

HOW SUSTAINABLE UTILISATION SHAPES AND LIMITS FISHERIES MANAGEMENT IN NEW ZEALAND

Edwin Massey, School of Geography and Environmental Science,
University of Auckland, e.massey@auckland.ac.nz
Eugene B Rees, School of Geography and Environmental Science,
University of Auckland, e.rees@auckland.ac.nz

ABSTRACT

This paper examines the constitution of ‘sustainable management’ within the context of the New Zealand marine environment. Firstly this paper examines the difference between ‘sustainable ecosystems’ and ‘sustainable utilisation’. The distinction is important if we are to make sense of the different ways in which various stakeholders (fishers, fisheries companies, scientists, fisheries managers and environmental groups) use ‘sustainability’ in the management of New Zealand’s marine environment. We go on to examine how contestation results in sustainable management becoming a form of governmentality. We propose that such contestation transforms stakeholders into subjects whose everyday practices and relationships are influenced by seemingly incommensurable understandings of the lexicon that surrounds sustainable management. We conclude that this governmentality promotes a simplified understanding of a manageable fishery, and constrains the potential for ecosystems-based management in the marine environment.

Keywords: New Zealand, sustainable utilisation, ecosystems-based management, fisheries, governmentality

INTRODUCTION

This paper examines the challenge of sustainable marine management and the ways in which stakeholders are appropriated and managed within a commercial framework. We have three objectives. We begin by examining the alternative discourses which frame how ‘sustainability’ is used by various stakeholders in the management of New Zealand’s marine environment. We contend that industry stakeholders have appropriated understandings of sustainable utilisation in New Zealand fisheries legislation. We move on to investigate how ‘sustainable management’ is a governmentality. This governmentality transforms stakeholders into subjects whose everyday practices and relationships are influenced by seemingly incommensurable understandings of the language that surrounds sustainability debates. Furthermore, we propose that science under this governmentality has become an instrument for reinforcing the status quo of ‘sustainable utilisation’ and the extractive activities of the dominant commercial framework. We conclude that *the commercial interpretation of sustainability* dominates despite the challenge of a nascent ecosystems-based discourse. Furthermore this hegemony of ideas retards the potential for critical self-reflection amongst stakeholders and the revelation of new or alternative ways of understanding fisheries and marine management.

We write this paper principally from our research conducted in 2003. This research is based on 87 semi-structured interviews with a range of industry participants, including small fishers and large companies, representatives of commercial stakeholder organisations, fisheries scientists, fisheries managers, industry consultants and environmental commentators. It presents the preliminary observations of two ongoing doctoral dissertations concerned with two related, but autonomous, aspects of fisheries in New Zealand.

The paper briefly explains the regulatory framework for fishing in New Zealand, namely the Quota Management System (QMS) and the Individual Transferable Quota regime (ITQ). We then interpret the key term ‘sustainable management’. We propose that ‘sustainable management’, in process terms, is an ongoing and heterogeneous narrative stemming from debate between stakeholders with different needs and differing expectations. We move on to discuss how, despite these differences, all stakeholders, including scientists, recreational fishers and environmental Non-Governmental Organisations (NGOs), are transformed into subjects within a ‘commercial fisheries’ discourse. These stakeholders are forced to operate using a commercial idiolect,

subsumed within which they are either used or ignored as part of an emerging regime of governance. The paper concludes by discussing the potential for a heterogeneous understanding of science to challenge the constraints of the existing governmentality. A new way of 'doing' fisheries is required to facilitate meaningful dialogue which facilitates pragmatic decisions without compromising the ecosystem's integrity. Such a meaningful dialogue demands not only an acknowledgement but more importantly an engagement with stakeholders with alternative viewpoints.

DEFINING THE DISCOURSE

Many countries have implemented legislation that attempts to ensure that material goals are not pursued without the acknowledgement of wider environmental considerations. Memon and Perkins maintain that New Zealand's environmental reforms have been comprehensive in scope. Notwithstanding the scope of the environmental reforms, they also highlight that, regardless of the ideological leanings of the party in political power, politicians have paid special attention to ensure that the freedom of private property owners is not compromised [1]. We contend that the environmental aspects of the Fisheries Act 1996 served an important symbolic role, but failed to be particularly effective in satisfactorily resolving important environmental issues, in part as an outcome of the privileging of property rights within current marine management.

New Zealand implemented a QMS for commercial fisheries in 1986. Essential to the regime is the concept of ITQs, necessary for access to the commercial fishery. This system distributes property rights to individuals to commercially harvest fish over a geographically situated common pool resource [2]. The QMS and some of its shortcomings are well explained elsewhere [3, 2, 4, 5, and 6]. QMS is an outcome of the intersection of two, at times contradictory, trends [7]. The ideologically driven neo-liberal reforms of the 1980s-1990s and the sustained social opposition to certain practices of appropriating natural resources that lies at the core of primary production. QMS is a dynamic and evolving institution [5], but the basic premise remains. Government sets total allowable catch based on maximum sustainable yield. This is divided into total allowable commercial catch and total allowable non-commercial catch. Commercial catch is then distributed to holders of ITQ [8].

According to Johnston *et al*, meanings associated with the term governance are rapidly expanding. They provide two broad treatments: the nature of organisation itself; and *more significantly* the nature of *relationships between organisations* [9]. Unlike previous authors [3, 4, 6] our approach engages with the nature of these relationships between organisations. Finlayson [10] utilised this form of governance in his seminal work "Fishing for Truth" so our approach is not without precedent. Following Finlayson and Sissenwine and Mace [11] we consider governance to be more than fisheries management legislation: it is both the formal and informal rules, understandings and norms that mould behaviour and shape relationships.

