

Toward a Cartography of the Commons: Constituting the Political and Economic Possibilities of Place

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Storytelling and analysis must be generated around the commons in order to replace the language of efficiency with that of sufficiency, the cultural visibility of the individual with that of community (Escobar 1995: 198).

Introduction

Place-based politics and struggles around resources that counter neoliberal dispossessions of what had been common require an ontological ground upon which such politics and struggles might be enacted. A host of contemporary movements, from indigenous rights to resources to anti-enclosure movements, rely upon a vision of community territory or local commons through which alternative forms of environmental knowledge, productive utilization of resources, and local identities can be imagined (e.g. Escobar 2001; Mackenzie 2006; Sletto 2002). These spaces of difference counter hegemonic understandings of nature as an inventory of discrete resources open to individual appropriation, and they are increasingly represented using mapping and related technologies that fall under the rubric of “counter-mapping” (Peluso 1995).

Counter-maps work against the displacement, valuation, abstraction, individuation, privatization, and alienability of resources that are foundational to a capitalist appropriation and exploitation of nature (Castree 2003), and, insofar as they recast space as the domain of resource dependent communities, they work against the representation of resource users as competing individuals bent on utility maximization. Counter-mapping, then, is not only an effective method for reclaiming material resources for those who have been dispossessed but it works to counter particular forms of economic subjectivity and space (St. Martin 2005a); it inserts a non-capitalist presence into locations where only a capitalist potential had been identified via scientific and institutionalized mappings of nature and resources (cf. Law 2004).

In this sense, counter-maps represent a parallel and spatial analogue to the alternative language of economy developed by Gibson-Graham and others (Gibson-Graham 1996). Where

counter-maps suggest the possibility of non-capitalist spaces, openings in the economic landscape, Gibson-Graham posits a “diverse economy” where non-capitalist class processes, alternative economic subjectivities, and “community economies” might be identified and/or enacted (Gibson-Graham 1996, 2006). Both are counter-discourses that create openings for non-capitalism, one utilizes a spatial imaginary and one is focused more on economic subjectivity. Furthermore, insofar as capitalism is associated with a globally expansive and totalizing system, both locate difference from capitalism in ways that are constitutive of community economies and their respective commons (see also Gudeman and Rivera 2002) and contribute to an “ethics of the local” (Gibson-Graham 2003; see also Mackenzie 2006).

This paper seeks to build upon the possibility of counter-mapping initiatives to act not only as a reclaiming of resources and identities by local, primarily indigenous, peoples but also as constitutive of an imaginary of place and identity released from capitalist subjection and productive of a community/commons becoming. While mapping and the quantitative assessment of resources have long been associated with the rise of capitalism, here such methods are rethought and redeployed as a means to counter capitalism by remapping space/resources as common(s). Competing with the cartography of capitalism, undermining its power to fix resources as open to capitalist appropriation and space as enclosed, will require a cartography of the commons that can effectively recast space as a site of multiple economic possibilities and resources as the basis of community livelihoods.

This broadening of counter-mapping to be a method for “imagining and enacting non-capitalism” (Community Economies Collective 2001) is, however, hampered by its alignment with essential communities located on the periphery of capitalism. Reliant upon ethnographic approaches, sketch mapping, map biographies, and village-level meetings, counter-mapping

initiatives reinforce representations of resource dependent communities as traditional, local, discrete, and often homogenous entities (Hodgson and Schroeder 2002); they cast community-based claims to resources in chiefly historic terms (Chapin 2005); and they suggest an applicability in sites that are somehow either beyond or before capitalism (St. Martin 2005a). Such methods make the generalization of difference from capitalism to other scales or locations (particularly those represented as capitalist by dominant discourses of economy) difficult at best. In this sense, counter-mapping is limited: it does not so much disrupt the cartographic discourse of capitalism as it maps islands of difference to be defended from a powerful, coherent, and, ultimately, global capitalism.

The second task of this paper, then, is to explore the use of counter-mapping as a means to counter capitalism not just on its frontier but at its center, to re-present and re-map the economic landscape of even, and especially, the global North as diverse and open to alternative economic futures. While this might be achieved in a variety of ways (c.f. Cameron and Gibson 2005a), this paper illustrates how we can not only reclaim space and resources for communities (and community economies; see Graham et al. 2002) but how we can reclaim the very tools and methods of hegemonic institutions that have traditionally mapped space as a template for capitalism and resources as available for individual/corporate appropriation. For example, state sponsored databases and inventories of resources that fix space and resources as elements of a capitalist economy might be reworked using critical quantitative and GIS methodologies to reveal non-capitalist potentials across sites and scales (e.g. Arvidson 1995). Such methods will allow a cartography of the commons to not only map spaces as non-capitalist but to do so beyond the village or the historic commons. In general, a cartography of the commons, applicable in the first world and disruptive of capitalism, will require a shift in strategy from explicating and

defending existing commons to mapping a space into which a commons future might be projected.

