

Futures of Governance: Ecological Challenges and Policy Myths in Tuna Fisheries

Human-wrought changes to ocean ecologies present challenging futures. Scientists predict that ocean acidification, ocean warming and changes in the global system of currents that stabilize ocean temperatures and push nutrients to the surface will devastate ocean life for the next few millennia (Roberts 2012). Pollution, especially from the massive amounts of plastic suspended in the water column, and over-fishing are also significant problems. The damage from human-wrought changes to ocean ecologies may be irreparable or too complex to adequately comprehend and manage sustainably (McGoodwin 2007; Holm 2013). This paper examines efforts to make fishing sustainable, focusing on the policy myths part of processes of change.

While ecological challenge is difficult, change in governance (broadly defined as systems of authority aimed at influencing or regulating people to behave in particular ways) is not unusual. Periodically, policymakers initiate change to address perceived shortcomings in current governance, to respond to new situations and to build on emerging knowledge. Widespread acceptance of the need for change is only the first step. The conceptual frameworks of the problems to be addressed, and the appropriate ways to address them, are based on mythic themes that draw on tradition and taken-for-granted knowledge. These mythic themes form well-worn grooves of thought and practice and so, for new modes of governance to replace old ones, these myths must be transformed. Shifting the myths has to occur not only in the ideational sphere but also in the practical structures of governance; the patterns of power and privilege, the educational systems in which employees are trained, the data collection systems used to guide planning, and so on. All these changes in turn transform practices of management. Governance here means all of the systems of authority that influence fishing behavior, government and non-government, and including intentional attempts to change behavior as well as non-intentional effects on behavior, for example through markets creating incentives causing fishers to overfish. Fisheries management is the subset of those systems that is intentionally aimed at influencing fisher behavior as part of government.

Roland Barthes' (1972) work in the mid-twentieth century demonstrated that modern society

deploys myths that reproduce ideologies and underpin existing power structures. This conceptualization has been developed by de Neufville and Barton (1987) who found that myths structure ‘problem definition’ in policy making. Myths help with communicating and mobilizing, because audiences are already primed, and myths represent an established orientation towards ontology and being in the world. But myths also have drawbacks as, being based on established problem definitions, they conceal alternative realities, and inhibit the imagination of new, more effective perspectives on problems. Myth is a particularly appropriate concept for understanding the resistance to change in environmental governance because it foregrounds the unscientific, imaginary and taken for granted aspects of knowledge that combine with science and governance. It also points to the broader social frameworks and cultural values that encompass governance. Harries’ study of institutional resistance against implementing adaptation measures for climate change found new policies were ‘hampered by institutional cultures’ formed when different approaches were the norm (Harries 2001, p.188). Consequently, changing modes of governance requires not only convincing stakeholders that new principles of governance are needed, it also requires changing: 1) the taken-for-granted knowledge shaping stakeholder predispositions toward governance, and; 2) the institutions that conduct governance, including the tasks bureaucracies undertake, and the patterns of power, wealth and prestige vested in the existing system.

This chapter derives from my ongoing research into the governance of tuna fisheries globally, and specifically in the Western Pacific region, since the late 1990s. The projects making up this body of work were based on interviews with people from stakeholder groups, observation of international meetings, reviews of technical documents for fisheries policy, and reviews of academic literature on fisheries management. In the first part of the chapter, I argue that the consideration of several mythic themes is particularly important to understand international fishing governance. First, I explore the mythic theme of plenty or inexhaustibility and its challenge in new myths of ocean degradation and the need for salvation through conservation, which in turn is part of a broader conservation salvation myth. Second, there is the mythic theme that I gloss as ‘atomism’, expressing ideas that that ocean creatures and governance bodies exist and act at an individual level. This second theme implies management fisheries science, which considers species in themselves, and a theory of governance in which nation states have to look after their own interests competitively. I argue that approaches to governance are not simply dropped and replaced when their founding principles are discredited. Much of the old systems remain, becoming the foundations for new approaches,

resulting in hybrid, sometimes confused and conflicted systems of governance. Understanding governance as operating through mythic themes helps us understand attempts to change governance through changing ideas. Gaining widespread acceptance of new principles is only the first step in achieving effective change. The myths of governance, and the institutions and actions founded on them, must also be shifted, and this process of change is messy and piecemeal.

Myths of Fisheries Management 1: From Single-Species to Ecosystem-Based

Myths about fishing contain ideas about ocean ecologies. One of the key myths about fishing during the European colonial period was of endless abundance. Thomas Huxley famously asserted in his address to the 1883 International Fisheries Exhibition in London that “all the great sea fisheries are inexhaustible”. Within a few decades however, this myth was less widely accepted, even in resource-guzzling, industrializing Western countries, but it still has effects.

Even before the application of industrial technologies to fishing, people had damaged stocks and altered ecologies through their fishing activities. Oyster stocks around population centres on the Australian coast were depleted within decades of White settlement (Wallace-Carter 1987). Once industrial technologies were applied to fishing from the late 1800s, quantities of fish being taken increased dramatically. The northwest Atlantic cod fishery is a famous example of collapse from overfishing (Kurlansky 1998), but it happened in many other fisheries too. From the 1880s the Japanese and Korean coasts were stripped of abalone through use of underwater breathing apparatus (Koh and Barclay 2007). During the twentieth century some of the key technological changes included the move from wooden to steel hulls, use of radio communication, development of diesel engines, refrigeration for preserving fish and increasing the length of voyages, mechanical devices for reeling lines and winching nets, replacing cotton and other plant-based fibres with synthetic materials for nets and lines, and use of radar, sonar and other telecommunications for navigation and finding fish. In 1640 the Dutch herring fishing fleet involved around 800 ships and 11-12,000 fishers, with an annual catch of around 50,000 tonnes of herring. In 2007 a single Dutch fishing vessel would catch that much herring in a year, employing eight people (Holm 2013). Increased capacity for fishing together with increasing demand from growing human populations led to global

overfishing. The Secretary General of the 2002 World Summit on Sustainable Development in Johannesburg Nitin Desai noted that overfishing had become a major threat to the food supply (United Nations, no date).

