishing vessels (for example boat owner, partner, union, captain, or crew member and differentiations within each category) and the social relations that result impossible to see. Indeed, within the dominant discourse there is little mention of crew and virtually no data collected concerning crew, forms or rates of compensation, or boat-level social/economic conditions generally. Any (potential) community of fishers on board a fishing vessel is erased by the easy conflation of vessels with abstract individual fishermen. The following is from a standard bioeconomics text and clearly dismisses non-owner crew members as other than fishermen:

For the purposes of the present discussion [models of fishermen’s behavior], the word fisherman will be used to refer to the independent owner-operator of a fishing vessel (Clark, 1985, p. 146).

Data collection practices that are boat-centric serve to produce the rational and singular fisherman independent of any physical community or set of social relations relative to other fishermen (e.g. those other fishers on board the same vessel, fishers who work for a non-fishing boat owner, fishers linked through union membership, etc.). Data collected by vessel, primarily designed for the calculation of aggregate fishing effort, reifies the essential subject of fishing as a fisherman who is mobile, independent, and individual; community as a category within the discourse and a site of economic activity/agency does not exist nor do alternative fisher subject positions.

Similarly, in terms of the literal space of fishing, there is a silence relative to community. The space of fisheries is mapped by the dominant discourse as the statistical space for the collection and aggregation of data on quantities of fish and/or the calculation of fishing effort. Figure 1 is a typical rendering of fisheries in the New England and Mid-Atlantic management regions, itself a vast area. This is one of several similar maps produced by government sponsored

fisheries science meant to inform fisheries management in this part of the U.S.⁶ The map depicts fishing effort by ten minute square. While it does not distribute fishing effort evenly across the entire space (only within each square), the spatialization evident is used for visualization only and does not inform the all-important prediction of fish population as a function of effort (indeed, assumptions about the mobility of fish and singularity of fish stocks by species make this level of spatialization largely irrelevant). That is, the map may show effort by location but effort is, within the essential economic dynamic, understood as evenly distributed. For our purposes, the map clearly illustrates a silence relative to community; fishing effort is abstracted from any ports or any domains and is an aggregated quantity distributed across the space of management (albeit by ten minute square).

These and similar standard maps of fishing effort are silent concerning the location of fishing communities. The formal discourse of fisheries science and management, while not reviewed here in detail, suggests an epistemic silence (cf. Harley, 1988) relative to communities that is evident in both representations of the subject and space of fishing. Postcolonial readings of economy (e.g. Zein-Elabdin and Charusheela 2004), however, suggest that that which is silenced within the dominant economic discourse must be relegated to somewhere; community, insofar as it acts as the other to the individual economic actor, must be understood as existing in some place external to the economy from which it has been purged.

COMMUNITY AND COMMONS AS THE CONSTITUTIVE OUTSIDE OF BIOECONOMICS

In fisheries bioeconomics discourse the production of alterity, however muted, is evident in a property historicism reminiscent of classical economic theory (Callari 2004). The fisheries commons, in bioeconomic discourse (particularly in its initial formulation in the mid-twentieth century, e.g. Gordon 1954), is assumed to be either devoid of property relations (i.e. “open access”) or contain weak rights that do not sufficiently restrict access to resources. Modern (individual) property rights are not yet developed or instituted, and, as a result, environmental degradation and dissipation of resource rent are inevitable. The maturation of property rights that occurs along with modern capitalist development spreading outward across space (from first world to third world) ensures the efficient and rational use of resources and the greatest return from inputs. Un- or underdeveloped economies are a function of historically prior forms of property and the influence of community. For example, Callari (2004) suggests that classical economists explained the lack of economic development in India by “...the arrested development of forms of property... and the persistence of the communal ‘village’ as a basic unit of social organization, a situation which only British colonial rule could change” (p. 120).

The other of capitalist development, private property, and the individual economic subject was, for both classical economists and early bioeconomists, located before or beyond contemporary and proximate economic space. As a distant other (in either time or space), community-centered societies, common property, and pre-capitalism serve to constitute the here and now (contemporary first world locations) as sites of individual utility, resources for appropriation, and capitalism (St. Martin 2005). This “constitutive outside” continues to be produced by contemporary fisheries social scientists who construct, through their research in

⁶ The National Marine Fisheries Service (NMFS) is the main supplier of fisheries data and scientific analysis to regional fisheries management councils that develop and implement fisheries management plans (FMPs). NMFS data typically lacks geographic precision which is not necessary given the data’s use in region-wide bioeconomic modeling.

distant locations, an image of fishing communities and territories where the assumptions of the dominant bioeconomic discourse do not hold. In these examples, community and culture are fundamental to understanding the economy of natural resource use and the fishing economy is made up of more than just the motivations and desires of individual economic men. In addition, these same examples point to the commons as other than a container of resources for appropriation; rather, it is a heterogeneous and intimately experienced site of community. That is, where community and culture intervene to avert a “tragedy of the commons,” the commons is associated with and constituted by community. Within these alternative economic spaces that are fundamentally different from that delimited by the dominant discourse, community and commons are inseparable (cf. Gudeman and Rivera 2002, Ratner and Rivera Gutierrez 2004). What is, in this case, outside the domain of fisheries bioeconomics is a necessary intertwining of community and commons that is contrary to the necessary severing (and, in literal terms, clearing) of community from commons that results from an insistence upon the neoclassical economic subject and space.

The property historicism that distances (either temporally or geographically) any alternative models of natural resource economies suggests, at least in the case of fishing, a set of characteristics that we might call the community management model. Within this model individuals are ontologically understood as community members governed by community and cultural processes that are part and parcel of their economic decision-making. In addition, the commons is a commonly held and managed space of social relations as well as natural resources and is inseparable from community itself. That such an alternative, however, remains only applicable/imaginable outside the domain of the dominant discourse is not surprising; indeed, the before and beyond nature of this alternative serves to reinforce/constitute the hegemony of bioeconomic discourse and its fundamental assumptions of subject and space in the center.

THE ADVENT OF COMMUNITY AND CONTRADICTION

Third world natural resource regimes where community and commons are ontologically given, have taught many anthropologists and political ecologists that models other than that of a privatized and rationalized natural resource regime are possible.⁷ This knowledge, with clear origins in the third world, is coming home. In the case of fisheries, the advent of community as a category by which to understand contemporary first world fisheries and to inform management is seen as an implementation of that knowledge born of the third world and carried to new research sites, management positions, and consultancy projects. That is, the appearance of processes and actors other than that of neoclassical economics suggests an opening for alternative theorizations in the tradition of anthropology and political ecology as well as a set of contradictions for the dominant discourse (Olson 2005). The question remains whether the advent of community will transform the dominant discourse or if the latter will domesticate and assimilate the former. What follows is a brief exploration of the ways that community is being operationalized in the first world fisheries of the U.S. Northeast.