The paper proceeds by briefly illustrating the close relationship between cartographic practices and the development of economic subjects and spaces that are conditions of existence for capitalism as well as an always distant commons. While counter-mapping works well to concretize the commons, it must be re-thought in terms of method if it is to act as a means to disrupt capitalist space. The paper then discusses the methodological implications of moving toward a cartography of the commons applicable in the first world and constitutive of community economies and commons futures. It does so by introducing a quantitative approach to counter-mapping. The last section illustrates the potentials of such a cartographic practice by citing two examples that begin from quantitative analyses. The first is a re-reading of the “Buffalo Commons” and the second is an explicit counter-mapping initiative in the fisheries of the Northeast. Both are prying open the (en)closures of capitalism and creating space for environmental and economic difference.

Mapping Capitalism’s Potential

Brian Harley and others (e.g. Boelhower 1988; Harley 1988; Pickles 2004) have pointed convincingly to the ways that cartography has been instrumental in the development of capitalism. For example, enclosure mapping, the inventory and inscription of once common resources into private holdings (e.g. Harley 1992; Mingay 1999), makes clear that the origins of capitalism are found not just in the proletarianization of the poor but in new forms of knowledge and representations of the land and its resources. Enclosure mapping and accompanying enumerations of resources worked to produce and enlarge the terrain of capitalism by recasting occupied and inhabited landscapes as storehouses of resources open to appropriation,

commodification, and exploitation; simultaneously new subjects of the emerging economy were produced, in particular, individuated workers severed from community and commons and individual landowners exercising new individual rights over land and resources.

This process is evident not only in early estate mapping and enclosure mapping but is inseparable from the experience of a European expansion globally, an expansion that reified a particular cartographic and geographic imaginary of economy across space (e.g. Blunt and Rose 1994; Driver 2001; Godlewska and Smith 1994; Said 1979). For example, the Jeffersonian project of gridding and enumerating the resources of the Great Plains not only opened the frontier to settlement and capitalist expansion, it simultaneously erased, via a cartographic silencing (Harley 1988), the community inhabitation and commons economies of Native Americans (e.g. Michie and Thomas 2003). The advance of capitalism is a cartographic advance both in terms of the institutionalization of survey and control by and within nation states and an imaginary of a spreading and all-encompassing economy. Capitalism spreads out from its origin, engulfing or displacing that which came before, and transforming societies and spaces to meet its needs.

The cartography of capitalism is, however, not just historic, it continues to map a capitalist becoming and a community/commons demise. This is clear in the case of contemporary fisheries where modern geo-technologies are today making marine resources, traditionally difficult to count and make visible, more amenable to quantification and visualization. Along with more accurate and spatially encoded counts of resources, schemes to privatize and commodify access to fisheries as well as a new breed of “fisherman,” more in tune with accumulation strategies rather than livelihood maintenance, are emerging (Davis 1991; Mansfield 2004a, 2004b; St. Martin 2001, 2007). In both cases, scientific forms of resource

mapping constitute spaces as open to capitalism and absent of any commons logic, process, or livelihood strategy.

Capitalism's production, like that of other sites of social relations and power, is ongoing; the stability and longevity of capitalism is, therefore, an outcome of a variety of ongoing processes, not the least of which are cartographic representations of space and nature that align with capitalism. In this sense, capitalism's ubiquitous presence is, at least in part, produced by those who define, assess, and represent the environment as a capitalist asset, a container of capitalist resources, and the stage where the expected behavior of capitalist subjects is performed.

Distancing "The Commons"

Recently there has been considerable storytelling and analysis generated around the commons in both academic (e.g. Giordano 2003; McCarthy 2005) and more popular work (e.g. Bollier 2002). In these stories the commons acts as the material entity and/or location where difference from a global hegemonic order might be found. The commons, however, is most often referenced relative to neoliberal rather than commons becomings (cf. St. Martin 2005b). It is represented as threatened, disappearing, shrinking, or being abandoned due to the expansion and penetration of neoliberal logics of privatization and commodification. The commons, rather than a site of hope, is seen as a site of disappearances and thefts of public wealth, of environmental decline, and of capitalism's relentless push into all possible locations.

This positioning of the commons is made possible through the maintenance of at least three intertwined discursive barriers that make imagining (and mapping) the emergence of the commons within the domain of capitalism difficult. The first is the representation of space in binary terms relative to capitalism. Space, via mapping technologies as well as other forms of

scientific representation, is constituted in ways that accommodate capitalism and erase and/or displace non-capitalist economies and commons livelihoods (St. Martin 2005a). The space of capitalism may be unevenly developed but it is consistently represented as homogeneously capitalist. Stories of commons and community-based economies, while generative of place-based politics and alternative forms of production and distribution, are seen as outside of capitalist space and therefore limited in their ability to disrupt it.

Second, the commons, pushed from the center, is represented as a discrete and localized entity rather than a trend, knowledge, or process present to varying degrees in any given location (e.g. McCay and Acheson 1987). Where, for example, neoliberalism is an idea or knowledge to be institutionalized in part or in full through a variety of local practices, the commons describes the community utilization and management of some extant common property or resource. Where neoliberalism can be detected in policy statements, World Bank directives, citizen's attitudes, media representations, or economic data, the commons seldom acts as an idea or knowledge that penetrates and transforms societies, economies, or individual subjectivities. As a result the former is easily global in scope and strength while the latter is inherently local, fragile, and vestigial. This ontology of the commons stifles work that might similarly dissect policy statements, World Bank directives, citizen's attitudes, media, or economic data for traces of the commons, its logic, its appeal, or its becoming. Instead, analysis of the commons most often involves empirically discerning the viability and purity of some existent and local community/commons regime in terms of its environmental sustainability, equity, or economic efficiency (e.g. Busarto 2005).