Rose (1999) defines governance as "a kind of catch-all to refer to any strategy, tactic, process, procedure or programme for controlling, regulating, shaping, mastering or exercising authority over others in a nation, organisation or locality" [12]. Thus governance is a self-organising complex of relationships. These complexes act as a technology of government or governmentality that are responsible for continual attempts to define and redefine what aspects of control are the purview of the state, civil society and industry. Governmentality is the underlying rationality of a political programme, social movement or political-economic space [13]. Governmentality can be viewed as the strategies and tactics, or forces that authorities bring to bear in the exercise of their expertise. Governmentality analysis examines how practices are shaped and how these power relations are expressed through modes of authority. Governmentality encourages us to question the taken for granted. Governmentality as an approach is concerned with the 'how' of government or the conduct of conduct. Governmentality draws attention to the interplay between knowledge, expertise and the practical exercise of political authority [14]. It highlights the interplay between rhetoric, strategy and practices in the exercise of authority and power, emphasising the formation and performance of expertise. We draw on the concept of governmentality popularised by the British neo-Foucauldian scholars to explore the dominance of the concept of sustainable utilisation in fisheries policy in New Zealand, in much the same way as others have referred to *globalisation* [15] or *industry* [16] in the wider political-economy. Adopting Walters' approach, we contend that authority is exercised in New Zealand's marine management through not only the actions of key stakeholders but also the *very discourse of sustainable utilisation which frames and limits, but also makes possible, the actions and strategies of stakeholders*.

We contend that dominant stakeholders have successfully rephrased the discourse of sustainable utilisation within a commercial framework. Previous analysis of New Zealand fisheries has focussed on management structures and processes intrinsic to the QMS, whilst ignoring some of the underlying motives and stakeholder subjectivities that underpin decision-making. In contrast, our frame of analysis acknowledges structure and process, but

simultaneously switches the enquiry to the everyday practices and relationships between the varied organisations involved in decision-making within New Zealand's marine management regime.

SUSTAINABLE MANAGEMENT OF NEW ZEALAND'S MARINE ENVIRONMENT?

Attempts to define sustainability and sustainable development have dominated resource management discourse and the popular environmental literature, at least since the publication of "Our Common Future". This report defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" [17]. Accordingly, implementing sustainable development strategies will require a comprehensive shift in institutional alignments and existing power relations [1]. It should be equitable, conserve resources and be achievable without compromising social and ecological well-being.

This non-prescriptive definition of sustainable development has served as the basis for aspects of two major pieces of legislation associated with marine management in New Zealand, the Resource Management Act 1991 (RMA) and the Fisheries Act 1996 [18]. Grundy [19] outlines two competing interpretations of the RMA, specifically section 5. First, the holistic interpretation that acknowledges that wider social, cultural, economic and environmental concerns are all linked and should not be separated analytically and in policy initiatives. Second, the narrow interpretation that eschews any consideration of socio-economic effects of resource use. A narrow interpretation attempts to form a free market environmentalism that internalises environmental externalities. We submit that Grundy's dichotomy has resonance within the Fisheries Act 1996. The purposes and principles of the Act (Figure 1) contain all the elements that allow for a holistic interpretation of sustainable management that acknowledges wider social, cultural, economic and environmental concerns and meaningfully engages with a wide range of stakeholders. However, following Grundy, we believe that *dominant stakeholders in fisheries interpret the legislation within a political and economic ideology that constructs the environment through the extractive use value of single species fish stocks.*

PART II: PURPOSE AND PRINCIPLES	
8. Purpose	<p>– (1) the purpose of the Act is to provide for the utilisation of fisheries resources while ensuring sustainability.</p> <p>(2) In this Act –</p> <p>“Ensuring sustainability” means-</p> <p>(a) Maintaining the potential of fisheries resources to meet the reasonable foreseeable needs of future generations; and</p> <p>(b) Avoiding, remedying, or mitigating any adverse effects of fishing on the aquatic environment:</p> <p>“Utilisation” means conserving, using, enhancing and developing fisheries resources to enable people to provide for their social, economic and cultural well being.</p>
9. Environmental principles	<p>– All persons exercising or performing functions, duties, or powers under this Act, in relation to the utilisation of fisheries resources or ensuring sustainability, shall take into account the following environmental principles:</p> <p>(a) Associated or dependent species should be maintained above a level that ensures their long term viability. .</p> <p>(b) Biological diversity of the aquatic environment should be maintained.</p> <p>(c) Habitat of particular significance for fisheries should be protected.</p>
10. Information principles	<p>– All persons exercising or performing functions, duties, or powers under this Act, in relation to the utilisation of fisheries resources or ensuring sustainability, shall take into account the following information principles:</p> <p>(a) Decisions should be based on the best available information:</p> <p>(b) Decision makers should consider any uncertainty in the information available in any case:</p> <p>(c) Decision makers should be cautious when information is uncertain, unreliable or inadequate:</p> <p>The absence of, or any uncertainty in, information should not be used as a reason for postponing or failing to take any measure to achieve the purpose of this Act.</p>

Figure 1: Principles and Purposes of the Fisheries Act 1996

Wallace [20] contends that marine management in New Zealand operates within an information scarce environment and that management within this environment “must be precautionary and should manage for both uncertainty and risk”. There is evidence to suggest that deep-sea fishing practice in New Zealand has resulted in often unexpected and unintended outcomes for the wider marine environment:

“In known and developed fishing areas few un-fished areas exist. Anecdotal information from older fishermen who experienced the initial exploration and development of these grounds indicates that the hills (seamounts) have gone from producing large by-catches of corals, sponges etc to just bare rock. They believe that the bottom make up has changed drastically in the last few years” [21].