The move to limit fisheries for the common good began to take root in institutions in the early twentieth century, as part of the application of science, policy and regulation to the management of ecology as “resources” emerging in North America and Europe at that time (Epstein 2006).

By the late 1930s, in North America, the conservation movement was in full cry... In dozens of states and provinces, fish and game regulations were proliferated, commercial fisheries were increasingly documented, and there was a growing awareness of the necessary scientific base for management... too much fishing effort was at the heart of the halibut problem... and the first steps were being taken to restore the Fraser River sockeye from the effects of overfishing and the Hell’s Gate block (Larkin 1977, p. 1).

Western myths about ocean ecologies retained the notion that they were there for humans to use, but became tempered with an understanding that overfishing could occur. Fisheries management, using scientific understandings of the impacts of fishing, may thus be seen as part of the application of governmentality to food production within modernity (Barclay and Epstein 2013).

The notion that fisheries should be managed for sustainability attained the status of a societal myth, but policies and their implementation have not lived up to the myth. Competing interests around profit and national food security, and the open accessibility of fisheries meant that governments were easily persuaded to allow their fleets to fish more than scientists advised, and much fishing occurred in areas outside of government control.

Given this failure to effectively manage fisheries, ideas about the damage humans do to ocean ecologies became more pessimistic. The guiding institutional myth that ‘fisheries can be damaged by overfishing and this should be managed through government application of science’ remained, but alongside it a related myth of ecological devastation emerged. Understandings of human destruction of ocean ecologies may be seen as part of a wider mythic theme about planetary decline due to human activities. This became a central social

issue visible in the high profiles achieved by books such as Rachel Carson's *The Silent Spring* in 1962, social movements around anti-whaling in the 1970s, intergovernmental reports such as Brundtland's *Our Common Future* in 1987, and the Rio Earth Summit (United Nations Conference on the Environment and Development) of 1992. Marine biologists helped generate understanding of sustainability problems, in particular Daniel Pauly, with his concepts of 'shifting baselines' (1995) and 'fishing down the food web' (Pauly et al 1998). Writing about Agenda 21, the policy blueprint that arose from the Rio Earth Summit, Alicia Barcena (1992: 109) wrote: "[s]ociety is gradually appreciating that the impact of intensified human activities no longer permits a casual approach to oceans as an unlimited receptacle for wastes and an endless supply of free and open-access resources". In the last decade the profile of overfishing has been raised through the media, for example, in the 2009 film *The End of The Line*. This higher media profile is partly due to the campaigns of conservation organizations such as Greenpeace. Celebrity chefs in the UK, Hugh Fearnley-Whittingshall and Jamie Oliver, have also put their name to sustainable seafood campaigns (Silver and Hawkins 2014). However, this characterization relates mainly to Western societies, or even the English language cultural world. The myth of plenty is global, but not homogenous, and varies across different cultural boundaries. See, for example, Epstein and Barclay (2013) and Barclay and Epstein (2013) for discussion of differences between Australian and Japanese perceptions of fisheries impacts and appropriate approaches to management.

Sitting under the broad myth that fisheries should be managed by government using science is a related myth about what kind of science is relevant. One branch of science called limnology studied fish as part of complex life communities, but this was sidelined by the simpler approach of studying only the target species of fish and analysing fishing impact in terms of Maximum Sustainable Yield (MSY) (Larkin 1977). Fishing to MSY means taking the maximum amount of fish possible without theoretically causing those particular stocks to decline; it is atomistic. MSY became policy orthodoxy and underpins the fisheries management of most governments around the world, as well as intergovernmental organizations such as the United Nations Food and Agriculture Organization (FAO).

For some decades MSY has been widely discredited as an appropriate indicator for sustainable fisheries management. Errors in biological knowledge can result in setting the limit too high. Economists have also rejected it as failing to optimize value, and have proposed an alternative indicator of Maximum Economic Yield (MEY). Limnologists

continued developing their understanding of marine ecosystems, and eventually showed that single species MSY science was inadequate for working out sustainable levels of fishing (Larkin 1977, p.6); ecosystem-based fisheries management became more widely accepted (Kolding and van Zwieten 2014, p. 132). While the 1982 United Nations Convention on the Law of the Sea Declaration 31a notes: “Stocks should be kept at biomass levels that can produce MSY”, by the early 2000s “political commitment to the transition from single species to ecosystem-based fisheries management [had become] ubiquitous and consistent with commitments to sustainable development” (Jennings 2006: 25). In 2001 the FAO adopted the Ecosystem Approach to Fisheries (EAF).