⁷ That is not to say that such alternative regimes are not also fraught with problems related to environmental degradation or allocation of resources. Despite such similarities, they remain alternative models of economy based on alternative ontological categories such as community suggesting alternative foundations for future economies.

LEGISLATING THE PRESENCE OF COMMUNITY

Recent federal legislation, responding to a variety of pressures, has introduced the category of community as an explicit object to be considered by fisheries management councils when deliberating fisheries management plans (FMPs). The federal government, with the passage of the Sustainable Fisheries Act of 1996 (SFA, Public Law 104-297), itself an amendment to the Magnuson Act of 1976⁸, has written into law this previously ignored category; what had only been seen in vestigial or peripheral fishing villages in the U.S. is now emerging as virtually ubiquitous. The SFA mandates impact assessments of management plans on “fishing communities.” Perhaps because the act presented only the most general notion of a fishing community,

The term “fishing community” means a community which 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 United States fish processors that are based in such community (SFA, Public Law 104-297).

there has been a flurry of activity designed to both define and incorporate into analyses and management fishing communities.⁹ While the act’s definition of community does not consign community to a terrestrial location, it is being interpreted only in this way.

The federal legislation cited above emerged from the strength of Alaska based politicians whose home state has a preponderance of settlements that might easily be defined as fishing communities by a number of standards (e.g. population employed in fisheries, income generated by fisheries, single industry towns, or cultural/historical ties to fisheries). Such standards are difficult to use in the Northeast and, indeed, in many regions of the United States where fisheries are but one of several coastal industries often embedded amongst and within urban or even suburban locations. While the term community did not in this case emerge from the third world per se, it has clearly traveled from the periphery to the urban and industrial centers of the Northeast. The implementation of community is in a very direct sense a transferal of a category and understanding of fisheries that is filled with meaning in the peripheral communities of rural Alaska to a location that has until recently been populated, in terms of the discourse of science and management, only by individual fishermen.

COMMUNITY DISRUPTIONS

The insertion of community presents to the dominant regime of fisheries science and management a number of potential contradictions. In particular, the dominant discourse is forced to address and incorporate the very term that had been so early on made irrelevant by virtue of its distance, by its relegation to the pre-industrial and pre-development world. Despite it being an essentially third world category, in terms of economic understandings of resources and their

⁸ It was the Magnuson Stevens Fisheries Conservation Act of 1976 that heralded a new era of fisheries management in the United States. This act set up regional fisheries management councils to produce fisheries management plans that would govern how individual species of fish could be harvested within the U.S. exclusive economic zone (the “200 mile limit”). Council rulings, however, need approval by the Department of Commerce and increasingly subject to federal scientific oversight.

⁹ For example, the National Marine Fisheries Service sponsored a workshop on “communities in fisheries.” This workshop, of which the author was a participant, focused on the definition and analysis of communities in fisheries.

exploitation, community must now be located and placed within the first world. Indeed, they must be found, using some standard methods, and analyzed relative to fisheries in the industrial Northeast of the U.S.

To accept communities everywhere, to see them as co-extensive with the urban and mixed industrial environments of the Northeast (as opposed to only in isolated rural villages), threatens the dominant discourse in a number of important ways. First, the forced recognition of community contradicts the scientific and managerial vision of fisheries where individual fishermen are subject of this discourse. The introduction of communities suggests a different economic actor with motivations and affinities impossible in the dominant model. The dominant discourse of individual competition on an open access commons produces methods of management that favor the limitation of access to the resource (e.g. there are presently limitations on the number days at sea per year and license quotas in many fisheries of the Northeast) as applied to individual fishing boats (themselves conflated with individual fishermen as discussed above). Under this regime, individual boats are assessed, penalized, or favored. Incorporating communities into such a system, which until now has largely been blind to the influences of community and culture on fishing practices (seeing neither communities on boats nor the communities in which boats are embedded) would disrupt the fundamental assumptions of the dominant discourse.

Second, the assessment of communities requires the locating and bounding of existing communities. They must be placed somewhere and labeled before they can be assessed or otherwise incorporated into science and management. Fishermen, as abstract fishing effort distributed across the management region, required no such placing. In its aggregate form, fishing effort could be measured and, as is most often the case, limited via legislation that does not differentiate fishing vessels based on, for example, community membership. Again, there is the potential for community to disrupt the basic foundations of fisheries science and management. Here the foundational nowhere-ness of fishermen is countered and contradicted by the absolute locations of communities.

Third, communities as ontological objects of analysis suggest the need for an alternative notion of resource use. Fishing effort can be measured relative to individual species of fishing within a discourse of equilibrium and disequilibrium and fishing effort can then be duly reduced or eliminated as necessary by restricting the practices of individual boats. Fishing communities, however, are difficult to imagine, measure, and manage relative to individual species. Communities, in most definitions, suggest a variety of fishing vessels, gear types, and a dependence upon a mix of marine species and fishing practices over time. Their relationship, as a single entity, to the resource is difficult to gauge or imagine given a tradition of single species management in fisheries.

Finally, the contradiction of community is also felt at the epistemological level. Communities are, in many cases, becoming participants in the production of fisheries knowledge (Wilson 1998; Neis et al. 1999; Maurstad 2000). Both historical and contemporary studies are revealing fishers as knowing subjects whose knowledge of the environment is being elevated to a status that removes it from the domain of anecdote to that of science (Ames 1997, 2004; Graham et al. 2002). This move, in part a function of the insertion of community (here communities of knowledge producers, see Palsson 1994) also challenges the authority and hegemony of the dominant discourse.

The process of alterity suggested earlier, a property historicism that produces both a homogenous modern economy and its (temporally or geographically) distant other, is being fundamentally challenged by the recent turn in (first world/industrial) fisheries science and management toward a consideration of community in terms of both collaborative research with groups of fishers and assessments of economic and social impacts of management upon fishing communities. Responding to this demand clearly requires an ontological admission of the presence of fishing communities and their relevance to fishers and fishing practices; it suggests the presence of the other (in this case represented by community) within the economic domain of first world fisheries. Denying this presence, relegating it to distant lands or historic moments is, it would seem, no longer tenable. If the dominant discourse must resolve the contradictions of community or itself be transformed, how might community be ontologically defined, analyzed, and understood while preserving the identity of fishing as the practice of atomized individuals competing on an open access commons? How can one preserve the economic domain and its essential elements while simultaneously responding to the advent and insertion of the category community?

(DIS)PLACING COMMUNITY

In addition to property historicism Callari (2004) points to another discursive mechanism that emerged with neo-classical economics by which alterity is produced; a mechanism that is also resident in fisheries economic thought. Based on a cultural turn within economics, alterity is located not in specific (other) geographical locations but within the domain of culture as now distinct and severed from the domain of the economic.