A number of authors have called for a precautionary approach to marine management in New Zealand in order to mitigate these outcomes [22, 23, 24, and 5]. These authors echo Symes’ definition of precautionarity which prescribes the adoption of “radically different strategic objectives based on the assumption that maintaining or enhancing the diversity, productivity and integrity of marine ecosystems offers the best long term guarantee for the sustainability of commercial fish stocks” [25]. A precautionary approach acknowledges what the Food and Agriculture Organisation regard as the inherent shortcomings of fisheries management: insufficient scientific information and natural variability [26].

Several authors have outlined a number of conditions and principles required to ensure the sustainability of marine ecosystems. A comprehensive list developed in 1992 suggesting an ecosystem-based approach to sustainable management of marine fishery resources considers [22]:

- the basic life supporting capacity of air, water, land, seabed, biophysical processes, and ecosystems;
- the essential characteristics that determine each ecosystem’s integrity;
- potential alterations to the natural rate of evolution or extinction;
- the cumulative effects of all activities and environmental changes upon resources and ecosystems in light of current knowledge;
- matching the scale of activities to the state of knowledge on likely impacts and having contingency measures ready to accommodate unforeseen effects;
- the need to monitor the effects of resource use and undertake research to improve scientific understanding of the marine environment.

Internationally, many studies extol ecosystems-based management. Dayton *et al.* propose that the principles of ecosystem management must acknowledge the interaction between all living species as well as the interaction between these species and the characteristic structures of the seafloor [27]. However, implementing the principles of ecosystem-based management is difficult as the interactions concerning the complex functioning of the marine environment remain largely unknown [25]. Conversely, single species stock assessments obfuscate environmental complexity and are a pragmatic response to the challenges presented by ecosystem-based management. Single species stock assessment is a tool used for the analysis and evaluation of data in respect to specific fish stocks considered separately from the rest of the marine environment. The differences between these regimes highlight the ambiguities within the term ‘sustainability’ [25, 27].

We contend that sustainability can be interpreted differently, by different users, depending on the context of the meaning demanded. Two different discursive approaches typically frame descriptions of sustainable marine management (Figure 2). At first sight specific combinations of stakeholders, foci of attention, time frame for analysis, values and virtues can be identified for each discourse. The tensions between the two, at times contradictory, positions then emerge. While it is possible to illustrate the outlook of stakeholders across four variables it is often difficult to establish a clear delineation between the two positions. We assert that the discursive boundary is context dependent and shifts in response to individual circumstances. These possibilities are depicted as the increasingly darkened middle ground between two extremes. For instance, sustainable utilisation of fish stocks can be represented as a scenario that ranges “from almost no removal to removal of a large fraction of the fished population, generally regarded as no more than 70-80% of the un-fished biomass” [24].

New understandings of “sustainability” are being forged through, an at times acrimonious, debate between stakeholders who have different ideological appreciations of sustainability (Figure 2). Stakeholders have, sometimes, divergent positions on the purpose of sustainable practice and differing epistemological backgrounds. Furthermore, this process is complicated by shifting relationships between different interest groups. Stakeholders can be grouped into these supporting paradigms of sustainable utilisation or sustainable ecosystem management

(Figure 2), but individuals within each group may have differing subjectivities that are geographically and historically contingent.

	Sustainable utilisation discourse	Ecosystems management discourse
Stakeholders	Large commercial operators Fisheries scientists Ministry of Fisheries	Environmental NGO's Marine ecologists
Foci	Singular Sustainable fisheries management	Holistic Sustainable ecosystems
Timeframe	Short term seasonal basis	Long term cycles
Values	Pecuniary Extractive Enterprise ideology Entrepreneurialism	Intrinsic worth Non extractive A precautionary approach Risk aversion
Virtues	Applicability Pragmatism Ease of understanding Seeks out 'known' unknowns	Complexity Adaptability Search for new unknowns

Figure 2: Taxonomy of Sustainable Marine Management (derived from fieldwork)

CORPORATE CONTROL OF MARINE MANAGEMENT

Since the introduction of the QMS a management framework has evolved which has fostered the industry’s perception of its political place as the pre-eminent stakeholder [5]. We maintain that as a result of its possession of the only set of defined rights, the commercial fishing industry has increased its influence in marine management decision-making. Through cost recovery and a commensurate ‘user pays – user says’ ethos, commercial stakeholders, using a narrow interpretation of the QMS, promote the dominance of the commercial fishing industry in marine management. Such dominance is encouraged by a policy landscape where continued devolution of particular management responsibilities to industry research teams, including stock assessment and other research associated with the health of ecosystems, appears to be inevitable [28].

A number of authors have been critical of aspects of this commercial dominance, suggesting that the expectations of commercial fishermen influenced aspects of the Fisheries Act 1996. Furthermore these authors argue that the Fisheries Act has conflated marine management with the interests of key commercial stakeholders [4; 5, 18, 21, 29]. Wallace labels such conflation as “industry capture” [5]. These critics also point to a lack of trust between stakeholders involved in marine management in New Zealand. Wallace’s metaphor belies the mind set of confrontation apparent between stakeholder groups, which have effectively become rivals competing for representation in the management process. A Ministry of Fisheries (MFish) informant observed that non-commercial stakeholders accuse the Ministry of doing too much for industry and that industry stakeholders accuse the Ministry of not doing enough for them. Our interviews demonstrate that stakeholders often misconstrue the *raison d’être* of other stakeholders within the wider fisheries community and label them as lacking leadership, direction and/or focus. These views of other stakeholders result in tensions which constrain meaningful dialogue between different stakeholder groups.

These tensions have been touted as a key reason for the retarded development of a sustainable marine management process [29]. The Parliamentary Commissioner for the Environment stated succinctly that the lack of trust between stakeholders was “severely inhibiting the advancement of sustainable management” [29]. This endemic lack of trust is brought about by stakeholder groups espousing different understandings of sustainability. Specifically, disharmony results from the ongoing struggle between commercial fishing interests, recreational fishers, environmental NGOs and other concerned interests.