And, third, the commons as a discrete and localized entity must be documented on the ground through empirical research. Ethnographic and other community-based approaches to

research serve to identify and document in detail commons regimes, but these rich and compelling accounts make it difficult to see the commons as a regional, national, or global effect, process, or emerging institution. In particular, they make it difficult to present the commons as a trend across space, a set of mechanisms and relationships that can be measured at regional or national scales or collected into regional or national maps. Where we can easily muster national and even global statistics as evidence of a neoliberal becoming, we traditionally rely upon long-term participant observation to chronicle our stories of specific and localized commons.

Mapping openings rather than (en)closures

The goal of a cartography of the commons would be to use both quantitative and qualitative methods to map commons potentials as present and capitalism as contingent, fragile, occasionally sparse, and existing within a diverse economic space. To do so would require that we explicitly address the barriers outlined above to thinking the commons as proximate, dynamic, and emergent. These can be addressed in terms of both our understanding of “the” economy and the methods we use to represent the commons.

Re-thinking the economy such that it might be open to non-capitalist potentials is well underway within the growing diverse economies literature (e.g. Cameron and Gibson 2005a; Castree 1999; Gibson-Graham 2006; Oberhauser 2005; Pavlovskaya 2004; Smith and Stenning 2006). There, capitalism is not a homogenous, all encompassing, and spatially blanketing system but a particular form of surplus production, appropriation, and distribution (see also Resnick and Wolff 1987). While capitalist relations continue, their ubiquity and inevitability are contradicted by the host of non-capitalisms to be found in households, cooperatives, community-based economies, and, particularly, within many resource-based economies (e.g. de Sousa Santos 2005, 2006a, 2006b; Emery and Pierce 2005; Fraad et al. 1994; Leyshon et al. 2003; St. Martin 2007).

Building upon this alternative language of economy and revelation of difference, Gibson-Graham, Cameron, and others are using participatory action approaches to create multiple economic identities and non-capitalist (or alternative capitalist) economic possibilities in sites dominated by the singularities of capitalism (Cameron and Gibson 2005b; Gibson and Cameron 2001; Gibson-Graham 2005; Graham et. al 2002; St. Martin and Hall-Arber 2007). Such projects utilize accountings of local assets and capabilities, inventories of economic practices, and exercises by which individuals recognize their participation in diverse and, often, community-based economies. They draw upon workshop, visualization, and story telling methods that have traditionally been used in participatory resource and development initiatives in the global South and, in the context of imagining community economies, work to foster processes of economic resubjectification.

The methods of the community economies initiatives work well to engage individuals and foster processes of economic resubjectification. They do so by deconstructing capitalism and thereby opening the terrain of the economy to other, non-capitalist, presences and possibilities. We can make this spatial metaphor concrete in maps by utilizing ethnographic and counter-mapping methods to carve out spaces of difference, to create “differential geographies” associated with indigenous or essential communities (cf. Castree 2004). Such projects certainly work to create a space for imagining and enacting non-capitalism (or, more often, pre-capitalism) but insofar as they produce locations that are exterior to capitalism, they leave the latter intact. The spatial analogue to non-capitalist community economies, the commons, is outlined and made real through community mapping techniques but remains subordinate to a surrounding, dominant, and always threatening capitalism.

If, however, the commons is not an entity to be outlined but, like capitalism, a set of processes and relationships that exist to varying degrees across space, might we be able to discern and map such processes? In this case, spatially extensive, state sponsored, quantitative data could be used to visualize an expansive and/or emergent commons space. While state sponsored secondary data are often assumed to be pillars of the capitalist economy, they could, like other discourses of economy and resources, be “read for difference rather than domination” (Gibson-Graham 2006). Secondary data, as many are discovering, can also be utilized within mixed methods approaches that combine GIS or statistical analyses with ethnographic studies. In addition, such data can work as the bases for user defined measures or to produce inferences for which the data was not originally designed (St. Martin and Pavlovskaya forthcoming).

Finally, a shift from ethnography on the periphery to quantitative and mixed methods in the center would have the effect of representing the commons in ways that put it on par with the ongoing representation of space as always and everywhere capitalist. Inventories of resources, quantitative techniques of assessment and allocation, and scientific representations of the land are crucibles of power that work to constitute institutions, subjectivities, and governmentalities (e.g. Braun 2000; Demeritt 2001) but such outcomes need not be aligned with capitalism alone.

Cartographies of the Commons

This last section of the paper illustrates the economic potentials of counter-mapping that relies on quantitative data by citing two examples. The “Buffalo Commons” and a map-based participatory project in New England fisheries are here briefly described because they clearly link new spatial imaginaries with desires for and enactments of alternative economic initiatives in first world locations. In addition, they both utilize quantitative methods and secondary data to re-map space as open to commons potentials. The maps produced by these initiatives do not

function as representations of discrete and homogenous territories; rather they constitute a diversification of economic space in the first world. Finally, neither example concerns reclaiming resources dispossessed from some essential community, instead they effectively work to create counter hegemonic spaces of environmental and economic experimentation.