“Whereas in the case of property historicism, the other had been placed outside the homogeneous space of the modern economy, it had nonetheless remained as a visible element in the narrative of history as an evolution of economic systems. For the new economics, however, the turn to the cultural framing of the other places it entirely on the outside of the borders of the economic space. References to the other, in so far as they enter the discourse... must, in this case, be filtered through the prism of the stylized (private/public) relationship between the economic and the noneconomic which ...works to absorb the other and deny to it any possibility of subjectivity as other” (Callari 2004, p. 127).

Here, for example, communities, even fishing communities, might be found within the geographical space of the hegemonic economy but are inevitably ascribed to culture and thus removed from the discursive space of the economic. As an essentially non-economic process, community/culture is the purview of anthropology or related disciplines while the essential economic story represented by the behavior of economic men remains the undisputed domain of economics or, in the case of fisheries, the harvesting practices of fishermen (as measures of effort) relative to quantities of fish remains the undisputed domain of bioeconomics. The new boundary that maintains the identity of the dominant economic discourse is no longer between stages in modes of production/property but between the economic and the cultural; from a property historicism perspective, culture may have been integral to other forms of economy in the past or in distant locations but now it can be severed entirely from the economic and constituted by other discourses such as anthropology (cf. Zein-Elabdin and Charusheela 2004). Just how community is being incorporated into fisheries science and management is evident in the following examples from the Northeast where the author has been an active participant in

attempts to define and operationalize the category of community. At several levels community is finding its way into the discourse of fisheries in both the New England and Mid-Atlantic management regions. The regional councils, due to the federal mandate, must now officially address economic and social impacts upon communities for each of the fishery management plans (FMPs) it develops. Each plan (or plan amendment) must contain an assessment and resultant documentation of both economic (EIAs) and social impacts (SIAs) upon communities.¹⁰ The federal government has also responded to the emerging need for community expertise by hiring several anthropologists to work out of the NMFS Northeast Fisheries Science Center in Woods Hole Massachusetts. That the new hires are primarily anthropologists suggests already that community is within the domain of culture rather than an ontological category within bioeconomics (of which NMFS has many specialists) (cf. Olson 2005). Finally, there have been several funding initiatives designed to produce new methods and standards for assessing communities as well as funding designed to target cooperative research between standard fisheries science and fishers/fishing communities.¹¹

The following examples are all relevant to the fisheries science and management system in the Northeast. They suggest a particular place for community relative to the essential economic understanding of fisheries via bioeconomics; that place is both a discursive location outside the domain of the economic and a literal location where community resides on land while the processes of economy are at sea.

ECONOMIC IMPACT ANALYSES

The New England Fisheries Management Council produces detailed reports designed to assess the economic and social impacts of FMPs. While such reports were in the past devoid of fishing communities, more recent FMPs have been supplemented by analyses explicitly addressing impacts on and implications for fishing communities. Most EIAs use standard dealer data to assess recent economic changes in relation to changes in fish stock and fishing regulations. The data consists of seafood dealers receipts of fish bought from harvesters by port and state. Knowing not only quantity but also value of landings allows for detailed economic analyses focused on change over time, regional multiplier effects, and economic projections given new regulations that would alter landings quantities and composition. The analyses also suggest a particular image of community as the effect of market oriented economic activity and reduces community health to revenues by region. Mapping economic impact makes clear the terrestrial location of community and a relationship to the commons expressed only in terms of gross revenues. Figure 2 is from an economic analysis report (NEFMC 2001) and shows the locations of “community groups” such that their relationship with the commons and their effect on the economy of fishing is difficult to imagine.

¹⁰ Fishery Management Plans (FMPs) exist for virtually all species of fish that are commercially harvested in the Northeast (or in the case of ‘groundfish’, a collection of species harvested using the same bottom trawling technology). FMPs are periodically amended in response to scientific findings and/or pressure from various organizations.

¹¹ The author has participated in several such projects including “Recreational Fishing and National Standard 8: Assessing Community Impacts of Federal Regulations” (funded by NOAA via the NMFS CMER program) and “An Atlas-based Audit of Fishing Territories, Local Knowledge, and the Potential for Community Participation in Fisheries Science and Management” (funded by NOAA via the Northeast Consortium).

SOCIAL IMPACT ANALYSES

The SIAs produced by the council, like the EIAs, suggest the existence of communities insofar as they assess port locations and coastal regions where fishers may reside or dock their boats. There is, however, no connection between the ports or regions specified and particular areas at sea. This disconnection is symptomatic of the disconnection between the discursive domains of culture/community and economy/individual. Other related work, however, that assesses the social impact of particular fisheries management options attempts to incorporate this at-sea aspect of fishing communities (e.g. McCay et al. 2002a, 2002b). This work utilizes Vessel Trip Report (VTR) data collected by the National Marine Service and database query techniques developed by the author (St. Martin 2004). This data set consists of reports submitted by vessel captains that detail gear use, catch, discards, and, importantly, vessel location for each fishing trip. Using the trip locations of individual boats, which themselves can be linked to particular ports, McCay et al. attempt to address the absence of any link between community and harvesting areas.

Using GIS techniques, the social impact of management options that involve the closure of some area at sea (as is becoming increasingly popular) is assessed. As in the example of the Squid, Mackerel, Butterfish SIA (McCay et al. 2002a), VTR data were used to find out which boats fished in the proposed closed area, where those boats were from, and what percent of the catch landed came from the proposed closure area (Figure 3). This straightforward analysis had not been done previously and represented a new image of fishing where communities could be linked to specific areas.

This database query analysis produces sites that are impacted by changes in fishing effort, principally reductions in effort as specified by each fishery management plan. The locating of impact in specific locations, ports, communities, suggests a much more heterogeneous fishing industry than was previously imagined. There is not, however, any extension of that community-based heterogeneity into the sea itself; there is no translation of community into an economic agent of harvest/production. Community, in this case and in SIAs generally, is a site of impact, a place removed from the bioeconomy of fishing and its regulation. Individual fishermen, mobile and independent (and conflated with boats), remain the essential subject of fishing despite their residence in on-shore communities that are impacted by but not constitutive of the fishing economy. Bioeconomics, even after the explicit incorporation of community in fisheries science and management, remains the sole arbiter of a fishing economy devoid of community. While community can, and must, be addressed, it remains outside the domain of the economic and the subject of anthropology and geography.

