Chapter 4
Context and Challenges: The Limited 'Success' of the Aotearoa/New Zealand Fisheries Experiment, 1986–2016

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Abstract New Zealand's quota management system (QMS) and ITQ system is now 30 years old and has its own highly developed literature. During the 1980s and 1990s this literature generally interpreted the ITQ experiment in positive terms: issues of allocation, equity and industrial performance were effectively addressed through the QMS/ITQ regime; the fisheries were well managed; and the policies resulted in economic growth. But since 2000 the literature has moved on from these issues of the past. Increasingly the regime is seen as being challenged by other developments, and no longer delivering expected economic results. QMS and ITQ are now regarded as useful and effective instruments of past policies but insufficient on their own for future fisheries management: they need to be buttressed by other fisheries management policies if environmental and economic expectations are to be met; and they need effective policing since the track record of enterprise behavior reveals that the firms are not committed to sustainable development of the fisheries but to obtaining rentier profits from their quota. New Zealand is understood as a special context with special challenges for fisheries management.

Keywords Aquaculture • Ecosystem • Governance • Legitimation • Indigenous rights • Neoliberalism • Overfishing

4.1 Introduction: Context and Challenges

Context matters in fisheries management (Steelman and Wallace 2001) and Aotearoa/New Zealand – the name reflects an aspiration for an inclusive and post-colonial society embracing indigenous visions – constitutes a distinctive context for fisheries management and the implementation of individual transferable quota (ITQ). This is not only because of the special situation of indigenous groups within the fisheries

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and society (De Alessi 2012) but also because of the country's geography of fisheries and its specific history of fisheries management and fishing industry development (Winder 1998; Straker et al. 2002; Salmon et al. 2005), because of the character and effects of neoliberalism in New Zealand (Larner 2003; Larner et al. 2005; Le Heron 2007; Campbell et al. 2009, 2012; Lewis 2009, 2012), and because of recent patterns of globalization in New Zealand. In Aoteoroa/New Zealand, ITQs were designed and introduced as only one set of reforms among many other neoliberal initiatives, and it is fair to say that they were of relatively minor significance in the society as a whole. Crucially, fish stock assessments under what is known in New Zealand as the quota management system (QMS) and ITQs were introduced at about the same time, and were introduced to stimulate investment in the fishing industry at a time when the national industry was still in its infancy, had realized opportunities in the inshore fisheries and were beginning to develop offshore capacity and export success (Straker et al. 2002). QMS and ITQ were meant to provide the foundation for a round of investment and restructuring, including the removal of some vessels from the inshore fishery. Equity and sustainability were watchwords of the time.

Thirty years on the sector now faces very different challenges than those of the 1980s. The fisheries, aquaculture and seafood sector is now assessed as showing lackluster performance, compromised by lack of attention to value added and marketing, changed currency relativities, and an inability to source more and higher quality resources (Norman 2016). Companies use foreign vessels and processing facilities which have reduced costs but compromised regional economic goals. Over the decades, the QMS/ITQ regime has been augmented by more and more management practices – place-based controls on fishing, planning for environmental effects, and marine protected areas – that hark back to practices in place when QMS/ITQ was introduced but which were thought to be unimportant at that time. Indeed, these new practices are themselves partly the result of critiques of QMS/ITQ from marine ecosystem science and New Zealand's environmental lobby. Māori fisheries interests constitute an important group whose status as Treaty of Waitangi partners rather than simply as stakeholders complicates and potentially destabilizes the legitimacy and goals of the government's QMS/ITQ regime. All of these aspects, and not least the special character of the neoliberal reforms involved, mean that this has been a unique fisheries experiment and, despite promising results in the short term, one that has not performed to initial expectations in the longer term. Instead, it can now be seen to have fulfilled many of the expectations that Evelyn Pinkerton (2015a) has for an ITQ regime.

This chapter first outlines important aspects of the fisheries context in New Zealand, that is the factors that set the New Zealand scene apart in international comparisons. It then sketches in the ITQ 'success story' that has been written into international fisheries literature from New Zealand before noting that critical attention to the industrial and environmental performance under the regime has mounted in the last decade. The chapter then highlights the challenges that have emerged and that compromise the effects attributed to 'ITQ'. New Zealand's QMS/ITQ management regime is now under threat from unexpected and new developments. QMS and ITQ, have been made into hybrid entities in order to cope with the practical demands

of fisheries management. They are now being sidelined by competing resource appraisals of coastal and marine resources. In these ways this chapter signals the conditionality of the 'success' of ITQ and confirms that, having successfully promoted a highly capitalized fishery, the resource allocation and property rights regime is now beset by difficult problems of managing resources and harvests, including a crisis of legitimacy.