From Single Species to Ecosystem-Based Management in Tuna Fisheries

Solomon Blue

You reap a harvest
you did not plant
You drain my resources
in the name of development
You fish in my waters
for bonito
You pay me a little
for permission
You process your catch
compressed into cans
You pour back your waste into our seas
Pollution!
Then you sell back to me,
at a profit
Solomon Blue

Jully Sipolo, *Praying Parents*

The poem above expresses prevalent residents’ perceptions of the downsides of industrial tuna fishing and processing in Solomon Islands, playing on the name of a popular local canned tuna brand. Solomon Islands is a small island country in the south western Pacific Ocean where tuna fisheries and a cannery involving foreign investment have been a prominent part of the economy since the early 1970s. The waters of the Pacific island states around the equator make up the world’s largest tuna fishing ground, supplying around a third of the world’s tuna (Williams and Terawasi 2013).

Tuna fisheries started industrializing in the late 1800s (Doulman 1987), but really developed in the 1950s (see Figure 1; Barclay 2014). The bluefin tunas, prized for sashimi, are very large and relatively slow growing so their stocks are not resilient to fishing. Southern bluefin tuna *Thunnus maccoyii* stocks declined precipitously from the 1950s (Australian Government 2012: 366), while northern bluefin tuna *Thunnus thynnus* stocks reached catastrophically low levels in the 1980s (Hurry et al 2007: 44). At the other end of the spectrum is skipjack (sometimes called bonito) *Katsuwonus pelamis*, used mostly for canning. It is a much smaller fish that matures in a couple of years. Despite being fished very intensively, skipjack stocks in the Western and Central Pacific Ocean are not yet showing signs of overfishing. In between, are a range of other species fished in significant amounts, such as yellowfin *Thunnus albacares*, albacore *Thunnus alalunga*, and bigeye *Thunnus obesus* (see Table 1).

Figure 1. Catches (mt) of Yellowfin, Skipjack, Bigeye, Albacore and Other Species in the Western and Central Pacific Fisheries Commission Convention Area, 1950-2008.

[INSERT FIGURE HERE]

Source: graph created by the author using public domain data from Western and Central Pacific Fisheries Commission (WCPFC), available: <https://www.wcpfc.int/node/4648>.

Table 1. Contemporary stock abundance as a percentage of estimated stock abundance before industrial tuna fishing accelerated after 1950

[INSERT TABLE HERE]

Sources: United Nations Food and Agriculture Organization (FAO) www.fao.org/fishery/statistics/tuna-catches/en; Sibert et al (2006).

As well as the nature of the fish themselves affecting the ecological outcomes of fishing (through fast or slow growth rates etc.), the type of fishing also plays a role. While skipjack stocks appear resilient to fishing, fishing them with purse seine nets and fish aggregating devices (FADs), involves incidentally catching large amounts of juvenile yellowfin and bigeye, which increases overfishing problems for these stocks (Williams and Terawasi 2013, p.14). The total ecosystem effects of tuna fishing are not well known because information has largely been collected on target species. One probable ecosystem effect is that removal of tuna as predators from the food web causes booms in population of competitor predators, including other tunas and fish such as mahi mahi and wahoo (Sibert et al 2006). Dolphins, sharks, birds and turtles are also killed in some modes of fishing for tuna but they cannot be included with

the commercial tuna species in Figure 1 because there is no time-series data on their fishing-related mortalities. Atomism rules again.

Despite efforts to move away from single species marine resource management to ecosystem-based management, the information infrastructure necessary is not in place, and the activities of fisheries management institutions are still largely oriented around monitoring specific target species. Regional Fisheries Management Organizations (RFMOs) put a much smaller effort into ecosystem-based management, largely through working groups that conduct projects about species incidentally affected by tuna fisheries, such as sharks, seabirds and turtles. This work can be seen in papers produced for the meetings for each RFMO on its website.¹ Extending data collection and analysis to all the species affected by fishing is seen as expensive. Ecosystem-based management also requires different mythic frameworks, different institutional habits, different types of data collection and methodologies of analysis, different training and different ways of operating. In other words it requires different orientations to being-in-the-world.

Events at the Philippines National Tuna Congress in 2014 exemplify the obstacles the myths of single-species management can pose to thinking and acting in terms of ecosystems. A representative from the US government fisheries agency was discussing ‘Fishery Trends and Abundance of Tuna Stocks in the Philippines with Estimates of Depletion Due to Fishing and MSY’. He noted that skipjack stocks are not showing signs of overfishing. This, and many other, papers at the meeting discussed the bycatch of bigeye and yellowfin in skipjack FAD² fisheries, and it has been a prominent issue at meetings for some years, so presumably all the delegates were aware of this problem. Nevertheless, one delegate asked the speaker why skipjack fisheries were being restricted if stocks are not in danger, and received some applause for asking this question. Clearly the single species myth was still effective in providing legitimacy for challenges to restrictions on his industry. Entrenched economic interests in the current mode of fishing can use existing habits and myths of problem definition to cast doubt on conservation. Fisheries management scientists still do not have data based on ecosystem-based approaches, even though this approach has been officially acknowledged as more useful.

The taken-for-granted and background knowledge of single-species science remains, as does the myth of infinite plenty, along with the old institutional structures, particularly data

collection and reporting systems. Contemporary tuna fisheries management is thus a hybrid collision of ideas and practices attributable to both myths. The number of years it has taken to get even to this point in achieving ecosystem-based governance, shows how glacial the pace of changing environmental governance can be, even with widespread acceptance of the need for change. This difficulty is reinforced by the organisation and myths of governance based in nation states.

