



Making an environmental market, unmaking adaptive capacity: Species commodification in the New England groundfishery



Jennifer F. Brewer

Department of Geography, Planning, and Environment, Institute for Coastal Science and Policy, East Carolina University, Brewster A227, Greenville, NC 27858, United States

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ABSTRACT

This article demonstrates how market-focused natural resource management can reduce adaptive capacity to environmental change. It describes attempts to standardize socio-ecological phenomena in the New England groundfishery for purposes of legal accountability and the development of environmental markets. Industry flexibility across harvested species has supported a range of informal social networks for the exchange of information and other goods and services. Federal catch share policy, associated species population assessments, and transferable harvest quotas neglect social and ecological diversity that figure centrally in adaptation strategies. New quota markets generate a cascade of impacts, including intensified capital investment, threats of industry consolidation, increased reliance on limited capabilities of fisheries science, more acute regulatory uncertainties, narrowing of species options, smaller and less predictable profit margins, shifts in industry expectations for the future, and changes in fishing practice. Presumed market incentives for resource conservation are weakened. State and non-profit interventions to protect marine resources and local fishing-dependent collectivities may have limited immediate impact, but still play important roles in the longer term. Permit banks, alternative seafood marketing, and reformist regulatory proposals maintain institutional diversity and invigorate informal social relations capable of decentralized information sharing and collective action, which are essential to more adaptive environmental governance.

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1. Environmental markets and adaptive capacity

Volumes of research document the worldwide rise of market-based natural resource management, and associated privatization of common pool resources (Castree, 2011; Liverman, 2004; McCarthy and Prudham, 2004; National Research Council, 2002a; Roth and Dressler, 2012; Runge, 1984). Geographers, ecologists and others have noted that marketization of goods and services often requires standardized and alienable units for commodification and trade, and that this may pose material-discursive challenges. To reduce transaction costs, efficient and broadly functioning markets require a level of consistency in quantitative measurement that may be unavailable or infeasible. Often, they seek to unbundle ecosystem goods and services that are biophysically or socially intertwined and cannot be disaggregated, leaving unaddressed externalities (Karsenty et al., 2013; Kinzig et al., 2011; Melo et al., 2013; National Research Council, 2002a). Even among scientists disposed to serve such purposes, empirically-grounded information may retain particularity, nuance, and ambiguity that cannot be generalized across time and space (McCarthy, 2004; McGranahan et al., 2013; Robertson, 2004). Particularly if they pro-

ceed without rigorously democratic regulation to ensure transparency and low barriers to entry and exit, markets can rapidly aggravate or generate socio-material inequities (National Research Council, 2002a). Even suspending ethical concerns around questions of justice, such shifts in resource access and control often trigger changes in the institutional and technological dimensions of resource use, in turn altering biophysical characteristics of the resource itself. Thus, norms of standardization that seem to assist markets at the moment of inception may prove to be maladaptive as resulting cascades of socio-ecological change unfold.

Similarly, many studies of human–environment adaptation find that natural resource policies and programs promoted by major government, non-governmental, and private sector organizations overlook the particularity and contingency of social relations, undervalue local ecological knowledge, and place undue emphasis on technical fixes to maintain some status quo (Marino and Ribot, 2012; McDowell and Hess, 2012; Ribot, 2011). Acceleration of socio-ecological shifts, induced by global climate change or other drivers, render efforts to compartmentalize spatio-temporal dimensions of human–environment relationships even more problematic, whether for purposes of promulgating market-based solutions or for less overtly prescriptive evaluation and reporting tasks. By contrast, effectively proactive investments in adaptive capacity increase ad hoc or planned ability to accommodate a

E-mail address: brewerj@ecu.edu

range of possible changes in a social–ecological system, including sufficient agility to adjust management strategies as circumstances warrant (Engle, 2011). Accordingly, some authors find that scenarios holding promise for more robust human response to dynamic ecosystems require institutional diversity, including collective action and vigorous social networks (Adger, 2003; Ireland and McKinnon, 2013; Ostrom, 2005). Diversified institutions can increase adaptive capacity by enabling rationalities more attuned to ecological variation, and to the feasibility of generating alternate futures through strategic investments of human capital. Social collectivities and networks can draw on latent assets such as a long time series of decentralized information sharing, a range of livelihood strategies, and flexible, multi-level institutions for cooperative governance and the provision of collectively accessed goods and services (Carr, 2011; Ostrom, 2009; Robinson and Berkes, 2011; Stephan et al., 2010; van Laerhoven and Berge, 2011). By maintaining access to a breadth of human and biophysical resources, such arrangements can expand the range of conceivable answers to the question of “what is to be done?” – which geographer Noel Castree directs toward critical scholars who may come more readily to analysis than to plans for action (Castree, 2011, quoting Lenin, 1902). The dynamic tensions of institutional diversity can entrain the transformative power of human imagination by entertaining some number of possible future scenarios, instead of accepting the status quo as inevitable.