OTHER FORA FOR COMMUNITY

In addition to EIA and SIA documents, the formal management process, as instituted in the Northeast, consists of many open meetings and other, often heated, public forums where the voice of fishing communities is heard.¹² Unlike researchers analyses of community, these forums allow fishers to speak for themselves. Many people representing fishing communities appear and speak at these meetings, submit statements and comments on management actions, lobby government officials, and interact with the media concerning management issues. The language

¹² The author was a participant observer of council and council committee meetings while doing research as a National Research Council Associate with NMFS at the Northeast Fisheries Science Center (2000-2001).

of fisheries science and management, itself dedicated to enumerating and allocating quantities of catch, translates virtually all community issues into a struggle over the allocation of those quantities. All local and community difficulties, disruptions, transformations, and concerns are reduced to an insistence that management not restrict harvesting; processes of community are translated into the utility functions of individuals. In addition, community concerns about specific areas at sea, the site where utility is maximized, encounter fundamental barriers. The scale of fishing and of fishers' environmental observations is much smaller than that of fisheries science and management. Their observations of pollution events, environmental degradation, particular flora or fauna, and quantities of species are simply not compatible with the observations and analysis performed by fisheries scientists at the regional or supra-regional scale (Clay 1996). The connections that fishers have with particular areas offshore as expressed in their local knowledge are largely ignored by fisheries science and management. In this process of public participation, the communities fishers represent are reduced to the desires of individuals to increase harvest and are disconnected from any location at-sea. Despite the high levels of public participation, the boundaries that enclose the domain of economy remain firm.

Callari (2004) implies that the second path to othering, the movement of community/culture to the outside of economic space, is a discursive rather than literal geographic move. While this is true, in contemporary fisheries in the Northeast this discursive disciplining has a geographic expression as well; the economic space, the abstract space of objectified resources that is reified by bioeconomic discourse, is geographically separate from the terrestrial locations of community reified by anthropological discourse. The discursive divide is inscribed into the landscape of fishing by a geographic divide that preserves the domain of the economic as ruled by particular ontological elements that do not include or are not influenced by community. This second divide resolves the problems associated with the insertion of community by placing community outside the space of fisheries resources and placing it outside the essential economic logic around which fisheries science and management continues to revolve.

(RE)PLACING COMMUNITY

The dominant discourse of fisheries science and management provides no future for communities in terms of their participation in the economy of fisheries. That is, communities may be considered in the management process but only in terms of the impacts of regulations, as essentially the residence of individual fishermen or as the ports out of which their boats operate. Such communities are severed from the space of fisheries resources and, hence, the site of essential economic processes; the degree to which communities might constitute, understand, and work together on a fisheries commons is made invisible. The potential for communities, for community economies, relative to the commons is located only in distant locations peripheral to the industrial/capitalist economy. The few places where communities can be mapped onto the commons in the Northeast are in locations that are seen as remnant and pre-modern (e.g. the legally identified traditional fishing grounds surrounding Monhegan Island, ME).

While "traditional" fishing communities have always been visible and active in the Northeast and are now categorically incorporated into science and management, their presence within the economic space of fishing has arguably been silenced and their presence recognized only outside. The disciplining of fisheries, even in the industrial Northeast, is, however, never complete. There remain traces of the other, of community and territory, within the identity of the dominant subject and space. It is within this economic space that the presence of the other must

be revealed if we are to open the future of fisheries to more than narrowly conceived neoliberal privatization schemes (cf. Mansfield 2004). In fisheries, the economic space that is the domain of bioeconomics parallels the physical at-sea locations of harvesting, as seen earlier. Therefore, the degree to which community can be mapped, literally, onto the commons is the degree to which community can be inserted into the economic space of fishing, the domain of bioeconomics.

There is a fundamental difference, then, between mapping (and here mapping means actual maps as well as representations derived from ethnographies, interviews, focus groups, etc.) terrestrial sites of community and mapping their presence at-sea. The former reduces to a community as residence separate from the essential economic dynamic of fisheries. The latter suggests a role for community in determining where and how fishing effort is produced, and it implies a unit of analysis that would go beyond an assumed individual fisherman to the investigation of the variety of social relations that make up community (here we can imagine, amongst other processes, class relations between owners, operators, and crew as relevant to production and distribution decision-making). Mapping community onto the commons, in short, suggests an opening, a place from which to produce a new discourse of community and commons where the former is fundamental to the constitution of the latter.

Figure 4 below is but one example of how community can be produced on the commons in the Northeast. Using the same NMFS data that was used to map the impacts of area closures on particular communities (see figure 3), it is possible to map not from commons to community (e.g. to assess the impacts of area closures) but from community to commons (e.g. where do fisheries from a particular port regularly fish together?). Figure 4a shows fishing vessel trip locations (thousands of tiny dots) for selected Mid-Atlantic ports. In the aggregate, which is how this data is typically utilized, community presence is difficult to discern; after selecting and categorizing by port of origin (or any number of community associations such as gear type, boat size, or crew size), however, community territories begin to emerge. Standard spatial statistical techniques can then be applied to gauge clustering, reveal the differential patterns of unique communities and/or ports, and produce zones representing areas of importance by community. Figure 4b clearly shows the differential nature of fishing zones for the same Mid-Atlantic ports (e.g. Point Pleasant and Montauk show relatively proximate territories while Wanchese and Hampton boats are much more wide ranging). Mapping community onto the commons, here a literal mapping, is vital if the category of community is to have more meaning than simply a site of economic impact, if it is to be seen as integral to the economic dynamic of fishing.

Vessel trip report data contains the locations of fishing trips and makes possible the representation of communities on the commons. Importantly, this data also records the number of crewmembers onboard a vessel during any given trip. The latter information hints at the potential to broaden the image of community not only in spatial terms but also in terms of the multiple economic positions of fishers themselves and the social relations amongst them. Positioning vessels between community and commons clearly suggests their role as a vehicle of surplus from commons to community; identifying the multiplicity of fishers on board a boat reveals how that surplus is distributed amongst fishers and within communities. In most fisheries, fishers are compensated not by a wage but by a share of the catch;¹³ their pay is more a

¹³ The share system is thought to be an effective mechanism for accommodating the uncertainty of fishing (Doeringer et al 1986; Doeringer and Terkla 1995). Eliminating such uncertainty is, however, one of the primary aims of fisheries science and management and such a move suggests a potential for the implementation of new social relations in fishing that would include wage relations.

function of the health of the commons and the skill of the captain than a struggle over wages with capital. Insofar as fishers are members of wider communities, fishing communities are directly linked to the commons as a source of wealth unmediated or obscured by a wage relationship. Clearly, all fishers and fishing communities do not act as stewards of the commons; their peculiar system of compensation does, however, indicate a community presence and economic interest relative to the commons itself. That is, the share system links communities, rather than individual fishermen conflated with individual vessels, directly to the commons and suggests at least a trace of a community economic dynamic.

CONCLUSION

The discourse of fisheries science and management that has evolved in the North Atlantic successfully displaces community and culture from the essential economic dynamic of fisheries. Fisheries, understood as an economy constituted by a particular economic subject (i.e. the utility maximizing fisherman) and space (i.e. the abstract space of resources open to appropriation), becomes a site flawed by deficient property rights. The goal of this dominant discourse is to enclose fisheries, to constitute it as within the singular and hegemonic economy of capitalism by instituting a new regime of property rights. Private property (and a neoliberal approach generally) becomes the only solution and future toward which fisheries management must strive. Alternative economies such as those based on the presence of community as integral to economy are impossible to imagine. Such economies, through the lens of a property historicism, are always seen as either before or beyond the dominant economic formation.