Mapping the Buffalo Commons

The case of the “Buffalo Commons” offers a compelling example where space has been released from its association with hegemonic forms of economy, property, enterprise, etc. It is a dynamic and persuasive metaphor for a variety of commons futures (Popper and Popper 1999). Noting that standard forms of private agriculture and economic development on the Great Plains are largely a failure, Popper and Popper suggested (1987, 1991) that the region would evolve toward a “buffalo commons” future. Using basic demographic and economic data and statistical analyses, they mapped, by county for the entire Plains region, trends that clearly showed population declines in rural areas, the abandonment of small settlements, and the difficulties of sustaining standard forms of economy (Figure 1). Toward what future was the region moving?

“What we [Popper and Popper] are suggesting is a Plan B for an area where Plan A failed... Maybe it’s time to think differently” (Manning 2004).

The Poppers never specified the nature of any particular “Plan B” beyond their empirical data. The space they re-defined and the metaphor they chose, however, suggested a wide variety of futures across a broad spectrum of people living on the Plains and elsewhere. Their thesis spread rapidly across the Plains via newspaper articles, invited lectures, and other public fora where it was initially received with deep skepticism, anger, and hostility. Their professional use of data, statistics, and maps within public presentations, however, worked to not only convince skeptics of their basic premises of decline but cleared a space into which they could insert their vision of a commons. To some the Buffalo Commons remained an insult associated with

abandonment and a reversion to wilderness, to others it was read as a call to socialism, but to still others it was a call to imagine new forms of enterprise and association with nature (see Matthews 2002 for a history of the Poppers experiences).

Since the late 1980's the Buffalo Commons concept has gained considerable ground and numerous allies across a wide spectrum of people (Popper and Popper 1999; 2004; 2006). As the Poppers' predictions of rural depopulation, environmental degradation, and economic decline became more clearly a reality, the Buffalo Commons emerged as a hopeful, yet unspecified, possibility. Indeed, the Buffalo Commons "used metaphor as a way to give form and words to the unknowable future" (Popper and Popper 1999), it was an opening into which people projected themselves in new ways and as subjects of, amongst other things, alternative environmental and economic relations.

Because of its lack of specificity yet provocative nature, the metaphor of a Buffalo Commons elicited more than just a diversity of opinions/responses. It has led to a number of initiatives and enactments of economy that range widely from housing developments and other capitalist enterprises that borrow the commons metaphor, to community-based ecotourism enterprises, to commons land trusts and preservation movements, to tribal bison raising cooperatives. Indeed, the Buffalo Commons is rapidly becoming the space within which a host of cultural, social, and economic experiments are taking place.

In their 1999 article, the Poppers reflect upon the Buffalo Commons metaphor and the diversity of enactments that have since emerged. They note both state and federal initiatives to restore Plains habitats for bison, privately owned ranches that now raise bison, tourist operations associated with bison and Plains environments, writers and cultural groups that have incorporated the Buffalo Commons into their work and identities, and a variety of tribal

initiatives that combine economic and cultural processes. For example, they note the formation of

“...the InterTribal Bison Cooperative, a consortium of fifty Native American governments that trains Indian buffalo producers and tribal land managers, promotes Indian buffalo art and artifacts, operates a joint venture with an Indian-owned farming company, and takes other steps to reinvigorate buffalo's historically central place in tribal cultures. Other Native American buffalo cooperatives have begun to appear, as have further Native American buffalo-restoration efforts, such as Honor the Earth's Buffalo Commons Project” (Popper and Popper, 1999).

What the Poppers let loose was not only a metaphor but a counter-mapping of the Plains that has suggested the possibility of a variety of “Plan B’s” as well as a space within which to enact them. The counter-mapped Plains becomes a site released from a narrow and singular form of economic development and open to a variety of possible economic experiments, performances, and futures.

“We see a growing recognition that the idea makes environmental, economic, and, perhaps most important, imaginative sense; that it suggests plausible options for many places, choices other than casinos, prisons, hazardous waste, agribusiness, or continued long-term decline. *The Buffalo Commons keeps acquiring the muscle of reality*” (Popper and Popper, 1999, emphasis added).

One could use the statistics of bank closures, industrial decline, environmental degradation, and depopulation to document capitalism’s unevenness, its environmentally induced crises, or its victimization of local people. The Poppers, however, used the same data to posit a commons becoming. Federal census and business data along with computer mapping techniques united the region into an aggregate and rhetorically powerful commons that could be visualized and understood at a regional scale. They mapped a vast and expanding commons space within which many people are now projecting themselves as subjects of an alternative environmental and economic imaginary. As a result, during the very decade when neoliberal privatizations of resources were rapidly expanding, the de-privatization (commonization?) of the Great Plains was

gaining ground as a vision for environmentalists, Native Americans, local entrepreneurs, and those wishing to sustain community economies.