Myths of Fisheries Management 2: From Nation-States to Interactive Governance

We can now move on from the myths about the science *upon which* governance should be based, to the myths about *how* governance should be conducted, as these are also relevant to understanding difficulties in changing governance to respond better to ecological challenges. Environmental governance has been thought of as something governments do nationally, and when issues and activities spread across national borders they become the purview of the intergovernmental system, embodied by the United Nations institutions. Moreover, governance is performed by many social institutions. Government actors and regulation are only part of the governance landscape. New ideas, such as interactive governance (Kooiman et al 2005), now challenge the myth that ‘governance should be done by governments’, by foregrounding non-state actors and global processes. However, taken-for-granted habits of thought and institutional structures of old myths remain, creating policy inertia and creating obstacles to innovation, as discussed below.

Michael Foucault argues in *Security, Territory, Population* (2007) that the rise of modern government involves notions that government’s key role is to provide an environment in which the population’s life needs are met, including food security. The international aspect of this has long been recognised, with food prices, trade policies and subsidies all affecting the competition domestic food producers face and the affordability of food for domestic consumers (Foucault 2007). With increasing globalization, food supply chains spanning more than one national territory became more common, consequently environmental problems arising from food production, such as overfishing, are no longer local.

Fishing was already conducted across what became national borders during the twentieth century. Control by states over travel across their maritime borders was generally not effective

until the Cold War. As technologies developed fishing fleets could travel further. This is particularly evident in the spread of Japanese industrial fishing activities throughout East and Southeast Asia and the Pacific Islands regions from the 1800s to World War II (Chen 2009; Doulman 1987).

Intergovernmental activities relating to oceans eventually came under the United Nations Convention on the Law of the Sea (UNCLOS), which came into force in the early 1980s. Even prior to UNCLOS being fully established, processes existed to manage international aspects of fisheries governance. The International Whaling Commission was established in 1946. However, commercial whaling was reduced to sustainable levels, arguably not because of government and intergovernmental action, but because the markets for whale oil and meat collapsed.

In the capitalist world system, markets are clearly key to governance. Sometimes their effects are serendipitous, as with declining prices for whale oil noted above, but there are also intentional efforts to use markets for governance, or make governance subsidiary to markets. Sometimes governments create markets, as with carbon trading, using prices and competition to try to achieve desired outcomes. In other cases, processes within existing markets are harnessed, as with Corporate Social Responsibility (CSR). With CSR corporate actors may feel pressure to avoid reputational, and market, risk by making sure that their products are not produced in environmentally damaging ways. Other companies promote their products as environmentally 'friendly'. Certification with ecolabels is a prominent part of this strategy. Since 2000 one major ecolabel has arisen in seafood, that of the Marine Stewardship Council (MSC). The MSC 'blue tick' has established a reputation as being based on sound fisheries management principles, and of using 'arms length' third party certifiers. In Europe and North America, numerous large retail chains including Walmart and Sainsbury's pledged to source all of their wild catch (non-aquaculture) products from MSC certified fisheries.

Conservation NGOs are pivotal in giving CSR traction by raising public awareness about environmental problems, by publicly shaming companies they see as doing the wrong thing, and by praising companies perceived as acting sustainably. Many of the NGOs acting through CSR operate transnationally, utilizing global networks of activists, telecommunications and global media (conventional and social) to leverage targeted local campaigns. Without widespread public awareness of these problems – without the myth of ocean decline and the

end of plenty – the reputational risk and opportunity does not exist. The lack of awareness of overfishing as a problem in Japan contributes to the lack of ecolabels or other environmental CSR in Japanese seafood markets (Wakamatsu et al 2010), when compared to Europe and North America where mythic themes of ocean decline are more established.

In Manuel Castell's terms the standard government and intergovernmental system inhabits the 'space of places', while global fisheries exist and operate transnationally, in the 'space of flows' thus escaping State governance to some extent (Castells 1996; Bush & Oosterveer 2007). Global supply chains enable large companies to avoid government regulation of their activities, particularly in the areas of labour and environmental protection, by moving production from countries with such regulation to countries with much weaker, or no, regulation (Klein 2000). Global telecommunications has enabled activists to resheet those responsibilities back home to companies, through transnational networked activism, and through shaming companies in some markets (Gereffi et al 2001; Tsing 2009). CSR can sometimes transcend the territorial limitations of the government system. In the context of a change in myths from plenty to deterioration, a non-state system of governance has emerged in the same 'space of flows' that global business inhabits.

In this new zone of 'third-sector global environmental governance' (Eden and Bear 2010), also referred to as 'non-state market driven governance' (Bernstein and Cashore 2007) or 'global private politics' (Büthe 2010), struggles remain about how legitimacy is gained and maintained, and how players become accountable. The ecological impacts of CSR on fisheries have yet to be clearly demonstrated (Jacquet et al 2009). MSC certification has, sometimes, been found to be more about changed reporting practices than improved fishing practices, and tends to exclude smaller locally owned fishing enterprises in developing countries (Ponte 2007). Consumer guides can be confusing, because of inconsistencies between different organizations, and inaccurate, due to the inability to consider all relevant information (Roheim 2009).