Both the 1986 Fisheries Amendment Act and the 1996 Act have through cost recovery and a user pays – user says ethos allowed for, but not required, resource management of the marine environment to be passed onto commercial stakeholder organisations with a specific focus on extractive value. Sections 8 and 9 of the Fisheries Act

1996 provide a working definition of sustainability and the conditions aimed at ensuring the sustainable harvest of fisheries resources (see Figure 1). This ambiguity is essential to commercial stakeholders' narrow interpretation of sustainable management as it clarifies the *meaning* of sustainable utilisation without defining it.

THE DEBATE SURROUNDING SUSTAINABLE MANAGEMENT

Despite these seemingly definitive statements regarding sustainable utilisation in the Fisheries Act 1996, we propose that "sustainability" within marine management in New Zealand should still be thought of as an evolving process and the result of multiple narratives. In New Zealand a growing number of fisheries scientists, marine ecologists, concerned environmentalists (and some commercial fishers) have emphasised ecosystem management as the only viable tool for ensuring the sustainability of the marine environment. Ecosystems-based management reflects a holistic approach to marine management. MFish acknowledges that this approach demands management regimes that incorporate "all aspects and values of the aquatic ecosystem and research which is crucial to gaining a better understanding of environmental risks relating to the use of fisheries resources"[30]. A number of interview respondents within this group of stakeholders have criticised some elements of legislation which they see as shifting the responsibility for implementing management practices to particular stakeholder groups. They view current marine management practices as environmentally exploitative and failing to take a precautionary approach. Wallace labels current marine management regimes as risk attracting rather than risk averse as a result of their single species focus and emphasis on extractive value [4].

This diverse group of stakeholders hold an assemblage of ideas which, when linked together, forge an ecosystems approach to management¹. The National Institute of Water and Atmospheric Research (NIWA) [24] maintain that an ecosystem-based approach to management will encompass a range of ideas and outcomes:

- the comprehensive investigation of key environmental impacts, within the limits of knowledge;
- consideration of the cumulative effects of all activities on ecological integrity and natural rates of change;
- taking opportunities to improve our understanding of the marine environment and the effects of activities;
- adoption of adaptive management involving a cautious approach with monitoring and contingency plans.

These outcomes reflect a pragmatic approach to managing the marine environment. This approach promises useful knowledge for effective management, especially when positivist science approaches are augmented with traditional knowledges and environmental histories [31]. We maintain that effective management should rely on uniting multiple constructions of the marine environment and sustainable fishing practices.

SINGLE SPECIES STOCK ASSESSMENTS AND THE COMMERCIAL STAKEHOLDERS' WORLD VIEW

Stakeholders who build their understanding of management around sustainable utilisation and the extractive value of a single species or stock are comprised largely of commercial fishing interests. As with ecosystems-based management, these stakeholders consist of a multiplicity of enterprises, from large scale multi-nationals, to small independent family firms, to contract fishermen. These stakeholders continue to focus on commercial consumptive use of marine resources to the detriment of the wider ecosystem and its non-extractive, non-quantifiable recreational and conservation values [5]. Drawing on Wallace, we argue that commercial stakeholders have supported QMS and ITQ, partly because these regimes suit and confirm their own practices. The result is a growing conformity of regime and practices. This conformity is a governmentality that supports the extractive practices of commercial fishers and their narrow interpretation of fisheries legislation.

This extractive focus is a path-dependent, self-propelled development under the auspices of QMS and ITQ. QMS reinforces single species management as individual commercial stakeholder organisations are only interested in 'their' stocks as opposed to species interaction or the surrounding ecosystem [32]. Single species approaches lend themselves to the corporate accounting system. Efficiency is constructed around how much of a single stock is caught and the short term use of capital.

'Sustainability' and sustainability discourses have become a part of the strategy of maximising companies' returns. Peter Talley of Talley's Fisheries, writing in 1999, succinctly illustrates the industry position². "If we are to be serious about the switch from a hunting to a farming approach to the business of fishing we need more economic *advice* and a lot less biological *opinion*" [33 emphasis added]. The key word here is "business"; neither environment nor society is mentioned. Talley's focus is on generating rents in excess of the costs of appropriating the resource.

Talley suggests that the QMS has enabled his company to become more efficient *and* more sustainable. Therefore, according to Talley, current management practice meets the requirements of the Fisheries Act 1996 and wider research is neither required nor necessary.

There is evidence that QMS has facilitated more efficient company utilisation of fisheries [34], but we argue that this has only produced sustainable management in narrowly defined and therefore risky terms. The evidence for our position can be glimpsed in company practice. Industry stakeholders who use a narrow interpretation of sustainability and the wider ecosystem frame their interpretation through such mechanisms as triple bottom line reports (TBL) and the Marine Stewardship Council (MSC). Both TBL and the MSC constrain the debate on marine management and the ways of managing the wider environment. While TBL may meet public expectations, they may not be germane to maintaining the wider ecosystem. MSC accreditation is contested and its style of free market environmentalism may not address the wider issues of resource extraction. Through both TBL and the MSC, companies and organisations inform, shape and control the ways in which science is “done” and the ways in which sustainable development is construed.

TBL reflect a growing environmental agenda and the progressive codification of concepts of environmental protection. The TBL agenda can be construed as an attempt to harmonise the financial bottom line with sustained societal expectations concerning the appropriation of natural resources [7, 35]. This is clearly a worthwhile objective. If sustainable business balances economic prosperity, environmental quality and social well-being through a sound corporate strategy, then, to return profits to shareholders, following Grundy [19], we would expect business to demand a holistic understanding of sustainable management and a catholic interpretation of sustainable utilisation. We question if commercial stakeholders demand this form of environmental management.