Mapping the Space of Community In Fisheries: The Atlas Project

The remainder of the paper highlights the methodology and initial effects of an action oriented research project designed to facilitate an imaginary of economic difference within the fisheries of the Gulf of Maine. The “Atlas Project”¹ sought to disrupt the dominant image of commercial fishing as essentially the practice of individuals competing within a space open to all and across which all could freely roam (i.e. the ontological ground for instituting private property, commodified resources, and capitalist social relations). We were interested in creating maps and related narratives that would locate fishermen as embedded within a variety of community processes and would link their community and fishing practices to common fishing grounds and specific fisheries habitats. Our work, we hoped, would be a “counter-mapping” relative to the dominant discourse of fisheries which marginalizes communities and their ability to participate in fisheries science/management and undermines the maintenance of a fisheries commons as an ethical practice of sharing.

The project attempted to disrupt the fixing of both capitalist space and subjectivity by combining methods used elsewhere (e.g. workshops, meetings, and story telling) with the quantitative and data driven approaches of resource management itself. By beginning with the latter, the project engaged with the knowledge base, language, and classifications of the dominant resource management regime and reworked them to produce an alternative ontology of space and subject. The project proceeded in two phases. The first was the spatial analysis of

¹ “An Atlas-based Audit of Fishing Territories, Local Knowledge, and Community Participation in Fisheries Science and Management” was funded by NOAA via the Northeast Consortium (#01-840). Principal investigators were Kevin St. Martin, Rutgers University and Madeleine Hall-Arber, MIT Sea Grant.

existing datasets from the federal government to produce a series of provocative maps and the second was an action oriented project involving “community researchers” and fishermen in interview situations where the maps were interpreted.²

We began by examining current methods of mapping, data collection, and techniques within the institutions responsible for the science and management of marine fisheries in the Northeast. Within National Marine Fisheries Service (NMFS) and New England Fisheries Management Council reports, presentations, and analyses of New England fisheries we found space produced as devoid of community and the constitution of fishermen as economic subjects essentially aligned with capitalism (albeit unable to reach their full potential due to the absence of true property rights in fisheries). In addition, fishermen are repeatedly represented as (reduced to) fishing effort expressed in terms of the quantities of fish landed (St. Martin 2006). While useful for region-wide estimations of remaining fish stock or future yields, the aggregation of effort to a single variable erases local differences and the dependencies of particular communities upon particular resources.

These “products” of fisheries science and management discourse are, however, not the only possible ontological outcomes from the rich and long-term quantitative datasets collected and maintained by these institutions. Mining the data for other potentials allowed us to think about how our own spatial and quantitative analyses might build upon standard datasets but also use them to quite different ends. Rather than relying solely upon participatory methodologies aimed at economic resubjectification, the Atlas Project would foreground quantitative and spatial analytical methods to recast fishermen as community members rather than competing individuals

² Many dozens of maps were produced for the project. These maps were tailored to the experiences of fishermen from a variety of ports in MA, NH, and ME. 12 community-based researchers were hired for the project and they recorded over 50 interviews using the maps a forum for discussion.

and remap the space of fishing as a series of inhabited territories/commons rather than the abstract space of enumerated fish stocks and an aggregated fishing effort.

Placing People into the Marine Environment

Knowing which locations and resources local people utilize and depend upon is at the heart of counter-mapping projects. This knowledge is typically gathered from extensive map-based interviews or participant observation and it is used to inscribe the territory of the community to which the interviewee belongs. Depicting the common territory of a community is only possible when there are individuals able to identify and demarcate the bounds of both. Such knowledge is generally assumed to exist embodied within individuals who identify with some essential community, are knowledgeable of a particular environment utilized by the community, and can act as a key informant on behalf of that community. While such information may be gathered or integrated directly into digital mapping systems (e.g. Aswani 2006; Close 2006), the methods of data collection make aggregation beyond the individual community difficult. Furthermore, in the fisheries of the Northeast, where fishermen are subject to a dominant discourse that positions them as essentially spatially mobile and competing individuals, fishermen would not be able to conjure or map the bounds of their community or its territory. As essential entities, neither community nor territory exist in scientific or state sponsored discourse nor as elements of fishermen's identities (see also Olson 2005; St. Martin 2006).

To map a community/commons space within the fisheries of the Northeast using only key informants would be impossible. Indeed, attempts to do so typically result in detailed maps of individual fishing experience that cannot be interpreted as depicting a community's territory. While the entities of community and territory are difficult to find in the Northeast, there exists clear evidence of community and territory processes, relationships, and practices that could act

as foundations for community economy and commons futures (St. Martin 2001, 2005b). To produce a space for these processes, a commons into which they could be inscribed along with fishermen themselves, the Atlas Project turned to NMFS collected data for the region. In particular, Vessel Trip Report (VTR) data, collected by NMFS as a means to measure fishing effort, contains the locations of fishing trips by fishing vessels carrying federal fishing permits.³ While devoid of individual subjects and their intimate experiences of the environment, the quantitative and systematically collected VTR data had the advantage of regional coverage, temporal depth, and, once visualized in map form, rhetorical power. Collected since 1994 for an area from South Carolina to the Canadian border, VTR data contains information on hundreds of thousands of fishing vessel trips that can be aggregated by port of origin, species sought, gear type deployed, vessel size, crew size, time spent at sea, or a host of other variables (Figure 2).