Unlike the clear distinction between single-species and ecosystem-based scientific approaches, private governance does not offer a replacement for existing ways of being. There is no new widespread myth that clearly breaks with the 'governance by governments', asserting, for example, that it can be safely left to the private sector, NGOs or consumer choice. Rather the shift may be characterized as an add-on, as private governance via CSR

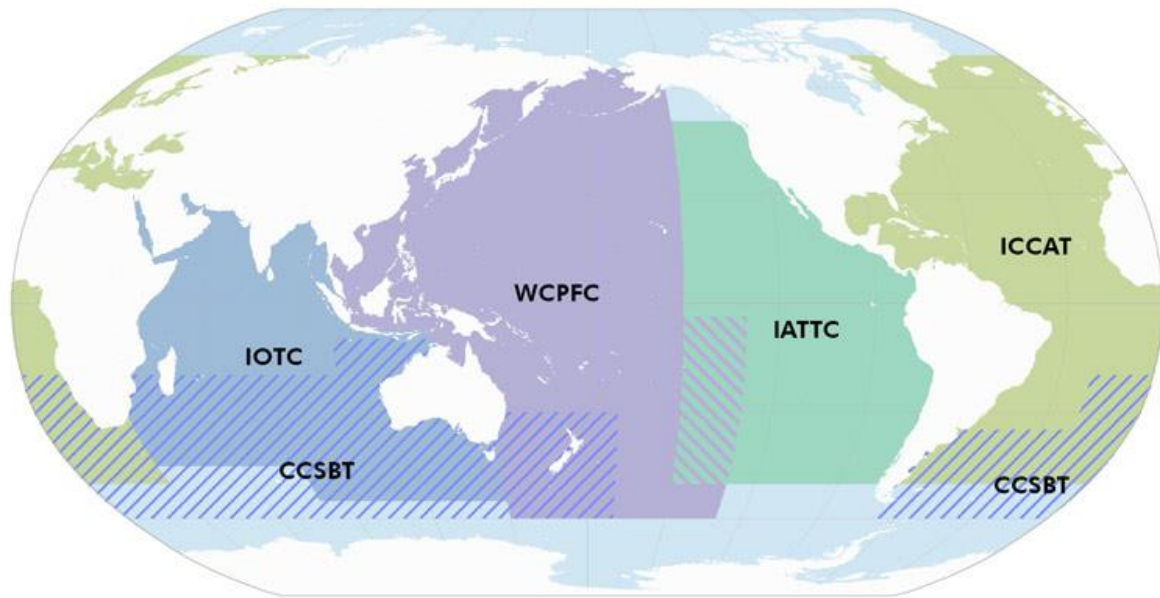
works alongside, and in interaction with, governance by governments. No coherent myth incorporating both state and private governance has yet arisen.

Transnational tuna fisheries and the promise of hybrid governance

There are signs that new myths for the ‘space of flows’ that Castells identified are emerging in the increasingly globalised tuna fishing industry (Ababouch and Catarci 2003), manifesting in new forms of hybrid governance. Since the 1960s, a multilateral but still nationally based system of governance was instituted with limited success to address mounting problems of overfishing.

The multilateral institutions for tuna fisheries management are the Regional Fisheries Management Organizations (RFMOs), under the auspices of the United Nations Convention of the Law of the Sea (UNCLOS). Starting with the International Commission for the Conservation of Atlantic Tunas (ICCAT), established in the late 1960s, through to the Western and Central Pacific Fisheries Commission (WCPFC) established in 2004, tuna RFMOs now cover the oceans of the world (see Figure 2).

Figure 2. RFMO Ocean Coverage



Source: The Pew Charitable Trusts Environmental Initiatives

<http://www.pewenvironment.org/news-room/other-resources/map-tuna-regional-fisheries-management-organizations-85899361310> (accessed 26 November 2013).

The RFMO system has been unable to prevent increased catches (Figure 1) or alleviate damage to fish stocks (Table 1). The RFMO system relies on member states to agree to conservation measures, and they frequently fail to do so, under pressure from their national industries or sense of political advantage. The EU, US, Japan, Taiwan and China consistently argue against measures to protect bigeye tuna stocks in the WCPFC (Ride 2012). In ICCAT, fishing countries refused for years to cut their catches of the badly overfished bluefin tuna, or protect threatened shark species (Hurry et al 2007; Oceana 2013). Even when states agree to conservation measures, they can fail to implement the measures in their jurisdiction. The Japanese fleet was catching as much as double its southern bluefin quota for many years until 2005 (Epstein and Barclay 2013). Taiwan was also a serious offender in the 1990s, particularly with bigeye catches (Chen 2012). Some developing countries with large informal fisheries providing livelihoods for very poor people, such as the Philippines and Indonesia, face enormous challenges in extending effective control over their fishing fleets and incursions by vessels from other countries.

Despite its shortcomings, the RFMO system still provides a forum for states to collect, analyse and discuss information about fisheries, which in turn provides information for

NGOs. Bigeye and southern bluefin tuna stocks improved somewhat after the issues with Taiwan (ICCAT in 2005) and Japan (CCSBT in 2006) respectively were addressed in RFMOs, showing some level of effectiveness. RFMOs have also, albeit slowly, innovated to address their shortcomings. For example, where it has been ineffective to regulate *fishing* they have implemented catch documentation measures to regulate *imports*.

The RFMO system has always reflected the myth of ‘governance by governments’. Conservation NGO and fishing industry representatives attend RFMO meetings as observers, or as part of country delegations led by government officials, but they have no direct decision-making capacity; that rests with the member state delegates. Other key stakeholders – seafood trading companies, tuna brands, food retailers and consumers – are not involved in RFMO processes at all, not even as observers.

Alongside the RFMO system private governance of canned tuna industries has emerged in the last decade in canned tuna markets (less so in sashimi or tuna steak markets). Private governance arrangements have been initiated by companies and conservation organisations drawing inspiration from the mythic theme of dying oceans, as well as from new knowledge in the science of ocean ecologies. Some aspects of private governance in canned tuna were visible by the 1990s. The Earth Island Institute ‘dolphin safe’ label became ubiquitous in Europe and North America following the well-publicized furor over dolphin deaths in purse seine fisheries off the Mexico coast in the late 1980s (Bonnano and Constance 1996). Some major retailers in these markets also were pursuing a branding strategy based on social and ecological responsibility, such as Sainsbury’s in the UK. In the late 1990s Sainsbury’s was paying a price premium of up to 10 per cent for pole and line caught tuna because this style of fishing is environmentally less damaging than the purse seine method (Barclay and Cartwright 2007).