Data from Sanford Ltd, New Zealand’s only publicly-listed seafood company, illustrates how the practices and approaches of this company have changed in recent years in response to the introduction of the QMS³. The last three years have seen the publication of TBL independent of the annual report. These documents say much about the way elements of the natural environment are appropriated and others dismissed, while addressing immediate, tangible and visible problems. Sanford’s TBL is long on addressing the well-marketed environmental issues – marine mammals and seabirds – and short on solutions for preserving deep-sea flora and fauna [36]. Seafood companies are actively engaging in seabird solutions and contributing to designing seal excluder devices. However, these activities address visible challenges and are primarily undertaken to meet the expectations of wider society rather than to address the negative effects of fishing on benthic communities. As one industry informant at the 2003 seafood conference commented with reference to seabird by-catch issues, the primary reason for not catching a bird is that it takes up a hook on which he could have caught a fish. This illustrates the explicit extractive focus of commercial stakeholders in regard to environmental issues.

The Parliamentary Commissioner for the Environment described the impacts of trawling on sea mounts and the resulting devastation of benthic flora and fauna [21]. Sanford acknowledges the disruption to benthic communities and the effect of trawl gear on sea mounts. However Sanford’s concern appears to focus on the loss of expensive trawl gear and not the damage that repeated trawling does to benthic ecosystems (Figure 3). Sustainable development has become a mechanism for attaining improvements in resource efficiency and competitive market advantages. In the TBL process, Sanford’s environmental interests are driven by concerns for a financial bottom line and continued profits, and not necessarily by altruistic concerns for the wider environment.

Fishing companies now play a greater role in research and have started to tender for research projects from MFish. Approximately 2.5 percent of the value of seafood landings is spent on sustainability research. Harte proposes that fisheries research, and perforce fisheries science, cannot be separated from wider fisheries management – and by implication the wider fishing industry. Harte notes that research will be complicated by issues of private and public interests and whether commercial stakeholders can recover costs [28]. Progress has been further impeded by commercial stakeholders’ overestimation of their own capacity to conduct research. Furthermore, NGOs believe that sustainability research is a core responsibility of government and because fisheries are a public resource, the industry has a strong incentive to distort results for short term gain [5].

Eco-labelling is the use of labels or symbols to designate environmentally sustainable products. Firms can use eco-labelling to shape consumer perceptions of the sustainability of fishing and fishing practice. Eco-labelling can lead to higher prices and expanded market share by satisfying consumer concerns about environmental impacts. Eco-labelling is not a perfect tool. Organisations often choose one environmental variable as a basis for awarding a label, and thus fail to engage with complex ecosystems [37]. Uneven standards have led to accusations that eco-labels are a non-tariff barrier. Moreover, “[t]he easy option of buying products eco-labelled by multinationals... is but a sophisticated technique of product and market differentiation masquerading as sustainability” [38].

On the benthic environment:

“The effect of trawl gear on the ocean floor and seamounts causes disruption to the benthic communities (living organisms that dwell on the ocean floor) and alter marine habitats. However, this disruption is repaired and communities are re-established over time, allowing sustainable fish catches to be taken within the same catch area over an extended period of time. This is particularly so when targeting Orange Roughy, which are concentrated on undersea features such as seamounts. However, when fishing these undersea features our boats run the risk of fouling expensive trawl gear on rough terrain. It is the responsibility of the trawler skipper to ensure that the trawl gear is recovered.”

Sanford 2003: 67

On adopting sustainable development:

“The improvement in resource efficiency and competitive market advantages that come with adopting this philosophy underline the fact that there is a strong business case for adopting sustainable development. Reduced shareholder risk is also achieved by being able to:

- Enhance customer loyalty and commitment, and improve prices in the long term.
- Increase supplier commitment.
- Reduce environmental impacts and associated costs.
- Strengthen relationships with regulators, banks, insurers and financial market.
- Attract and retain loyal and committed employees.

Sanford 2003: 56

Figure 3: A Commercial Perspective

The MSC is an independent, global, non-profit organisation whose role is to recognise, via a certification programme, well-managed fisheries. The objective is to use the market to correct environmental ills by encouraging consumers to purchase eco-labelled products. It plans to achieve this through two strategies: first, to harness consumer purchasing power in order to promote environmentally responsible stewardship of fisheries through eco-labelling; and second, to generate change in fishing practices to meet the expectations of consumers [39].

The New Zealand Hoki fishery is one such fishery. Industry informants have described MSC certification as an opportunity to develop eco-labelled Hoki products that reap greater market value overseas. Whether this is passed on to the environment is perhaps a moot point. The Royal Forest and Bird Protection Society of New Zealand (Forest and Bird) challenged certification on the grounds that the Hoki fishery failed to comply with MSC principles of certification [39]. Concerns included the damage to fragile benthic communities and non-target fish species, and seabird and marine mammal by-catch [40]. The appeal was rejected by the MSC on the grounds that subsequent to certification the industry implemented a number of corrective action plans.

The MSC certification has significant implications for sustainable utilisation. Consumer understandings of sustainability shape consumer expectations of the stock status and the wider environment. Despite concerns over the recent commercial catch reductions in Hoki stocks, the MSC still continues to certify the Hoki fishery. Sceptics argue that the MSC excludes or marginalises important stakeholders [41] such as Forest and Bird. MSC constrains counter-positions on the state of fisheries and resource utilisation. A totalising discourse emerges, informed by an enterprise ideology that relies on the market to make decisions on the state of fisheries. The MSC is a contested organisational form that combines transnational regulatory, economic and environmental actors based on free market strategies to support a stable environment [41].