While the raw maps made the presence of people clear, we were interested to produce spaces that could act as catalysts for the recognition of community and commons processes and, as in the Buffalo Commons, for an alternative imaginary of environment and economy. To do so we grouped fishing trips by port of origin and gear type, what we assumed to be peer groups of fishermen. Maps of trip locations for these groupings revealed an obvious spatial clustering; in general, fishermen from the same port and using the same gear tended to fish in the same general areas. We used two standard spatial analytical tools to visualize the clusters as discrete locations associated with particular peer groups of fishermen (defined by port and gear type). The first was density mapping where trip location data for a particular peer group was smoothed into a continuous surface of “community presence.” The second was percent volume contours (PVCs),

³ While not representing all fishing trips by all vessels in the Northeast, the VTR data can act as a meaningful sample of fishing trips and their locations for a variety of aggregated vessels (e.g. from a particular port of deploying a particular gear type).

a method akin to the “home range” analysis used in wildlife conservation studies. PVCs outline areas based upon percent of time spent there by, in our project, peer groups of fishermen.⁴

In the case of both density surfaces and PVCs we aggregated not simply vessel locations but locations weighted by “fisherman days,” a variable representing the labor time expended by peer groups of fishermen in given locations (Figure 3). Fisherman days are a function of time spent in a location and the number of crewmembers onboard during a given fishing trip, variables also available in the VTR dataset. Mapping fishermen’s presence in terms of labor time resulted in a series of unique maps that depicted areas of importance and dependence independent of quantities caught or catch value. The latter variables are typically the focus of fisheries management and economic impact analyses that serve to make visible not the interests or places of communities but the accumulation strategies of “the fishing industry.” Indeed, mapping quantities caught or value serves to obscure some of the most sustainable and low impact fisheries in the Northeast, those small operations with high investments of labor time but relatively smaller catches.

Mapping the presence of community in terms of labor time does more than create the grounds for constituting the commons. It also challenges those processes of commodification and capitalism that are at work in contemporary fisheries. Castree (2003) discusses six that the remapping of fisheries space in terms of community labor time serves to disrupt: displacement, valuation, abstraction, individuation, privatization, and alienability. While none are eliminated by the drawing of a map, all can more easily be re-thought in terms communities, their interests,

⁴ Both density surfaces and PVCs were calculated using: Beyer, H. L. 2004. *Hawth's Analysis Tools for ArcGIS*. Available at <http://www.spatialecology.com/htools>.

and local desires. The second phase of the Atlas Project was designed to deploy the maps in ways that facilitated such re-thinking.

Engaging Fishermen and Constituting the Commons

Once the above methodology was established we were able to make any of a variety of maps ostensibly revealing the fishing “territories” or “community resource areas” of particular fishing “communities.” Depending upon how we filtered the VTR data and performed the analytical steps, however, very different “territories” for any given “community” could be produced. For example, density mapping requires the choice of a kernel size that will spread values associated with point data across space – the larger the kernel, the more widespread is the data. As a measure of community presence, a density surface produced with a large kernel suggests an extensive presence while a smaller kernel choice suggests a more confined presence. Deciding which maps to use and how to interpret them relative to fishermen’s experiences required the participation of fishermen, those who presumably inhabit or will come to inhabit the territories and communities inscribed by the maps.

We introduced to fishermen in several community-based workshops a variety of maps utilizing different visualization techniques, scales, kernel sizes, coloration schemes, and contextualizing backdrops (e.g. standard nautical charts). The fishermen were both repelled and intrigued by the novel cartographic representations of their experiences and practices. They saw in the maps a technology for fisheries managers to more precisely close areas that they relied upon as well as a means by which they could advocate for a more stable access to “their” resource areas (see also St. Martin and Hall-Arber 2008). Workshop discussions lead to a set of standard procedures and a standard format for the maps we would use for the remainder of the project. In addition, from the workshops we recruited twelve “community researchers” who were

tasked with bringing the maps to their “communities” and using them to engage with resident fishermen in interview settings.

The interview protocol involved discussing community processes and practices within the space of the maps. It prompted community researchers and fishermen to discuss the accuracy of the maps, the local fishing practices and environmental knowledge maintained by fishermen, the cooperative relationships between fishermen from particular ports and across ports, and fishermen’s experiences of and ideas for area-based fisheries regulation. Discussing these issues relative to the maps served to localize them and embed them within particular locations and communities. Rather than expressing individual demands, needs, hardships, or desires, the interview narratives, insofar as individual fishermen were positioned as peer group/community members, act as expressions of peer group/community interests rather than individual and competing interests now grounded in particular locations.

The spaces mapped from clustered fishing trips quickly became spaces into which fishermen, previously represented as competing individuals on an open access resource, could recognize commonality, common knowledge, and common experience. Through the participatory methods of the Atlas Project, the spaces derived from federal data designed for resource assessment and management emerged as nascent commons. In addition, the maps, like the image of the Buffalo Commons, are eliciting new projects and a new imaginary of the future of fishing. For example, while the move toward privatization of fisheries resources in the Northeast remains strong, the Atlas Project has contributed to the recent development of a grassroots organization, the Area Management Coalition (AMC) which includes members who were Atlas Project participants. The AMC is struggling to make fisheries management more area-based and community-centered and they are using the Atlas Project maps to propose

alternative management schemes that account for community territories and community livelihoods. Another organization consisting of the remaining trawler fishermen of Maine are interested to “brand” the fish that they catch “sustainably” in local waters. They want to use the maps in direct market advertising; the goal is to educate consumers about the location of fisheries resources and the community of (responsible) fishermen who depend upon it.