The category of community is, however, crossing the boundary into the domain of the dominant economy. With political ecology and, in this case, fisheries social science as traveling companions, community, once relegated to peripheral and/or third world locations, is beginning to appear with greater frequency within the first world. In fisheries, the presence of community (and associated cultural processes) is a direct challenge to the ontological foundations of fisheries bioeconomics, and fisheries science and management generally; once visible, community disrupts the assumed subject and space of fisheries economies. For the dominant discourse to be maintained, community must be (dis)placed such that the domain of the economic remains devoid of community, culture, common territories, etc. What emerges is a particular understanding of community such that it is ontologically present but outside the discursive space of economy. Community can be identified, documented, and analyzed but always only as a site of economic impact and never as a constituent of the economic; the space of the economic remains populated by individual fishermen and understood via bioeconomics while community is relegated to culture and understood via anthropology.

Curiously, this disciplining of community has a literal geographic dimension: the discursive domain of bioeconomics corresponds to the spatial domain of fisheries resources themselves while that of fisheries social science/anthropology corresponds to the terrestrial locations of fishers residences. Fishing ports become the place of community while the actual common property resource remains the site where the essential economic dynamic reigns uncompromised. The recent inscription of community such that it is severed from the common resources upon which it depends makes difficult any attempt to see community as foundational to economy. Through a (re)mapping of community onto the commons, however, communities might be seen to inhabit the commons, produce environmental knowledge about the commons, facilitate and/or constrain fishing effort on the commons, and act as potential managers of the

commons. In this case, alternative mappings and other forms of representation open the economic space that was once enclosed by bioeconomic discourse to the possibility of community and a community-based economy of fisheries.

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BIBLIOGRAPHY

- Acheson, James M. 1989. Management of Common Property Resources. *Economic Anthropology*. Editor Stuart Plattner, 351-78. Stanford, CA: Stanford University Press.
- Amariglio, Jack, and David F. Ruccio. 2001. From Unity to Dispersion: The Body in Modern Economic Discourse. *Postmodernism, Economics and Knowledge*. Editors Stephen Cullenberg, Jack Amariglio, and David F. Ruccio, 143-65. New York: Routledge.
- Ames, E. P. 2004. Atlantic Cod Stock Structure in the Gulf of Maine. *Fisheries* 29, no. 1: 10-28.
- . 1997. *Cod and Haddock Spawning Grounds in the Gulf of Maine*. Rockland, ME: Island Institute.
- Anderson, Lee G. 1986. *The Economics of Fisheries Management*. Baltimore: Johns Hopkins University Press.
- Apostle, Richard, Gene Barrett, Petter Holm, Svein Jentoft, Leigh Mazany, Bonnie McCay, and Knut H. Mikalsen. 1998. *Community, State, and Market on the North Atlantic Rim: Challenges to Modernity in the Fisheries*. Toronto: University of Toronto Press.
- Apostle, Richard, Bonnie McCay, and Knut H. Mikalsen. 2002. *Enclosing the Commons: Individual Transferable Quotas in the Nova Scotia Fishery*. St. John's, Newfoundland: Institute of Social and Economic Research.
- Berkes, Fikret, Editor. 1989. *Common Property Resources*. London: Belhaven Press.
- Boelhower, William. 1988. Inventing America: A Model of Cartographic Semiosis. *Word and Image* 4, no. 2: 475-97.
- Callari, Antonio. 2004. Economics and the Postcolonial Other. *Postcolonialism Meets Economics*. Editors Eiman O. Zein-Elabdin, and S. Charusheela. New York: Routledge.
- Charles, A. T. 1988. Fishery Socioeconomics: A Survey. *Land Economics* 64, no. 3: 276-95.
- Clark, Colin W. 1985. *Bioeconomic Modelling and Fisheries Management*. New York: John Wiley and Sons.
- Clay, Patricia M. 1996. Management Regions, Statistical Areas and Fishing Grounds: Criteria for Dividing up the Sea. *Journal of Northwest Atlantic Fisheries Science* 19: 103-25.
- Clay, Patricia M., and James R. McGoodwin. 1995. Utilizing Social Sciences in Fisheries Management. *Aquatic Living Resources* 8: 203-7.
- Community Economies Collective. 2001. Imagining and Enacting Noncapitalist Futures. *Socialist Review* 28, no. 3+4: 93-135.
- Cushing, D. H. 1988. *The Provident Sea*. New York: Cambridge University Press.

- . 1977. *Science and the Fisheries.*, Vol. Studies in Biology no. 85. London: Edward Arnold.
- Doeringer, Peter B., Philip I. Moss, and David G. Terkla. 1986. Capitalism and Kinship: Do Institutions Matter in the Labor Market? *Industrial and Labor Relations Review* 40, no. 1: 48-60.
- Doeringer, Peter B., and David G. Terkla. 1995. *Troubled Waters: Economic Structure, Regulatory Reform, and Fisheries Trade.* Toronto: University of Toronto Press.
- Dyer, Christopher L. 1994. Proaction versus Reaction: Integrating Applied Anthropology into Fishery Management. *Human Organization* 53, no. 1: 83-88.
- Eckert, Ross D. 1979. *The Enclosure of Ocean Resources: Economics and the Law of the Sea.* Stanford, CA: Hoover Institution Press.
- Escobar, Arturo. 1995. *Encountering Development.* Princeton, NJ: Princeton University Press.
- Gibson-Graham, J. K. 1996. *The End of Capitalism (As We Knew It): A Feminist Critique of Political Economy.* Basil Blackwell.
- Gibson-Graham, J. K., Stephen A. Resnick, and Richard D. Wolff, Editors. 2000. *Class and Its Others.* Minneapolis: University of Minnesota Press.
- Gordon, H. Scott. 1954. The Economic Theory of a Common Property Resource: The Fishery. *Journal of Political Economy* 62: 124-42.
- Graham, J., Engle S., and Recchia M. 2002. *Local Knowledge and Local Stocks: An Atlas of Groundfish Spawning in the Bay of Fundy.* Antigonish, Nova Scotia: The Centre for Community-based Management, St. Francis Xavier University.
- Gudeman, Stephen, and Alberto Rivera-Gutiérrez. 2002. Neither Duck Nor Rabbit: Sustainability, Political Economy, and the Dialectics of Economy. *The Spaces of Neoliberalism: Land, Place and Family in Latin America.* Editor Jacquelyn Chase, 159-86. Bloomfield, CT: Kumarian Press, Inc.
- Hardin, Garret. 1968. The Tragedy of the Commons. *Science* 162: 1243-48.
- Harley, J. Brian. 1992. Rereading the Maps of the Columbian Encounter. *Annals of the Association of American Geographers* 82, no. 3: 522-35.
- . 1988. Silences and Secrecy: The Hidden Agenda of Cartography in Early Modern Europe. *Imago Mundi* 40.
- Jentoft, Svein. 2000. The community: a missing link of fisheries management. *Marine Policy* 24, no. 1: 53-60.
- Jentoft, Svein. 1999. Healthy Fishing Communities: An Important Component of Healthy Fish