SCIENCE AS SUBJECT

Whether it is NIWA, MFish, Sanford Ltd, the Seafood Industry Council or the MSC commissioning or doing research, all stakeholders rely on best science. The question becomes “whose best science” as well as which science is best?

Within this governmentality, fisheries science is compelled to adopt solely an instrumental role⁴. Indeed some commercial operators view fisheries science exclusively as a tool to entrench their harvest rights within the QMS [33]. Such sentiment indicates not only the self-legitimising character of governance regimes surrounding

marine management, but also the rigid view of science held by some commercial stakeholders. Within marine management, commercial stakeholders expect science to examine questions assessing single species fish stocks (Figure 4). There is no provision for reassessing the implications of research results outside the framework of commercial stakeholders' expectations.

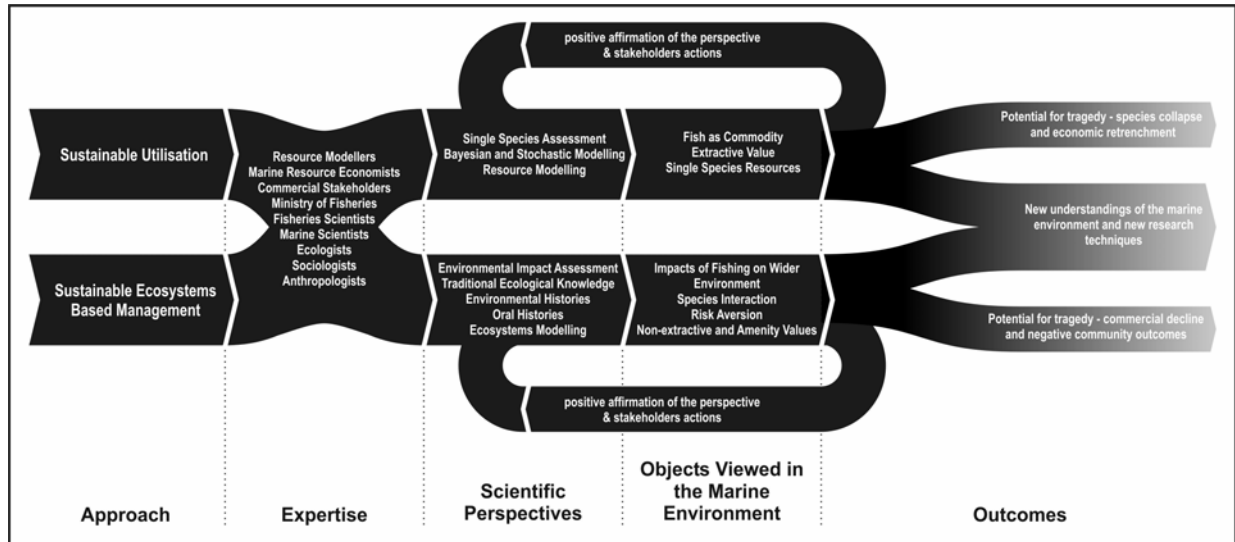


Figure 4: Sustainability as Governmentality

Research results have become a bulwark of commercial stakeholders' 'sustainability' rhetoric (Figure 4). The provision to challenge the applicability of current research questions remains limited, despite the weight of evidence suggesting that alternative understandings of sustainable utilisation will prove crucial to the viability of the marine environment in the future [27]. By adopting an ecosystems-based approach a rather different understanding of the marine environment emerges. Such an approach may lead to a different assessment of the state of the marine environment. As long as key stakeholders remain satisfied with the current assessment procedure there is little incentive to adopt a holistic approach to marine management.

Currently, understanding sustainable utilisation as governmentality in New Zealand marine management reflects an awareness of the dominance of commercial stakeholders and their ideals compared to other stakeholders. Sustainability is being shaped as an object by the dominant complex of social, political and economic relations. Attempts at criticising this process are fraught with difficulty as its inherent regimes of governance subsume or ignore points of difference. By transforming critics into manageable subjects, those opposed to the emergent discourse concerning alternative approaches to marine management are silenced.

THE DEBATE AT AN IMPASSE: SUSTAINABILITY AS GOVERNMENTALITY

Stakeholders' contradictory expectations of sustainability prevent meaningful dialogue. As a result, debate surrounding the sustainability of the marine environment in New Zealand has reached an impasse. Current management practice has placed discourses of sustainable management within a commercial vernacular. The expectations of a number of commercial stakeholders now drive the interpretation of sustainable management. The commercial lexicon surrounding sustainability acts as a particular vocabulary of motives through which power is exercised [42]. In New Zealand this ideological interpretation of sustainability has, using Armstrong's [42] terms, "through authoritative repetition... acquired a patina of facticity which tends to conceal the contestable nature of the[ir] interpretation".

In New Zealand marine management, 'sustainability' is a form of governmentality. This governmentality transforms stakeholders into subjects bound within a commercial discourse. This hegemonic interpretation of sustainability as governmentality renders marine management in New Zealand amenable only to those who have an interest in preserving the rhetoric that endorses the status quo. We conclude that alternative arguments and the analysis of stakeholders unwilling to view sustainable management through a lens of enterprise ideology are

marginalised. The extractive focus of sustainable utilisation remains paramount and this focus pervades all aspects of marine management. Many of our interview subjects' responses reflected the Parliamentary Commissioner for the Environment [21]:

“Although the majority of stakeholders, across a wide range of sectors and groups, are aware that there is a much wider spectrum of human impacts and interactions with the marine environment... the predominance of one – admittedly major – aspect of marine environmental management is symptomatic of the ways current systems and structures make a genuinely integrated approach increasingly difficult.”

CONCLUSION: UNIFYING A DISPARATE DISCOURSE?