4.2 Context Matters

The New Zealand government oversees an enormous EEZ of four million square kilometres, the fourth largest in the world, but this asset does not have high average biological productivity by world standards because of sea temperature and nutrient supply (Rennie 1998). Commercially useful species are widely dispersed and co-located, and many of the few hot spots of biological activity are located in coastal areas where they are subject to competing stakeholder interests. Approximately 60% of the commercial fish harvest comes from fishing the Chatham Rise and Subantarctic areas, with another 30% caught off the country's west coast (Brake and Peart 2015: 171). Together these deep water fisheries are readily accessible from the ports in Cook Strait or the South Island's Pacific coast, and are now mainly fished from Nelson, Christchurch and Timaru. In addition, most of New Zealand's coastal waters are fished by commercial fishers. However, the Tasman Sea coasts of both islands have remarkably few ports and these feature dangerous port entry and exit conditions due to treacherously shifting bars and a dynamic longshore drift. The Pacific coasts offer more suitable port facilities and the best fishing bases are therefore located where both coasts are easily accessible, and especially in Nelson. In turn this means that there were and are few single industry resource towns dependent upon fisheries (but see Duncan 1982). Rather, fisheries activities nestle among the array of processing, warehouse and transit facilities on the busy wharves of diverse urban economies (Winder 1998).

Fishing enterprises have adapted to the geography of the fisheries through diversification strategies (Winder 1998). Rather than specialize into specific types of fish they tend to capture and process a variety of species and several key players have also invested in aquaculture operations in order to maximize factory throughput and spread this out over the seasons. Their waterfront freezer facilities can be rented to fruit, meat or milk product exporters. There are in fact many diversification strategies at work in the industry (Rees 2006) and these have decisive impacts on the profitability of companies, even their willingness to abandon the industry.

Settler governments systematically removed Māori from their traditional fisheries while promoting privileged access for settlers to 'new' commercial fisheries. This involved ecological imperialism, including settling Canadian trout into rivers and streams, as well as dispossession, such as the clearing of nets, weirs and property markers from coasts and banks. While the process was never fully completed, Maori traditional fisheries were suppressed.

The Treaty of Waitangi (1840) is New Zealand's founding document and it guarantees to Māori their traditional and customary resource rights, including ownership of land and resources. From the late 1960s, Māori have sought to gain redress for more than a century of unequal treatment, land alienation and rights losses through reference to their rights under the Treaty. This became possible in 1975 when the Waitangi Tribunal, a permanent commission of inquiry, was established to research and suggest redress for breaches of the Treaty committed by the British Crown and its agents. The process, still ongoing, has resulted in the government offering apologies, substantial reparations and the specification of rights. De Alessi (2012) finds that Government has coupled the redress of grievances not only with transfers of fisheries assets and capital to Māori, but also with requirements under the QMS/ITQ property-based fisheries management regime that have forced iwi (tribal units) to focus on capital-asset management rather than transferring wealth to Māori. Undoubtedly, Māori interests have been empowered through the Treaty settlement process, but, for many Māori, the results are disappointing. Fisheries are an important aspect of not only their grievances and the process of Treaty settlement but also Māori aspirations for fishery management rights. Consequently, the process of defining Māori interests, management and *rights* (as opposed to *privileges*), has posed serious issues for fisheries management throughout the 30-year history of the QMS/ITQ regime.

Despite Government promotion, New Zealand's commercial fisheries cannot be said to have featured tens of thousands of fisheries-dependent petty commodity producers in 1980 (Winder 1998) and this means that the QMS/ITQ regime cannot be accused of rationalizing them out of existence. Most controversy focused on the initial removal of up to 1800 part-time commercial fishers, mostly operating in the inshore fisheries, without compensation. Small boat fishermen continue to be forced out of the ownership of access rights (Stewart and Callagher 2011), but there has been no further dramatic rationalization of small-scale commercial fisher rights.

There are, however, an estimated 900,000 recreational fishers (up from the estimate of 500,000 made in the 1990s), who, from a fleet of around 420,000 vessels, compete for coastal fisheries (Hersoug 2002a; Nelson 2016). Such estimates are highly contested since there is no licensing system to provide reliable figures. Integration of recreational fishers into the QMS has thus far proved an intractable political issue since recreational fishers refuse to accept a share of TAC, to discuss licensing or to contribute to the administrative costs of the QMS system, while simultaneously demanding increased participation in management. Recreational fishing also has a distinct geography: while somewhere between 16 and 25% of New Zealanders participate in recreational fishing, 80% of this activity occurs in the northern half of the North Island (Winder and Rees 2010: 159–161). This in itself is a major set of economic activity comprising not only boat building and repair, coastal land development including marina and second home construction as well as restaurant and tourist accommodation, but also annual fishing contests. Note that in February 2006 the Lion Red Snapper Classic on Ninety Mile Beach attracted almost 1000 surfcasters and handed out $250,000 in prizes. While the fishing industry's

annual export tally of around $1.5 billion is important to the New Zealand economy, domestic tourism, coastal land development and boating are also important.