During the late 2000s private governance accelerated in canned tuna markets in Europe and North America, largely due to conservation organizations raising awareness of, and building on themes of, ocean decline. Wider public understanding that overfishing and bycatch is a problem in tuna fisheries heightened the risks to reputation, and the opportunities for positive branding.

Greenpeace’s canned tuna rankings have been rolled out as part of a global campaign, but

tailored to national markets. Greenpeace lists on their national websites the types of canned tuna available in the supermarkets of that country, showing the top ranking brands as green, lower down yellow and at the bottom red (pole and line caught skipjack ranks highly, FAD purse seine yellowfin ranks low). An example of the shaming potential of this kind of private governance occurred in 2014 when *The Guardian* newspaper accused major UK tuna brands John West and Princes of killing sharks, rays and turtles by delaying their commitments to source tuna only from FAD-free fisheries (Smithers 2014).

These campaigns, mobilizing public concern through new myths that offer hope through conservation, have really changed the global canned tuna business. Between 2005 and 2008 none of the fishing companies I investigated around the Pacific were seeking ecolabel certification or had significantly invested in a style of fishing, such as pole and line, that could be marketed as ‘sustainable’ (Barclay and Cartwright 2007; Barclay 2009). However, in 2012 and 2013 all of the companies I investigated had applied for certification, were considering certification or were increasing their use of FAD-free or pole and line fishing (Blomeyer and Sanz 2012; Barclay et al 2013).

By around 2008 many retailers and brands in Europe and North America were seeking to deal with the reputational risks and branding opportunities of this new business environment through ecolabeling. Retailers and brands were requesting certified product from the MSC.³ Soon after that a very large fishery in the waters of the Parties to the Nauru Agreement (PNA) countries in the equatorial Pacific Ocean went into MSC assessment for the FAD-free portion of the fishery, and it was certified in late 2011. This is very much an example of hybrid state and private governance. Normally with MSC certification, a fishing company would seek certification, and the only involvement of government would be indirectly, with fisheries regulations possibly used as some of the criteria by which a fishery is assessed. In the case of the PNA certification, a group of governments teamed up with a Dutch importing company to seek assessment of fishing by many different fishing companies in their national waters, under the brand ‘Pacifical’. RFMO processes have been included, with WCPFC administered ‘target and limit reference points’ based on stock assessments, being a sustainability criteria used in the MSC assessment. Interestingly, fishing companies have failed to cooperate, saying they are unable to keep the certified FAD-free fish separate from FAD-caught fish in their holds, meaning product cannot be labelled as MSC certified. As of late 2014 there had only been sporadic small-scale appearances of Pacifical tuna on supermarket shelves. Governance,

therefore, has not so far been effective in changing fishing and procurement practices in this business ecology of atomistic competition. It does, however, clearly show the dynamism of relationships between states and private actors in this governance sphere, and the importance of CSR in the retail sector. If conservation organizations can continue to promote mythic themes of ocean decline, and affect tuna businesses in the space of flows, via pressures to their reputations to change procurement practices, then private governance may eventually have positive ecological outcomes.

Conclusion

Myths of ocean ecologies have shifted over time as the effects of fishing and other human impacts on ocean life have become more obvious. Western citizens and consumers no longer believe that the oceans are endlessly fertile, or that we can meaningfully base our understandings of human impacts on the ocean through studies of single species. We recognize the limitation of the competitive, market-based system of nation states, and that non-state actors and institutions must also be part of governance. Despite widespread understanding of the inadequacies of the old mythic themes, replacing them with new myths, habits and ways of being in the world better suited to collective action to improve the sustainability of fisheries has not proved a simple matter.

Policy myths sustained by established patterns of capitalist accumulation constitute established patterns of thought, practice and institutional activity and relationship. Understanding environmental policy as being initiated within old institutionalised mythical frameworks helps explain the resistance against policy changes based on new understandings about environment and governance. There is a lack of clear blueprints for change and there are costs related to overhauling systems and practices. The changes that do occur are piecemeal and coexist with remnants of older approaches. Some of the resistance arises from entrenched patterns of shared understanding, and this is where the concept of myth is particularly illuminating. Myths of humanly induced ocean degradation challenge an ontology of human centredness and importance, while critiques of atomism likewise make humans one of a multitude of interconnected species rather than the preeminent life form. Together they challenge capitalist and state centric myths of competition and short-term profit, informing hybrid governance initiatives focused on conservation and ecological sustainability into the future.

