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From cod to shellfish and back again? The new resource geography and Newfoundland's fish economy

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A B S T R A C T

This paper traces three key phases in Newfoundland's resource economy: the collapse of cod, the rise of shellfish and recent efforts to re-establish cod. I argue that these changes in the province's fish economy may be productively understood through the 'new resource geography'. The paper explores three themes: the relationship between knowledge practices and resource management; the way in which fish resources are defined in both material and discursive forms; and the different sites and institutions involved in the regulation of the cod resource.

Introduction

The year 2012 marks the twentieth anniversary of Newfoundland's cod moratorium. On the 2nd of July 1992, Canada's northern cod fishery, and the largest ground fish stock in the world, was closed to commercial harvesters. The moratorium was initially for two years, but cod stocks have failed to recover and some now doubt the resource will ever return (Neubauer, Jensen, Hutchings, & Baum, 2013). The closure of a fishery that had been the mainstay of Newfoundland's economy for almost 400 years was received with shock and disbelief. This was a fish resource that was so plentiful that many said it could never be exhausted (Kurlansky, 1997). For environmentalists, the collapse of cod provided conclusive evidence of the damaging and irreversible impact of rampant exploitation (Palmer & Sinclair, 1997). Cod remains an icon of the fragility of global fish stocks and of natural resources more broadly (WWF, 2012). In the province of Newfoundland and Labrador, the impact of the cod moratorium was devastating to both harvesters and plant workers. It is estimated that more than 35,000 people lost their source of livelihood in what remains the largest layoff in Canadian history (Hamilton & Butler, 2001; Hamilton, Haedrich, & Duncan, 2004; Milich, 1999). The social dislocation that resulted from the moratorium has had a lasting impact on the province's economy and demography with many coastal towns losing over 40 percent of their population (e.g. Palmer & Sinclair, 1997).

There is a substantial body of work that has examined the impact of the moratorium on fishers and communities in Newfoundland (Ommer, 2002, 2007; O'Reilly Hinds, 1995; Schrank, 2005). In addition, there is a rich vein of research on fisheries management and fisheries science (Finlayson 1994; Murray, Neis, Palmer, & Schneider, 2008a; Sinclair, Johnsen, & Ripley, 2009; Steele, Andersen, & Green, 1992). A key question has been how a fish resource that was managed according to scientific principles could collapse (Bavington, 2010a; Finlayson, 1994; Hutchings, Neis, & Ripley, 2002). Part of the answer, for many, is the failure of government fisheries scientists to recognise and value the local ecological knowledge of fishers (Murray et al. 2008a; Murray, Neis, & Schneider, 2008b; Neis, 1992). There is considerably less work on how the province's fishery has changed since the closure of the northern cod industry. Rather than disappearing, the province's fish sector has turned to crustaceans, principally crab and shrimp. In value terms, the new shellfish economy is considerably larger than was the case before 1992 (Schrank, 2005). Indeed, Newfoundland's fish economy now generates more than $CAD 1 Billion in earnings, far more in real terms than was case before the collapse of cod stocks.

Although the changes in Newfoundland's fish economy have been profound, it would be misleading to suggest that cod disappeared entirely after 1992. Small amounts of cod continue to be harvested by commercial interests and there is a limited 'food fishery' that allows individuals to catch cod most years in spring and late autumn. Perhaps more importantly, there have been ongoing efforts to re-establish cod, although in different ways and through different practices. Three specific efforts can be identified. First, the private sector has been pursuing cod aquaculture, with

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considerable support from the provincial government. The effort to establish cod aquaculture has been accurately described as a plan to rejuvenate "the province's most important and traditional industry in a way that, unlike the wild fishery, might be sustainable" (Royston, 2005, 12). Second, non-governmental organisations have been active in putting together proposals for re-establishing wild cod through 'financial instruments' that will allow private and public investors to fund and earn profits from recovery efforts (Rangeley & Davies, 2012). The pilot programme is currently being rolled out and it is based on Newfoundland cod (Davies & Rangeley, 2010; WWF, 2012). Finally, there is evidence that wild cod stocks might returning, although stock estimates remain too low for the resumption of commercial harvesting on a large scale. The evidence comes from a new provincially funded science unit that has been conducting surveys around Newfoundland for the past two years. Scientists suspect that cod recovery may be tied to a larger ecosystem shift associated with warmer sea temperatures that suits groundfish rather than shellfish (MacLean, 2012). While the evidence of cod returning in a changing sea environment is significant from a scientific and ecological perspective, the news that the ecosystem may be shifting back to cod is receiving a mixed response in Newfoundland's fish sector. Harvesting and processing capacity is now geared to shellfish, a resource that is far more valuable than cod ever was. As a recent article in the local *Navigator* magazine suggested, "crab and shrimp have proved far more lucrative than cod for many fishermen, and they prefer to keep it that way" (Wellman, 2012, 16).