Despite changes in institutional structures over the last 30 years, the fisheries have enjoyed relatively stable administrative conditions. Responsibility for managing New Zealand's fisheries has been exercised through successive administrative units. A Ministry of Fisheries was broken out of the Ministry of Agriculture and Fisheries only to be subsumed more recently into a 'super ministry' called the Ministry of Primary Industries. Nevertheless, QMS and ITQ have been cornerstones of each ministry's governance. It is therefore useful here to simply refer to 'the Ministry'. Government officers are aided in the governance of the fisheries by government owned research institutions, notably the National Institute for Water and Atmosphere, and by a sector organization, recently renamed SeafoodNZ.

There is a specific history of industry development in New Zealand. With the Fisheries Amendment Act (1963), which established a Fisheries Industry Board and declared the 12-mile limit, the government set about an expansion of the commercial fishery. Between 1963 and 1983, the fleet grew from 1727 to 5178 vessels, and landings increased 6–7% per annum, in part fueled by $67 million of loans and export subsidies (Rees 2006: 79). The industry profited from joint ventures in the 1970s and capture and processing technology was significantly upgraded. The declaration of the EEZ in 1977 was seen as an opportunity to once again grow the industry by gaining access to deep sea fisheries previously fished by foreign trawlers. The industry invested $47 million in vessels and up to $30 million in processing facilities 1978–1982 (Sharp 1997).

This government-sponsored expansion took its toll: by the late 1970s the industry was again marked by overcapitalization, inshore stocks were under threat, catches were declining and a number of fishers were in arrears on state loans (Rees 2006: 79). Government intervened through moratoriums on new fishing permits (1982) and on lending for inshore fishery projects (1984), and by giving the Minister of Fisheries broad new management powers. He exercised these by first introducing annual transferable quota based on catch history in deep water fisheries (1983), then by removing the commercial rights of part-time fishers without compensation (1984), and then by introducing the QMS and extending ITQ to cover most commercial fisheries (1986) (Rees 2006: 83–85).

The QMS and ITQ were introduced at about the same time and, despite complaints over the initial rationalization of inshore fishers, and ongoing controversies over the behaviour of some fishing enterprises they have, together, proved to be durable institutions. In 1986 the New Zealand government established not the first but the world's largest ITQ system under a catch share system: by 2005 it covered 257 fish stocks involving 93 species (up from just 27 in 1986) and located in 1.2 million square nautical miles of EEZ (Rees 2006: 8). The system is quite comprehensive in scope but imposes a high administrative burden.

QMS was adopted to address mounting concerns in the late 1970s over an under-pressure inshore fishery, and to prevent overexploitation of the deep sea fisheries. In this context, the new Total Allowable Catch was set lower than previous harvest totals, thus forcing rationalization of fishermen (Pinkerton 2015a: 112). ITQ was

introduced because the government did not intend to pursue a subsidy programme to grow the national fishing industry, planning instead to use the market of ITQ rights to promote private investment to build a domestic industry capable of capturing rents in the deep sea fisheries. The short-term effect of the ITQs was meant to be the consolidation of control over quota in the hands of those with access to capital. This neoliberal policy was the result of the New Zealand government's dire financial plight at the time, itself the result of pursuing state-led development initiatives through subsidy programs through the 1970s in the face of inflationary times and high cost credit, and the political response at the time. Caught in these specific circumstances, New Zealand governments set about a sweeping restructuring of state sector activities during the second half of the 1980s, and, at the time, the fisheries were a minor consideration in their efforts. Nonetheless, the QMS/ITQ regime was a *compromise*: neoliberal attributes (notably the market in ITQ and the idea of the responsible private property owner) were combined with a coherent industry policy, which later took the form of a cluster initiative but already in the 1980s featured clearly productionist values and goals. Additionally, the regime was harnessed to the Treaty of Waitangi settlements process which would eventually involve justice and political redress for the colonial appropriation of Māori fisheries rights, even though it was not at all clear at the time what form this would take.

4.3 The 'Success' Story

Initially, the introduction of the QMS/ITQ regime in New Zealand was backed by favourable scientific reports, especially from economists (Clark et al. 1988; Sissenwine and Mace 1992; Clark 1993; Sharp 1997; Batstone and Sharp 1999) whose research showed improvements in productivity and production as a result of the reforms to resource management and allocation. Economists linked resource management in the fisheries to industrial policies framed in terms of Michael Porter's ideas about competitive advantage and cluster building and designed to further develop the competitiveness of the New Zealand seafood industry (Crocombe et al. 1991). The hallmarks of success were clear to see: there was economic growth with increased industry efficiency; the fisheries were apparently well managed with few signs of overfishing; the costs of fisheries management were small and companies were expected to pay for these costs; this occurred alongside inclusion of indigenous people in the fisheries; and all of this is apparently the result of QMS and ITQ.

