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Improving fisheries management in New Zealand: Developing dialogue between fisheries science and management (FSM) and ecosystem science and management (ESM)

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Abstract

This paper attempts to overcome the dichotomy between the broadly different and largely separate fisheries science and management (FSM) and ecosystem science and management (ESM) knowledge systems that characterise the international literature and are found in fisheries management practice in different countries. The paper argues that the construction of a heuristic we term the fisheries problematic, around issues and contexts, reveals the breadth of international fisheries management concerns and the variety of contexts in which these concerns are being faced. Adopting a political economy informed nature-society approach the paper considers ecological and socio-economic processes in their institutional settings in an attempt to shift from the either/or arguments around fish or ecosystems found in the FSM or ESM literatures to investigation that is grounded in understandings of the historically and geographically specific trajectories of fisheries related interactions and understandings of how knowledge about the trajectories and their interactions is fashioned. Drawing on recent conceptual innovations in the field, the paper develops a matrix-centred approach to explore ecological, industry, community and policy domains in New Zealand's Quota Management System (QMS) and Individual Transferable Quota (ITQ) fisheries management regime. The extended framework prioritises scrutiny of the interaction amongst the four domains, as a strategy to help develop institutional frameworks that facilitate behaviours that are societally inclusive. The paper offers three conclusions. First, the landscape of New Zealand fisheries issues is very much a product of the contingent interaction of the QMS, a management regime designed around the principles of a FSM approach and laid down in a neo-liberal political environment and Maori aspirations encompassing the fisheries sector. Second, the conceptual mapping of FSM and ESM perspectives over New Zealand's fisheries management experience highlights that a number of management issues have been down played by the commitment to FSM, a situation that has led to on-going tensions between commercial, recreational and customary stakeholders regarding fisheries management. Put another way, there is more to running a sustainable fishery (as defined in the Fisheries Act 1996) than QMS and other tools and dialogue about the development of these should be a priority. Third and more generally, improved dialogue on fisheries questions is likely to be most expeditiously advanced by studies that explicitly conceptualise and contextualise ecological and socio-economic processes and their institutional arrangements.

Keywords: Fisheries science and management; Ecosystem science and management; Political economy of fisheries; Knowledge production; Knowledge communities; Sustainable fisheries; Quota management system (QMS); Individual transferable ownership (ITQ); New Zealand

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1. Introduction

In the last 20 years we have seen increasing recognition of the unintended but serious environmental consequences of commercial fishing on both the sustainability of exploited populations and changes in the structure and functioning of marine ecosystems. These changes call into question the current scope of fisheries management and underscore the need to improve information transfer between the fields of fisheries population dynamics, marine ecosystems and socio-economic systems to develop equitable futures for stakeholders. This paper focuses on the actual and potential dialogue between two different and largely separate knowledge systems, those of fisheries science and management (FSM) and ecosystem science and management (ESM),[1] as understood from New Zealand. The paper springs from on-going collaboration of a group of New Zealand scientists and social scientists, fisheries consultants and fisheries policy analysts around a trans-disciplinary re-visioning of sustainable fisheries management in the New Zealand context.[2] The collaboration has been trying to establish within New Zealand conditions for trans-disciplinary dialogue. Our motivation for this paper is twofold; first, frustration with hesitancy and unwillingness by many fisheries actors in New Zealand to actually examine the adequacy of the FSM and ESM knowledge systems and their accompanying policy positions, and second, recognition that there are also tensions in other countries concerning where these two knowledge systems might take the sustainability agenda.

Over the past two decades the New Zealand fisheries scene has been dominated by a FSM framework introduced and elaborated under neo-liberal government. Consequently we have had to clarify and be cautious about the nature of the New Zealand fisheries context, its evolution and emergent features and why and how the New Zealand scene contrasts with developments elsewhere. More critically, we have closely examined how attitudes and expectations, relating to FSM and ESM, formed and mediated in a neo-liberal prism, have consequential, cumulative and increasingly long term effects.[3]

The paper begins by sketching and exploring a heuristic, which we term 'the fisheries problematic', that is a complex of broadly interrelated and poorly understood fisheries issues. We distinguish in the construction of the problematic between identifying issues and understanding context. We argue that the most fundamental lines of difference when discussing the problematic come down to whether 'things' or 'relationships' are seen as the 'unit' around which knowledge systems are built up. We contend that FSM is guided by the former approach and ESM the latter. This ontological divide is deep rooted and often prevents communication, conversation and consensus building. Nevertheless, dialogue across the divide can heighten awareness of, and sensitivity to, how issues are conceptualised and phrased by the different groups. Broadening the scope of dialogue and widening the context of international fisheries issues is a helpful starting point to advance from treating specific issues as by-products of particular literatures or disciplinary fields, to defining conceptual framing, around environment, industry and society. This framing, which draws on the political economy notions of examining ecological and economic processes in their institutional settings, reveals a convergence around four contemporary key *issues*; definitions of goals (where sustainability figures prominently), industry dynamics (especially the tendency of fishers to over capitalise), eligibility for involvement in fisheries management debate (rights relating to property, income and so on) and resource frontiers giving new opportunities for investment (especially aquaculture). The second thread to the problematic is *context*. Following Arbo and Hersoug (1997), Russell and Campbell (1999) and van Sittert (2003) who acknowledge historical and geographic specificity we review the different constructions of fisheries management in selected developed countries and show that the dynamics are context dependent – space and place do matter. The geographical differentiation and historical trajectories that space and place imply for research, policy, investment and management, needs to be understood and incorporated into any new frameworks aimed at improved outcomes from fisheries management policy.

There is, however, a big gap between recognising the value of conceptualising fisheries in a political economy informed nature-society framework and developing research strategies to facilitate such enquiry. *An emphasis on ecological and socio-economic processes in their institutional settings is an attempt to do two things. First, achieve a shift from the either/or arguments around fish or ecosystems found in the FSM or ESM literatures to investigation that is grounded in understandings of the historically and geographically specific trajectories of fisheries related interactions, and second, develop understandings of how knowledge about the trajectories and their interactions is fashioned.* We believe these are important steps in spanning the chasm between FSM and ESM. Unfortunately the small but insightful heritage of research and scholarship dealing with fish, fishing and fisheries in this way has attracted little attention in the

[1] Although the distinction between knowledge focused on fish and knowledge centred on ecosystems is often made in the international fisheries literature it is not without problems. The distinction quickly becomes blurred, in concepts used, policy formulated and practices followed. However, we find the distinction to be a valuable starting point for inquiry into fisheries management issues.

[2] The background of the group bears directly on the concerns, interests and questions we have about attempts to improve the management of fisheries. We are especially interested in understanding the constituted character and effects of knowledge communities relating to ecology, industry, community and policy, on improvements in fisheries. In addition to discussions amongst the authors we acknowledge inputs from others connected with the initiative, particularly Rendt Gorter, Hamish Rennie and Kim Walshe.

[3] This relates as much to our own attitudes and expectations formed in a neo-liberal environment as it does to those, of others, we are examining.