- Stocks. *Fisheries* 24, no. 5: 28-29.
- Kearney, John F. 1989. Co-Management or Co-Optation? The Ambiguities of Lobster Fishery Management in Southwest Nova Scotia. *Co-Operative Management of Local Fisheries*. Editor Evelyn Pinkerton. Vancouver: University of British Columbia Press.
- Keen, Elmer A. 1988. *Ownership and Productivity of Marine Fishery Resources*. Blacksburg, VA: The McDonald and Woodward Publishing Company.
- Kellert, Stephen R., Jai N. Mehta, Syma A. Ebbin, and Laly L. Lichtenfeld. 2000. Community Natural Resource Management: Promise, Rhetoric, and Reality. *Society & Natural Resources* 13: 705–715.
- Kirby, Kathleen M. 1996. *Indifferent Boundaries: Spatial Concepts of Human Subjectivity*. New York: The Guildford Press.
- Leal, D. R. 1996. *Community-Run Fisheries: Avoiding the 'Tragedy of the Commons'*. PERC Policy Series, ed. J. S. Shaw, Issue Number PS-7. Bozeman, MT: PERC.
- Mackenzie, A. Fiona D., and Dalby Simon. 2003. Moving Mountains: Community and Resistance in the Isle of Harris, Scotland, and Cape Breton, Canada. *Antipode* 35, no. 2: 309-33.
- Mansfield, B. 2004. Neoliberalism in the Oceans: “Rationalization,” Property Rights, and the Commons Question. *Geoforum* 35: 313-326.
- Maurstad, Anita. 2000. Trapped in Biology: An Interdisciplinary Attempt to Integrate Fish Harvesters' Knowledge into Norwegian Fisheries Management. in *Finding Our Sea Legs: Linking Fishery People and Their Knowledge with Science and Management*. Editors Barbara Neis, and Lawrence Felt. St. John's Newfoundland: ISER Press.
- McCarthy, James. 2002. First World political ecology: lessons from the Wise Use movement. *Environment and Planning A* 34, no. 1281-1302.
- McCay, B. J., B. Oles, B. Stoffle, E. Bochenek, K. St. Martin, G. Graziosi, T. Johnson, and J. Lamarque. 2002. *Port and Community Profiles, Amendment 9, Squid, Atlantic Mackerel, and Butterfish Fishery Management Plan: A Report to the Mid-Atlantic Fishery Management Council*, The Fisheries Project, Rutgers University, New Brunswick.
- McCay, B. J., D. C. Wilson, J. Lamarque, K. St. Martin, E. Bochenek, B. Stoffle, B. Oles, and T. Johnson. 2002. *Port and Community Profiles and Social Impact Assessment, Amendment 13 of the Surfclam and Ocean Quahog Fishery Management Plan: A Report to the Mid-Atlantic Fishery Management Council*, The Fisheries Project, Rutgers University, New Brunswick.
- McCay, Bonnie J., and James M. Acheson, Editors. 1987. *The Question of the Commons*. Tuscon: The University of Arizona Press.

- McCay, Bonnie J., and Svein Jentoft. 1996. From the Bottom Up: Participatory Issues in Fisheries Management. *Society and Natural Resources* 9: 37-250.
- McEvoy, Arthur F. 1986. *The Fisherman's Problem: Ecology and Law in the California Fisheries 1850-1980*. Cambridge: Cambridge University Press.
- Michie, Helena, and Ronald R. Thomas. 2003. *Nineteenth-Century Geographies: The Transformation of Space from the Victorian Age to the American Century*. New Brunswick, NJ: Rutgers University Press.
- (NEFMC) New England Fishery Management Council. 2001. *Draft Summary Statistics for the Northeast Multispecies Fishery*, New England Fishery Management Council, Newburyport, MA.
- Neis, Barbara, David C. Schneider, Lawrence Felt, Richard L. Haedrich, Johanne Fischer, and Jeffrey A. Hutchings. 1999. Fisheries Assessment: What can be Learned from Interviewing Resource Users. *Canadian Journal of Fisheries and Aquatic Science* 56: 1949-63.
- Olson, J. 2005. Re-Placing the Space of Community: A Story of Cultural Politics, Policies, and Fisheries Management. *Anthropological Quarterly* 78(1): 247-267.
- Palsson, G. 1994. Enskillment at Sea. *Man* 29, no. December: 875-900.
- Pavlovskaya, Marianna. 2004. Other transitions: Multiple economies of Moscow households in the 1990s. *Annals of the Association of American Geographers* 94, no. 2: 329-51.
- Pierce, D. E., and P. E. Hugl. 1979. *Insight into the Methodology and Logic Behind National Marine Fisheries Service Fish Stock Assessments*. Boston: Massachusetts Division of Marine Fisheries, Massachusetts Coastal Zone Management Office.
- Ratner, Blake D., and Alberto Rivera Gutierrez. 2004. Reasserting Community: The Social Challenge of Wastewater Management in Panajachel, Guatemala. *Human Organization* 63, no. 1: 47-56.
- Robbins, Paul. 2002. Letter to the editor. *Environment and Planning A* 34: 1509-13.
- Shiva, V. 1990. Development as a New Project of Western Patriarchy. *Reweaving the World: The Emergence of Ecofeminism*. Editors I. Diamond, and G. Fenan Orenstein, ?? San Francisco: Sierra Club Books.
- Smith, Tim D. 1994. *Scaling Fisheries: The Science of Measuring the Effects of Fishing, 1855-1955*. Cambridge: Cambridge University Press.
- . 1998. "Simultaneous and Complementary Advances": Mid-Century Expectations of the Interaction of Fisheries Science and Management. *Reviews in Fish Biology and Fisheries* 8: 335-48.