I want to argue that the broad shifts outlined here – the collapse of cod, the shift of the fishery to shellfish, and recent efforts to re-establish cod in various forms – can be productively understood through what Karen Bakker and Gavin Bridge (2009; 2008) have been calling a 'revived geography of resources' (also see Hayter, Barnes, & Bradshaw, 2003; Himley, 2008; Prudham, 2005). In recent years Bakker and Bridge have made a convincing case for a renewed resource geography. A central idea in this revitalised field is that resources are not 'external things' that are extracted and transformed into useful commodities. Resources are not, in other words, 'discovered' for exploitation or sustainable management (e.g. Bridge & Fredriksen, 2012).[1] Instead, resource extraction is an achievement, "a temporary stabilisation at the nexus of political, economic and technical relations that is always potentially subject to dissolution and challenge" (Bakker & Bridge 2008, 231).

If resources are not stable entities 'out there' waiting to be exploited and transformed into commodities, it follows that resource management is something more than the process of governing a pre-defined endowment. Bakker and Bridge (2008, 219) draw on Foucault's concept of governmentality to illustrate the role of states and other agencies in enacting resources through "dense interweavings of knowledge and power that produce assemblages of plants and animals as political units". A key component of this process involves calculation and measurement, practices which define resources in particular ways and defend them against other claims. The process of resource management, in this view, is both material and discursive: it emphasises the "social and institutional practices through which resources are not only allocated but also defined – the discursive, social, material practices through which resources *qua* resources come to be constituted" (Bakker & Bridge, 2008, 230).

The new resource geography provides innovative ideas and concepts for researching classic resource questions of 'scarcity, access and governance' (Bridge, 2010). At the same time, the call for a revitalised resource geography clearly builds on a rich tradition of research on resource issues during the late 1990s and 2000s that was identified with political ecology or critical environment studies. It includes work on mining (Bridge & Fredriksen, 2012; Le Billon, 2008), oil (Bridge, 2008), water (Bakker, 2004) and forestry (Prudham, 2005) as well as a substantial body of work on fisheries (Mansfield, 2003, 2004a, 2004b; St Martin, 2001, 2005). In this sense, it is possible to say that the new resource geography project involves two moves. First, it involves a call to re-locate and re-situate work on resources within a new and revitalised field of resource geographies. And second, it involves outlining an innovative and productive research agenda for analysing resource geographies.

The purpose of this paper is to support the case for a renewed and revitalised geography of resources through the empirical case of fish in Newfoundland and Labrador. The paper unfolds in three sections. In the first section, I describe the processes leading up to the collapse of cod and I explore debates on the role of science in resource management and the collapse of cod. This part of the paper ends by suggesting new ways of recasting the debate on the science of cod management. In the second section of the paper I outline the shift of Newfoundland's fish sector from groundfish to shellfish. Here the emphasis is on contemporary debates on shrimp allocation policies between an industrial offshore sector and a small scale inshore sector in the context of recent quota cuts. The last section of the paper considers efforts to re-establish cod through three different practices, and it explores how these might be understood through the ideas and concepts emerging from the revitalised field of resource geography.

Collapse of cod and crisis in the science of resource management

The collapse of cod stocks off Newfoundland and Labrador in the early 1990s is tied to the rise of industrial fishing in the period after World War 2. Prior to the 1950s, harvests of northern cod were in the range of 150,000 to 250,000 tonnes per annum and scientists have since suggested that the resource could have been sustained at this level (Hutchings & Myers, 1994). From the mid-1950s, however, the situation changed dramatically. A large and industrial fleet of foreign trawlers began harvesting cod stocks off Newfoundland and Labrador. These 'mobile factories' were capable of harvesting, processing and storing huge volumes of fish (Hutchings et al., 2002). Indeed, by the early 1960s new advanced vessels were capable of harvesting 15,000 tonnes in a single voyage, and they could make between 7 and 8 trips year. The increased capacity and technological sophistication of the offshore fleet led to rapid increases in total harvests. The volume of cod caught increased from 300,000 tonnes in the mid-1950s to a peak of 800,000 tonnes in 1968. Biologists have described the 1968 harvest as the 'killer spike' as cod stocks never seemed to fully recover from this enormous catch.

In 1977 the management of cod was brought under Canadian jurisdiction: on January 1, 1977 Canada declared a 200 mile exclusive economic zone (EEZ) from its coastline under the provisions of the United Nations Convention on the Law of the Sea. Although the 200 mile EEZ still allowed foreign vessels access to small parts of the existing cod grounds, the extension of Canada's marine jurisdiction effectively brought the management of cod under Canada's control (Bavington, 2010a). From Canada's perspective there were very good reasons for bringing the management of this important fish resource under state control: lower harvests through the early 1970s suggested that cod stocks were under severe pressure and close to collapse.

[1] This point builds on Zimmerman's oft-cited injunction that "Resources *are* not, but rather *become*" (cited in Peach & Constantin, 1972, 16).