References

- Ababouch, L. & Catarci, C. 2008. Global production and marketing of canned tuna. *Globefish Research Programme 93*. Rome: FAO.
- Australian Government, 2012. *Status of Key Australian Fish Stocks Report 2012*. Fisheries Research and Development Corporation, Canberra.
<http://fish.gov.au/Pages/default.aspx> (accessed 26 November 2013).
- Barcena, A. 1992. "An overview of the oceans in Agenda 21 1992 United Nations Conference on the Environment and Development." *Marine Pollution Bulletin* 25(1-4): 107-111.
- Barclay, K. 2014. "History of industrial tuna fishing in the Pacific Islands." In: J. Christensen & M. Tull (Eds.) *Historical Perspectives on Fisheries Exploitation in the Indo-Pacific*. Dordrecht: Springer.
- Barclay, K. 2009. Fisheries and Aquaculture. In: D. Gay (Ed.) *Solomon Islands Diagnostic Trade Integration Study*. http://dangay.files.wordpress.com/2011/01/si_dtis_final.pdf (accessed 1 November 2014).
- Barclay, K. & Cartwright, I. 2007. *Capturing Wealth from Tuna: Cases from Oceania*. Canberra: ANU ePress.
- Barclay, K. & Epstein, C. 2013. "Securing fish for the nation: Food and Governmentality in Japan." *Asian Studies Review* 37(2): 215-233.
- Barclay, K., Parris, H. & Greenpeace. 2013. *Transforming Tuna Fisheries in Pacific Island Countries: An Alternative Model of Development*. Sydney: Greenpeace Australia Pacific.
- Barthes, R. 1972. *Mythologies*. New York: Hill and Wang.
- Bernstein, S. & Cashore, B. 2007. "Can non-state global governance be legitimate? An analytical framework." *Regulation and Governance* 1: 347-371.
- Blomeyer and Sanz Ltd. 2012. Application of the system of derogation to the rules of origin of fisheries products in Papua New Guinea and Fiji: final report. IP/B/PECH/IC/2011-089-1/6/2012. European Parliament, Brussels, Belgium (pp. 155-187).
- Bonanno, A. & Constance, D. 1996. *Caught in the Net: The Global Tuna Industry, Environmentalism, and the State*. Kansas: University of Kansas Press.
- Bush, S. & Oosterveer, P. 2007. "The missing link: intersecting governance and trade in the space of place and the space of flows." *Sociologia Ruralis* 47(4): 384-399.
- Büthe, T. 2010. "Global private politics: A research agenda." *Business and Politics*, 12(3): Article 12, pp.24.
- K. Barclay, in J. Marshall & L. Connor (2015) *Environmental Change and the World's Futures*

- Castells, M. 1996. *The Rise of the Network Society: The Information Age: Economy, Society, and Culture*, Volume I. Oxford: Blackwell Publishers.
- Chen, C-L. 2012. "Taiwan's response to international fisheries management after 2005 as influenced by ICCAT and fishers' perception." *Marine Policy* 36: 350-357.
- de Neufville, J. I. & Barton, S. E. 1987. "Myth and the definition of policy problems: An exploration of home ownership and public-private partnerships." *Policy Sciences* 20: 182-206
- Doulman, D. (Ed.) 1987. *Tuna Issues and Perspectives in the Pacific Islands Region*. Hawaii: The East West Centre.
- Eden, S. & Bear, C. 2010. "Third-sector global environmental governance, space and science: Comparing fishery and forestry certification." *Journal of Environmental Policy & Planning* 12(1): 83–106.
- Epstein, C. 2006. "The making of environmental norms: Endangered species protection." *Global Environmental Politics* 6(2): 32-54
- Epstein, C. 2008. *The Power of Words in International Relations: Birth of an Anti-whaling Discourse*. Cambridge, MA: MIT Press.
- Epstein, C. & Barclay, K. 2013. "Shaming to 'green': Australia–Japan relations and whales and tuna compared." *International Relations of the Asia-Pacific* 13: 95–123.
- Foucault, M. 2007. *Security, Territory, Population. Lectures at the Collège de France 1997-78*. G. Burchell (Trans.), M. Senellart, F. Ewald & A. Fontana (Eds.) Basingstoke, UK and New York: Palgrave Macmillan.
- Gereffi, G., Garcia-Johnson, R. & Sasser, E. 2001. "The NGO-industrial complex." *Foreign Policy*, 125: 56-65.
- Harries, T. & Penning-Rowsell, E. 2011. "Victim pressure, institutional inertia and climate change adaptation: The case of flood risk." *Global Environmental Change* 21: 188–197.
- Holm, P. 2013. Oceans Past and Future. Seminar presentation, "Climate Change and the Australian Coastline: Shifting Baselines." Maricultures Environmental Research, Sydney Environment Institute, 8 November, The University of Sydney.
- Hurry, G., Hayashi, M. & Maguire J.J. 2007. Report of the Independent Performance Review of ICCAT. International Commission for the Conservation of Atlantic Tunas, Madrid. http://www.iccat.int/Documents/Other/PERFORM_%20REV_TRI_LINGUAL.pdf (accessed 1 November 2014).
- Jacquet, J., Hocesvar, J., Lai, S., Majluf, P., Pelletier, N., Pitcher, T., Sala, E., Sumaila, R. &