The maps are also gaining an audience in fora other than fisheries management in the Northeast. The methodology, perhaps because of its quantitative rigor, is of interest to those advocating Marine Spatial Planning techniques and approaches (e.g. Douvere et al. 2007; Young et al. 2007). This movement toward greater technocratic control over ocean space is fertile ground for interventions that would insist upon the insertion of a “social landscape,” a layer of information so far left out of most Marine Spatial Planning proposals (St. Martin and Hall-Arber forthcoming). To date, the Atlas Project has resulted in a wealth of insights into how fishermen are embedded within communities, how those communities maintain particular territories of resource use with rich environmental histories, and how fishing in the Northeast exceeds the boundaries of the dominant discourse that insists upon an imaginary of individual competing fishermen within an abstracted space of enumerated resources. While not yet sparking new imaginaries of community and commons in as many sites as the Buffalo Commons metaphor, we can see glimpses of how the communities and commons inscribed by Atlas Project are becoming in both discursive and material terms.

Conclusion

Both the Buffalo Commons and the Atlas Project utilized maps in ways that proved vital to the re-imagining of environmental and economic space. In both cases the maps were born of secondary data from federal sources that were manipulated and visualized using quantitative

techniques rather than ethnographic methodologies. The quantitative approach was essential insofar as both projects overcame some of the more significant barriers to counter-mapping as a tool for disrupting the cartography of capitalism that inscribes both resources and local people into, always, a capitalist becoming.

Both projects were, importantly, located within First World settings where dominant inscriptions of nature and economy had already instituted particular forms of commodification clearly constitutive of capitalism. They mapped post-capitalist and diverse economic spaces rather than distant and pre-capitalist commons, and they could not act as discrete locations bounding spaces dominated by either single identities or economies. In both cases, community identities and commons territories were emergent rather than existent; they were, in part, constituted by each project's re-reading of federal data on a regional scale and recasting of demographic, economic, and resource use trends relative to the potential of the commons rather than the potential (or demise as in the case of the Great Plains) of capitalism.

The Buffalo Commons and the Atlas Project use quantitative methods to re-map entire resource regions as open to a commons future, they produce spaces into which we can begin to project community economies and subjectivities, and, through a variety of imaginative initiatives, they continue to “acquire the muscle of reality.”

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Figures

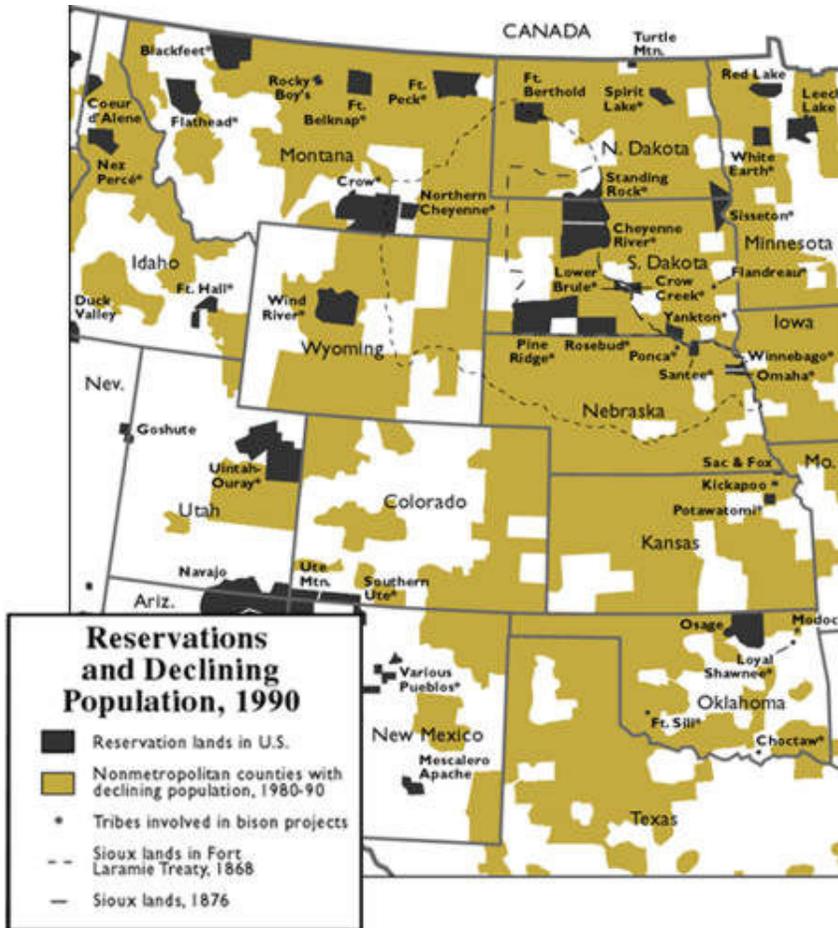


Figure 1: While the Buffalo Commons cannot be outlined, this map depicting counties with declining populations from 1980 to 1990 (yellow) summarizes the census data and maps used by Popper and Popper (copyright Zoltan Grossman).