- St. Martin, Kevin. 2005. Mapping Economic Diversity in the First World: The Case of Fisheries. *Environment and Planning A* 37.
- . 2004. GIS in Marine Fisheries Science and Decision Making. In *Geographic Information Systems in Fisheries*. Editors W. L. Fisher, and F. J. Rahel. American Fisheries Society.
- . 2001. Making Space for Community Resource Management in Fisheries. *Annals of the Association of American Geographers* 91, no. 1: 122-42.
- The Ecologist. 1999. Development as Enclosure. *The Ecologist* 22, no. 4: 131+.
- van der Burg, Tsjalle. 2000. Neo-classical economics, institutional economics and improved fisheries management. *Marine Policy* 24: 45-51.
- Walker, Peter, and Louise Fortmann. 2003. Whose Landscape? A Political Ecology of the 'Exurban' Sierra. *Cultural Geographies* 10: 469-91.
- Walker, Peter A. 2003. Reconsidering "regional" political ecologies: toward a political ecology of the rural American West. *Progress in Human Geography* 27, no. 1: 7-24.
- Wilson, James A. 1998. The Social and Management Implications of Local Stocks. In *The Implications of Localized Fishery Stocks*. Editors, Hunt von Herbing, Irv Kornfield, Mark Tupper, and James Wilson. Ithaca, NY: NRAES.
- Wilson, James A., James M. Acheson, Mark Metcalfe, and Peter Kleban. 1994. Chaos, Complexity and Community Management of Fisheries. *Marine Policy* 18, no. 4: 291-305.
- Yapa, L. S. 1991. Theories of Development: The Solution as Problem. *Research and Exploration*, no. Summer: 263-65.
- Zein-Elabdin, Eiman O., and S. Charusheela, Editors. 2004. *Postcolonialism Meets Economics*. New York: Routledge.

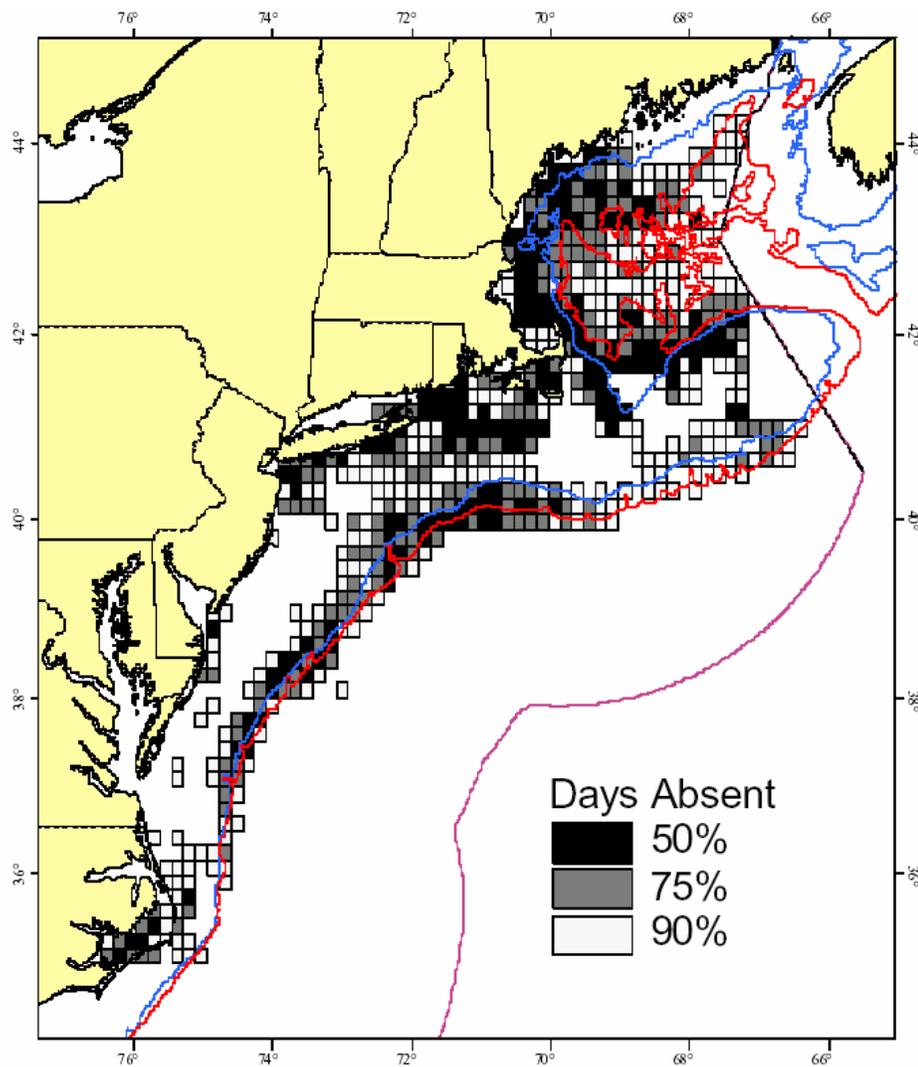


Figure 1. Map showing fishing effort for both the New England and Mid-Atlantic management regions. Produced for a document relevant to the groundfish FMP, this map is illustrative of the spatial ontology utilized by the National Marine Fisheries Service and the regional management councils. This image shows locations of trawl fishing activity for the years 1995-2001. Where boats went when absent from shore is indicated but from which community the boats originated is not shown.

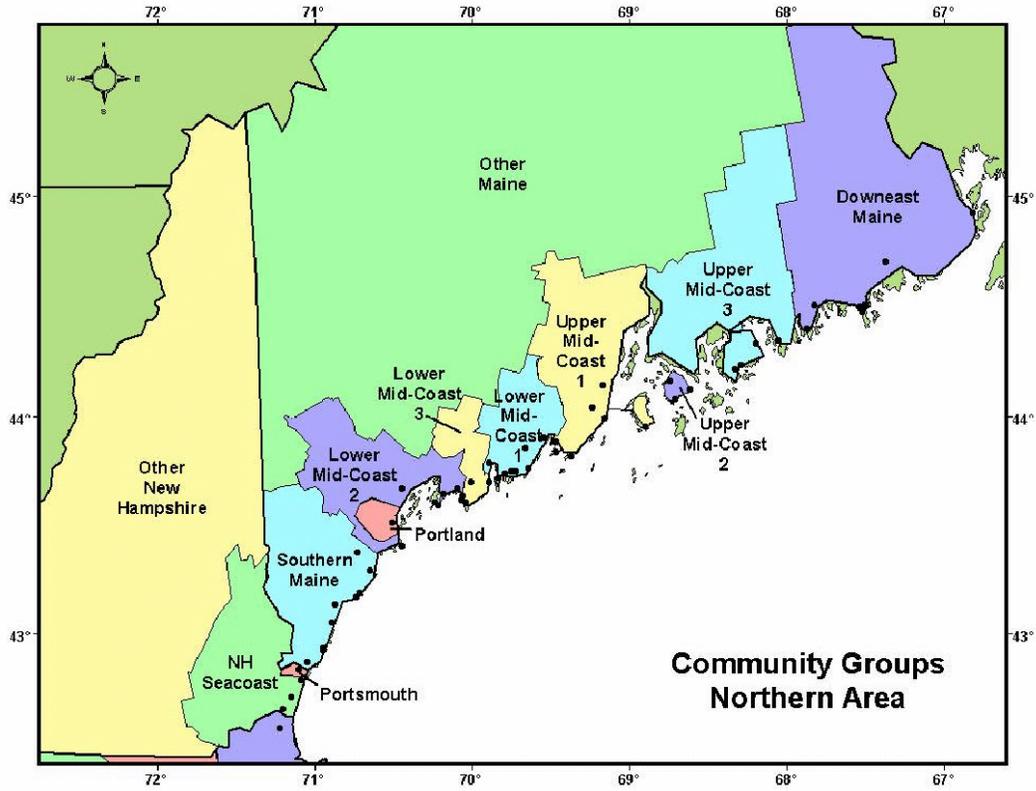


Figure 2. Source is Draft Summary Statistics for the Northeast Multispecies Fishery (NEFMC 2001).