This article examines a fisheries case through this lens, articulating market-centered disruptions to adaptive practice in New England’s groundfishery, and briefly considering emerging counter-initiatives. It introduces the case in the context of US fisheries policy, and points out how generalized market standards that disregard socio-ecological complexity impede effective resource management. Standardization of species assessments, significant externalities, and imperfectly competitive quota markets challenge resource stewardship. The article then describes efforts to resist or reshape the trajectory of privatization through more localist collectivities, and corresponding limitations of those efforts. It concludes by noting that these alternatives may nonetheless build adaptive capacity for the longer term future.

1.1. Methods

This study draws on field data collection from several projects between 2001 and 2012 partially or largely focused on drivers of, impacts of, and responses to groundfishery marketization (Brewer and Alden, 2003; Brewer, 2011, forthcoming). It also builds on a longer data time series dating back to 1989, investigating fisheries privatization initiatives and resistance more generally, including focused consideration of relationships between formal and informal management institutions and between practical and scientific knowledge (Alden and Brewer, 2000; Brewer, 2012, 2013). These combined datasets include extended structured and unstructured in-person interviews with more than 175 fishing industry members, public servants, non-profit organization staff, scientists, and other coastal residents and professionals, as well as shorter, informal conversations with at least another 200 people. Interview sampling used snowball, stratified, and opportunistic frames to encompass a range of groups and viewpoints. Background data include document review; 85 mail and phone surveys with New England fishing permit holders; participant observation at more than 45 public meetings and more than 50 non-public policy briefings, focus groups, site visits, community meetings, conferences, and project meetings in New England, Washington, DC, North Carolina, and Alaska; more than two years of participant observation of fishing-dependent New England villages, households, vessels, and other businesses; and additional experience as a policy and resource management professional working with federal and

state government and non-profit organizations. Data analysis loosely followed protocols established by grounded theory, or constant comparison methodologies. Sampling, data collection, and analysis therefore took place in iterated sequence, allowing categories, hypotheses, themes, and conceptual frameworks to emerge inductively (Glaser, 1994; Glaser and Strauss, 1967; Strauss and Corbin, 1998). In contrast to the most orthodox grounded theory applications, the earliest stages of research design relied heavily on prior field experience and literature.

2. Seeking standardization

The New England groundfishery is arguably the most documented fishery in the Americas, with biological field data reaching back to the 19th century, and a social history amply recorded in primary and secondary sources (Baird, 1871; Bigelow, 1924; Bolster, 2012; Hennessey and Healey, 2000; Lear, 1998; McKenzie, 2012; O’Leary, 1996; Vickers, 1994). It is useful as a bellwether, a longstanding case of human–environment adaptation, providing extended evidence of human efforts to find a sustainable match between social activities and environmental variation.

The largest US groundfish populations, and largest contiguous areas of prime groundfish habitat, are most accessible from Massachusetts. With major fishing ports in New Bedford and Gloucester, plus many smaller harbors, Massachusetts has the highest number of federal groundfish permit owners, largest percentage of fishing fleet ownership by tonnage, and largest volume ex-vessel sales of seafood product. By contrast, Maine, particularly its rural eastern reaches, is as physically, ecologically, and culturally proximate to the Canadian Maritime provinces as to Massachusetts. Its fishing harbors are smaller and more dispersed, and the state has more difficulty accessing urban transport routes and economies. Nonetheless, during boom periods as recent as the 1980s, Maine enjoyed large landings, especially in Portland and Rockland. For its short coast, New Hampshire has a significant scattering of groundfish boats in small harbors. Rhode Island has a fleet based mostly around Port Judith. Boats from New York and New Jersey have groundfished occasionally in the past, but warmer water species predominate there and coastal gentrification has taken a greater toll on waterfront access (see Fig. 1).

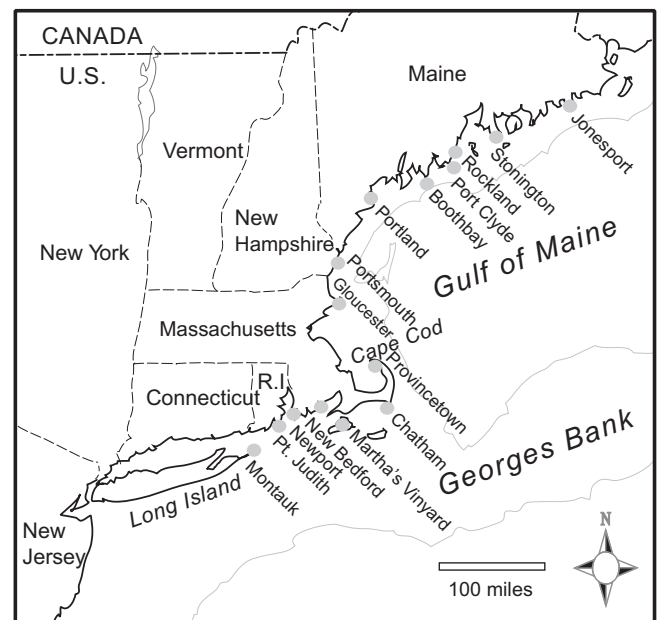


Fig. 1. New England fishing region.

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