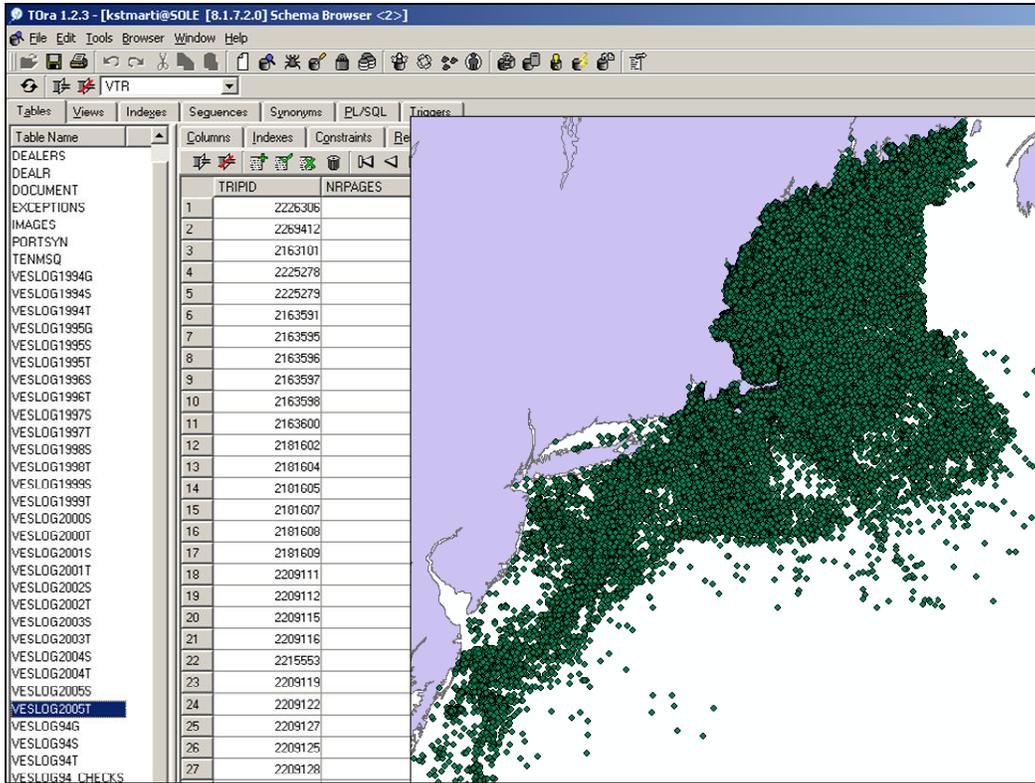


Figure 2: Screen shot of Oracle database containing VTR attributes and resultant map of all trip locations. Rather than a space of resources open to appropriation and devoid of community, the VTR data, once mapped, reveals a landscape defined by a human presence that is open to interpretation relative to community utilization, dependencies, and desires.

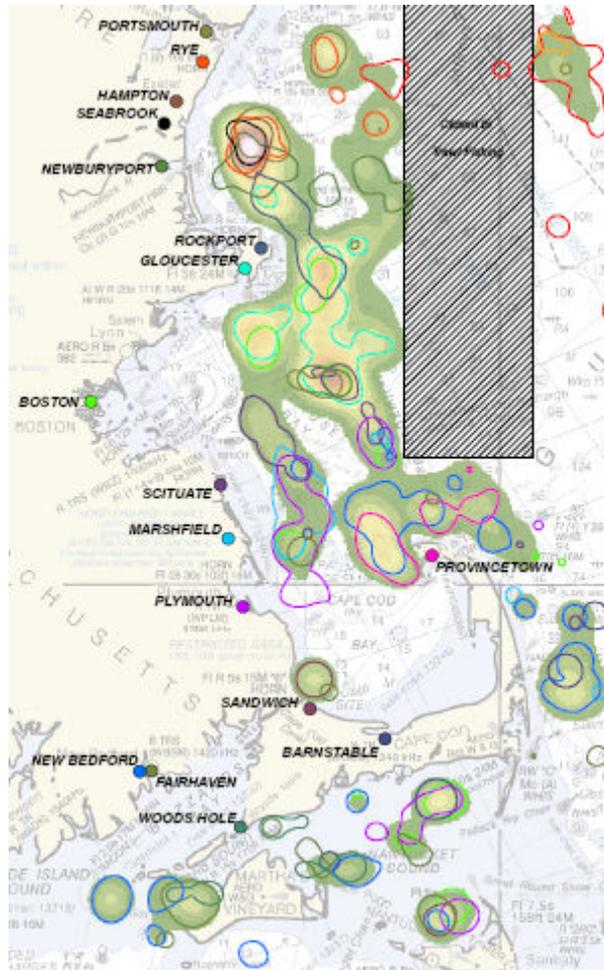


Figure 3: An extract from a map containing color coded PVCs superimposed upon a NOAA nautical chart. The PVCs correspond to Gulf of Maine ports from which, in this case, small trawl vessels originate. Areas outlined represent primary fishing grounds by port of origin. The chart also contains a raster density surface based on the aggregate of all vessels.