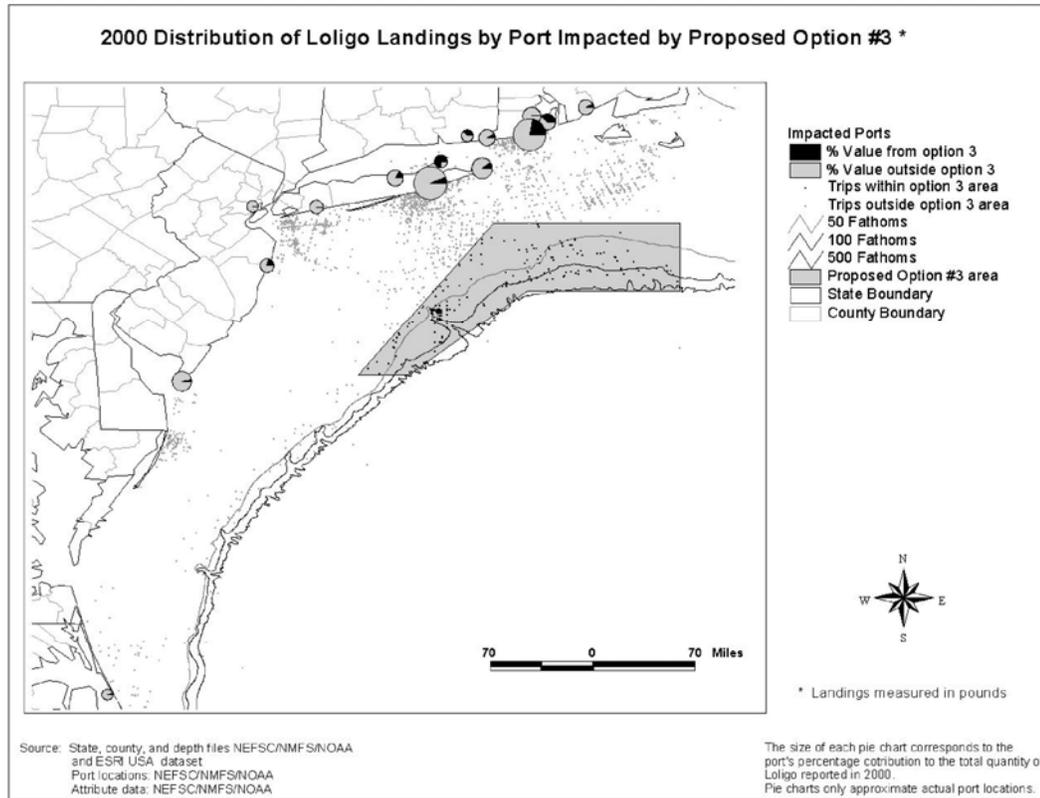


Figure 3. An example of the use of GIS and spatial data to assess the impacts of area closures.

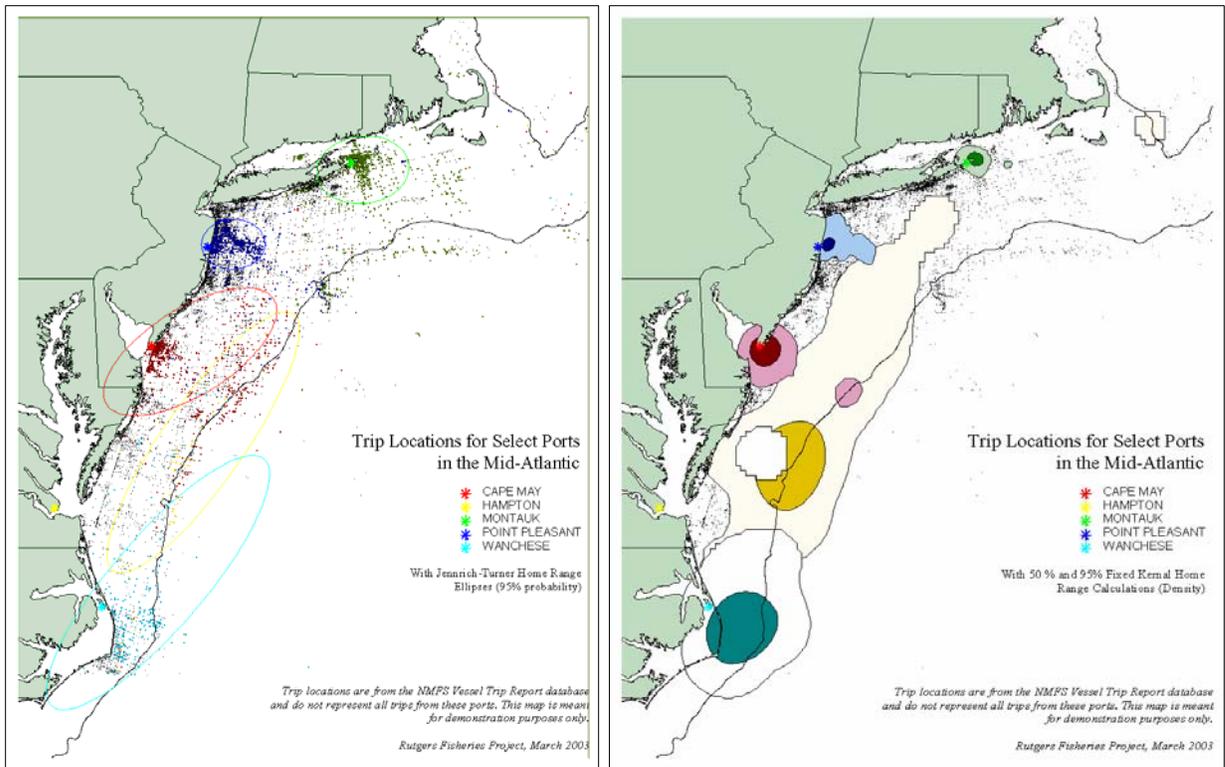


Figure 4a and 4b. 4a depicts actual trip locations in the Mid-Atlantic region. Those that are colored originated in one of the five highlighted ports. 4b depicts zones (derived from the same data) of primary and secondary importance to the same ports.