This paper has addressed New Zealand fisheries management. It describes sustainable utilisation as governmentality and reveals challenges for marine management policy. The wording of the Fisheries Act 1996 allows stakeholders to have multiple interpretations of sustainable utilisation. However, a gulf exists between stakeholders proposing a management discourse framed by ‘sustainable ecosystems’ and those proposing ‘sustainable utilisation’. Presently these discourses appear incommensurable, and meaningful debate has been stymied. Sustainable utilisation has emerged from this discursive gulf as a governmentality. This governmentality is maintained through an amalgam of rhetoric, strategy and practice. As a result, the expectations of a number of commercial stakeholders drive interpretations of sustainable management, control specific fishing practice and control expertise. This hegemonic interpretation of sustainable utilisation as governmentality renders marine management in New Zealand amenable only to those who have an interest in preserving the rhetoric that endorses the status quo. Within this governmentality, stakeholders are prevented from engaging in critical reflection regarding all aspects of the fisheries management process. The arguments and analysis of stakeholders unwilling to view sustainable utilisation through a lens of commercial enterprise ideology are at best marginalised and at worst ignored. It remains to be seen if this interpretation of sustainable utilisation – with its consequential governing effects – will continue to be successful in the long term or whether it will cloud stakeholders' ability to foresee future fisheries management crises?

Endnotes

1. The proponents of ecosystems-based management are diverse and operate within a range of social institutions and economic institutions. Similarly they share a range of epistemological approaches to the management of the marine environment. What unites them is the holistic view of the relationships within the environment. These include, but are not limited to, advocates of traditional ecological knowledge and co-management, environmental NGOs, customary rights holders, some commercial fishers, some recreational fishers and some scientists.
2. Tally's Fisheries, based in Nelson, is one of New Zealand's largest fishing and frozen product processing companies and has been operating since 1936. It is a significant quota holder in a number of species and has significant investments in aquaculture operations.
3. Most companies in New Zealand are privately owned and jealously guard information concerning quota they own or control. Data from Sanford Ltd, New Zealand's only publicly-listed seafood company, illustrates how the practices and approaches of one company have changed in recent years in response to the introduction of QMS. Prior to QMS it operated under a number of different regulatory regimes, including varying forms of government subsidy, input restrictions and import substitution. These days, Sanford publishes data on sales, gross profit, net profit and produces an annual report that gives insight into the growth strategies and expectations of the company.
4. Pickett *et al.* [43] condemn an instrumental view of science, stating that it represents “a narrow and inappropriate view of theory and of the methods and development of science”. Moreover, the objectivity of scientific investigation within this governmentality can be called into question. Longino [44] claims that an objective view of science results only from an ongoing investigation of the changing relationship between conceptual constructs and observed phenomena. We argue that the problem is not just a matter of objectivity.

Acknowledgements.

This research has been funded through the School of Geography and Environmental Science and the Institute of Aquatic and Atmospheric Studies; University of Auckland. We would like to thank Richard Le Heron, Gordon Winder, Murray Bruges, Hamish Rennie, and Simon Thrush for their ongoing advice, and Igor Drecki for his patience and help with the figures.

References

1. Memon, P and Perkins, H. 2000: 'Environmental Planning and Management: the Broad Context', in P Memon and H Perkins (eds), *Environmental Planning and Management in New Zealand*, Dunmore Press, Palmerston North, pp 11-23.
2. Rennie, H. 1998: Geographical Problems in Implementing ITQ: New Zealand's Quota Management System, in *Crossing Boundaries: Proceedings of the 7th Conference of the International Association for the Study of Common property*, June 10-14, 1998, Simon Fraser University, Canada.
3. Hersoug B. 2002: *Unfinished Business: New Zealand's experience with rights based fisheries management*, Eburon, Netherlands.
4. Wallace, C. 1998: Tradable Quota in Practice: Decision making, institutions and outcomes – the New Zealand experience over 11 years. In A. Eide and T Vassdal (Eds) *IIFET'98 – Tromsø*. Proceedings of the Ninth Conference of the International Institute of Fisheries Economics and Trade, Norwegian School of Fisheries, University of Tromsø, Norway, pp 637-648.
5. Wallace, C 1998: Marine Management and the Quota Management System: Reform required. In C. Wallace, B. Weeber and S. Buchanan (Eds) *Marine Ecosystems Management*. Proceedings of the February 1998 Sea Views Conference, Environmental and Conservation Organisations of New Zealand, Wellington, New Zealand, pp 62-78.
6. Annala, J. 1996: New Zealand's ITQ System: Have the first eight years been a success or a failure, *Reviews in Fish Biology and Fisheries*, 6, pp 43-62.
7. Bridge G and Jonas A. 2002: Governing Nature; the reregulation of resource access, production, and consumption. Governance, institutions, and resource extraction, *Environment and Planning A*, 34, pp 759-66.
8. Shallard B. 1996: *Concepts and practice of individual transferable quota for the management of fisheries - an overview*. Presentation for the Ministry of Food Processing Industries Conference, New Delhi.
9. Johnston, R.J., Gregory, D., Pratt, G and Watts, M (Eds) 2000: *The Dictionary of Human Geography (4th Edition)* Blackwell, Oxford.
10. Finlayson, A 1994: *Fishing for Truth: a sociological analysis of northern cod assessments from 1977-1990*. Memorial University, St Johns.
11. Sissenwine, M. and Mace, P. 2002 FAO Fisheries Report No.658 Supplement, *Abstracts of Papers Presented at the Reykjavik Conference on Responsible Fisheries in the Marine Ecosystem*, Reykjavik, Iceland
12. Rose, N. 1999: *Powers of Freedom: Reframing Political Thought*, Cambridge, Cambridge University Press, pp 15:28
13. Dean, M 1996: *Governmentality: power and rule in modern society* Sage: London.
14. Walters 1999 Decentering the economy, *Economy and Society*, 28, pp 312-23
15. Larner, W and Walters, W 2004: Globalization as Governmentality: *Alternatives: Global, Local, Political*. (forthcoming).
16. Lewis, N 2004: Code of practice for the pastoral care of international students: making a globalising industry in New Zealand. *Globalisation, Societies and Education* (forthcoming).
17. World Commission for the Environment and Development 1987: *Our Common Future*. Oxford University Press, Oxford.
18. Willis, G., Gunn, J. and Hill, D. 2002, *Oceans Policy Stocktake Part 1- Legislation and Policy Review*, Oceans Policy Secretariat, Wellington, New Zealand.
19. Grundy 2000: Purpose and Principles: Interpreting Section 5 of the Resource Management Act, in P Memon and H Perkins (Eds) *Environmental Planning and Management in New Zealand*. Dunmore Press, Palmerston North: pp 64-73.
20. Wallace, C 1998: Issues for the Future. In C. Wallace, B. Weeber and S. Buchanan (Eds) *Marine Ecosystems Management*. Proceedings of the February 1998 Sea Views Conference, Environmental and Conservation Organisations of New Zealand, Wellington, New Zealand, pp 258-259.
21. Parliamentary Commissioner for the Environment 1999: *Setting Course for a Sustainable Future: The management of New Zealand's marine environment*, Office of the Parliamentary Commissioner for the Environment, Wellington, New Zealand.