- Pauly, D. 2009. "Conserving wild fish in a sea of market-based efforts." *Oryx: The International Journal of Conservation* 44(1): 45-56.
- Jennings, S. 2006. "From single species to ecosystem-based management: Prospects for effective biodiversity conservation." Features, Paris Conference. *MarBEF Newsletter* Spring: 24-25.
- Klein,. 2000. *No Logo: Taking Aim at the Brand Bullies*. Canada: Knopf Canada and Picador.
- Koh S. & Barclay, K. 2007. "Traveling through autonomy and subjugation: Jeju Island under Japan and Korea." *The Asia Pacific Journal: Japan Focus*. Online journal. <http://www.japanfocus.org/-Kate-Barclay/2433> (accessed 25 October 2014).
- Kolding, J. & van Zwieten, P.A.M. 2014. "Sustainable fishing in inland waters." *Journal of Limnology* 73(s1): 132-148.
- Kooiman, J., Bavinck, M., Jentoft, S. & Pullin, R. 2005. *Fish for Life: Interactive Governance for Fisheries*. Amsterdam: Amsterdam University Press.
- Kurlansky, M. 1999. *Cod: A Biography of the Fish that Changed the World*. London: Vintage.
- Larkin, P.A. 1977. "An epitaph for the concept of maximum sustained yield." *Transactions of the American Fisheries Society* 106(1): 1-11.
- McGoodwin, J.R. 2007. Book Review of *Fish for Life: Interactive Governance for Fisheries*. Kooiman, J., Bavinck, M., Jentoft, S., & Pullin, R. (Eds.), MARE Publication Series, No. 3., Amsterdam: Amsterdam University Press (2005) and *Interactive Fisheries Governance: A Guide to Better Practice*. Bavinck, M., Chuenpagdee, R., Diallo, M., van der Heijden, P., Kooiman, J., Mahon, R. & Williams, S. Delft, The Netherlands: Eburon Academic Publishers (2005). *Ocean & Coastal Management* 50: 590–596.
- Meltzhoff, S. K. & LiPuma, E. 1983. *A Japanese Fishing Joint Venture: Worker Experience and National Development in the Solomon Islands*, International Center for Living Aquatic Resources Management (ICLARM) Technical Report 12. Manila.
- Melville, H. 1851. *Moby-Dick; or, The Whale*. New York: Harper and Brothers, 1851.
- Oceana. 2013. ICCAT's status quo stance boots eastern bluefin tuna recovery but condemms sharks. Press release, Oceana website, 25 November 2013. <http://oceana.org/en/eu/media-reports/press-releases/oceana-iccat-s-status-quo-stance-boots-eastern-bluefin-tuna-recovery-but-condemms-sharks> (accessed 27 November 2013).
- Pauly, D. 1995. "Anecdotes and the shifting baseline syndrome of fisheries." *Trends in Ecology and Evolution* 10(10): 430.
- Pauly, D., Christensen, V., Dalsgaard, J., Froese, R. & Torres, F. Jnr. 1998. "Fishing down

- marine food webs.” *Science* 279(5352, 6 February): 860-863.
- Ponte, S. 2007. “The Marine Stewardship Council (MSC) and the making of a market for ‘sustainable fish’”. *Journal of Agrarian Change* 12(2&3): 300–315.
- Ride, A. 2012. “Big fishing nations fail to cut their overfishing, says PNA.” Parties to the Nauru Agreement (PNA) Press Release, 6 December 2012.
<http://www.atuna.com/apps/public/ViewArticle.asp?ID=12179> (accessed 25 January 2013).
- Roberts, C. 2012. *Ocean of Life. How Our Seas are Changing*. London: Allen Lane, Penguin.
- Roheim, C. A. 2009. “Thalassorama: An evaluation of sustainable seafood guides: Implications for environmental groups and the seafood industry. *Marine Resource Economics* 24: 301-310.
- Sibert, J., Hampton, J., Kleiber, P. & Maunder, M. 2006. “Biomass, size, and trophic status of top predators in the Pacific Ocean.” *Science*, 314 (15 December): 1773-1776.
- Silver, J.J. & Hawkins, R. 2015. “‘I’m not trying to save fish, I’m trying to save dinner’: Media, celebrity and sustainable seafood as a solution to environmental limits.” *Geoforum* (in press).
- Sipolo, J. 1986. *Praying Parents*. Honiara: Aruligo Book Centre.
- Smithers, R. 2014. “John West and Princes accused of backtracking on commitments.” *The Guardian*, Tuesday 21 October.
<http://www.theguardian.com/environment/2014/oct/21/john-west-and-princes-accused-of-backtracking-on-tuna-commitments> (accessed 31 October 2014).
- Stacey, N. 2007. *Boats to Burn. Bajo Fishing Activity in the Australian Fishing Zone*. Canberra: ANU ePress.
- Tsing, A.L. 2009. “Supply chains and the human condition.” *Rethinking Marxism* 21(2): 148-176.
- United Nations. No date. “Overfishing: A threat to marine biodiversity. Ten stories the world should hear more about.”
<http://www.un.org/events/tenstories/06/story.asp?storyID=800> (accessed 27 November 2014).
- Wakamatsu, H., Uchida, H., Roheim, C.A., Anderson, C. M. & Managi, S. 2010. “Consumer preferences for eco-labelled seafood in Japan and the influence of information on the preferences.” Paper presented at the 2010 International Institute for Fisheries Economics and Trade, Montpellier, France.
- Wallace-Carter, E. 1987 *For They Were Fishers: The History of the Fishing Industry in South*

Australia. Adelaide: Amphitrite Publishing House.

Williams, P. & Terawasi, P. 2013. Overview of Tuna Fisheries in the Western and Central Pacific Ocean, Including Economic Conditions – 2012. Scientific Committee 9th Regular Session, Pohnpei, Federated States of Micronesia 6-14 August 2013.
<https://www.wcpfc.int/system/files/GN-WP-01-overview-tuna-fisheries-WCPO-inc-economics.pdf> (accessed 1 November 2014).

¹ See: <https://www.wcpfc.int/> ; <https://www.iccat.int/en/> ; <http://www.ccsbt.org/site/> ; <http://www.iotc.org/> ; <https://www.iattc.org/HomeENG.htm> .

² FADs are Fish Aggregating Devices. FAD fishing tends to increase the bycatch of yellowfin and bigeye, which are suffering overfishing.

³ This is according to personal communication between myself and MSC employees at that time.