22. Wheeler, B. Bradford, J. Collins, S. Duncan, A. Wilson, B. and Young H. 1992, *Sustainable Fisheries Tiakina Nga Taonga a Tangaroa, Report of the Fisheries Task Force to the Minister of Fisheries On the Review of Fisheries Legislation*, Wellington, New Zealand.
23. Thrush S. 1992, *Comment on: Sustainable Fisheries: Tiakina Nga Toanaga a Tangaroa*, Department of Science and Industrial Research Marine and Freshwater, Hamilton.
24. National Institute of Water and Atmospheric Research (NIWA) 1996: *Science for Sustainability: An Information Paper*, Ministry of Research Science and Technology, Wellington, New Zealand.
25. Symes, D. 2001: The Future of Europe's Fisheries: Towards a 2020 Vision, *Geography*, 86 (4), pp 318-328.
26. Food and Agriculture Organisation 2001: The State of World Fisheries and Aquaculture, <http://www.fao.org/DOCREP/003/x8002e07.htm>, Last accessed 7/28/01.
27. Dayton P. Thrush S. and Coleman F. 2002: *Ecological Effects of Fishing in Marine Ecosystems of the United States*, Pew Oceans Commission, Arlington.
28. Harte M. 2001: Opportunities and Barriers for Industry-led Fisheries Research, *Marine Policy*, 25, pp 159-67.
29. Parliamentary Commissioner for the Environment 2003: *Annual Report for the Year Ended 30 June 2003*, Office of the Parliamentary Commissioner for the Environment, Wellington, New Zealand.
30. Ministry of Fisheries (MFish) 1996: *Changing Course – Towards Fisheries 2010*, Ministry of Fisheries, Wellington.
31. Newell, D and Ommer, R.E (Eds) 1999: *Fishing Places, Fishing People: Traditions and issues Canadian small-scale fisheries*, University Of Toronto Press, Toronto.
32. Copes P. 2000: Adverse Impacts of Individual Quota Systems on Conservation and Fish Harvest Productivity, *Discussion Paper 00-2* Simon Fraser University.
33. Talley, P. 1999: Fishing Rights - An Industry Perspective: ITQ's and Fishermen's Attitudes: The change from hunter to farmer, in Shotton, R (Ed), *Use of Property Rights in Fisheries Management: Proceedings of FishRights99 Conference, Fremantle, Western, Australia. 11-19 November 1999*, FAO technical paper 404/1. Food and Agriculture Organisation, Rome, pp 247-253.
34. Wallis, P. 1997: Industry Competitiveness and Performance, *Unpublished Draft: Ministry of Fisheries*, 1-25.
35. Elkington, J. 2001: The 'Triple Bottom Line for 21st – Century Business', in Starkey, R and Welford, R (ed), *The Earthscan Reader in Business & Sustainable Development*, Earthscan, London, pp 20-46.
36. Sanford Limited 2001-2003: *Sustainable Development Reports 2001-2003*. Sanford Limited. Auckland, New Zealand.
37. Holliday, C., Schmidheiny, S and Watts, P. 2002: *Walking the Talk: The business case for sustainable development*. Greenleaf, Sheffield, United Kingdom.
38. Kurien, J. 1996: A View from the Third World. *Samudra*. <http://www.icsf.net/jsp/publication/fishstakes/art5.pdf>, last accessed 2/2/04.
39. Marine Stewardship Council (MSC) 2002: New Zealand Hoki Independent Panel Decision, http://www.msc.org/assets/docs/New_Zealand_Hoki/NZHokiPanelDecision.pdf, last accessed 3/2/04.
40. English, P. 2001: Ensuring Fishing Will Have a Future, *New Zealand Herald*, 10 July.
41. Constance D. and Bonanno A. 1999: Contested terrain of global fisheries: dolphin safe tuna, The Panama declaration and the Marine Stewardship Council, *Rural Sociology*, 64: pp 597-623.
42. Armstrong, P. 2001: Science, Enterprise and Profit: Ideology in the Knowledge Driven Economy, *Economy and Society*, 30 (4), pp 524-552.
43. Pickett, S., Kolasa, J and Jones, C. 1994: *Ecological Understanding the Nature of Theory and the Theory of Nature*, Academic Press, San Diego.
44. Longino, E. 1990, *Science as Social Knowledge: Values and Objectivity in Scientific Inquiry*, Princeton University Press, Princeton.