Analysts have confirmed the positive achievements of this experiment, with most attention first being devoted to the ITQ allocation system (Shallard 1996; Sharp 1997, 1998; Batston and Sharp 1999; Clark et al. 1988; Russell and Campbell 1999; Sissenwine and Mace 1992; Straker et al. 2002). It is generally agreed that, under the QMS/ITQ regime introduced in the 1980s, quota ownership and fishing effort were rationalized, and a larger catch was achieved with fewer vessels (Hersoug

2002a). These were expected performances (Symes and Crean 1995; Grafton 1998; Grafton et al. 2000).

As the industry restructured following the introduction of ITQ, critical voices were heard over issues related to the allocation of rights (Wallace 1988a, b; Cochrane 2000). Notably, Hawkey (1994) highlighted the effects of the rationalization of rights on fishers and fishing communities in Northland. In addition, there was a protracted debate among Māori over the distribution of rights allocated to them collectively. However, the issues raised since then increasingly have nothing to do with the allocation of fishing rights under ITQ or the effects of this system on the race to fish. For example, researchers have addressed issues such as how to manage harvesting when the catch is multi-species but the company responsible for the catch only has rights for one or two of the species caught (Peacey 2002). Also, the extent to which QMS/ITQ promoted 'New Zealandization' of the EEZ fisheries has been questioned (Rees 2006; Simmons 2014).

By the early 2000s it was clear that research in New Zealand had left the issue of the race to fish and the allocation of rights far behind (Hersoug 2002a; Yandle and Dewees 2003). Researchers turned to issues of stakeholder organization (Hughey et al. 2000; Yandle 2003; Massey and Rees 2004a), what the limits to prospects for co-management were (Hersoug 2002b), assessing prospects for self-governance in the industry (Yang et al. 2010), and whether the industry should be required to pay for research into the resource (Harte 2001), which it still is. The economic performance indicators for the fisheries (Rees 2003) and the knowledge cluster developments in the industry (Rees 2006) have been reviewed. The performance was poorer than expected, but this did not seriously disturb either the rhetoric surrounding ITQ or the status of QMS: both remained cornerstones of fisheries management.

Around 2010 the industry exported over $1.4 billion worth of fisheries products, up from $168 million in 1981. It employed 5680 full-time equivalent workers, about the same as in 1981. It operated 1278 commercial vessels compared to 2375 in 1984 and held quota worth $4 billion (Ministry for Primary Industries http://www.mpi.govt.nz/). New Zealand companies now claim to use a sustainably managed resource, to produce seafood products for export certified by international NGOs including the Marine Stewardship Council (MSC).

With a full-time staff of just 453 backed by 208 honorary fish officers and 51 observers, and with a budget of a mere $103 million, the government manages a vast EEZ, with bottom trawling banned from 31% of this area. The QMS programme now covers 97 species and 633 individual stocks, and commercial fishers pay for a part of the necessary fisheries science. The actual catch of 409,126 tonnes is substantially smaller than the TACC of 599,126 tonnes, a fact hinting at selective company and quota owner behaviours, a matter to which we must, in due course, return. Nevertheless, the Ministry claims that the fisheries are generally well managed. The Ministry reports that 67% of the assessed stocks are at or near target levels. Recreational fishers catch a further 25,000 tonnes and Māori customary fisheries, now recognized, legal and managed, harvest a further 4813 tonnes. Investments in aquaculture have occurred so that fish farming was responsible for exports of $279 million of product in 2010 compared with none in 1981.

These results cannot simply speak for themselves, however, and have been the subject of ongoing debates over industry performance (Connor 2001; Hersoug 2002a; Rees 2003, 2006). The efficiency gains in fleet use and industry production are not quite as positive as first thought. Connor (2001: 165) showed that total domestic fishing capacity actually increased by 43% between 1987 and 1998 because of investments in larger vessels and despite a reduction in the number of vessels largely through a rationalization of smaller vessels. Direct employment certainly grew from 5670 in 1981 to 8130 in 1996, but then stagnated (8151 in 2001) before declining to 5680 in 2009 (Rees 2006: 126). There has been a substantial restructuring of the workforce, with a spatial localization of employment in a few regions, principally Nelson, Tasman and Christchurch, and declines elsewhere, with a long-term decline in the number of workers employed in fishing and with growth in part-time processing work. So export success is accompanied by casualization of the workforce. Further, throughout the period 1960–2010, 43% of all commercial catch was caught by foreign flagged vessels (Simmons et al. 2015). Large quantities of New Zealand fish are now processed in China (Stringer et al. 2011). In these ways, the long-term, ITQ-induced problem, recognized by Evelyn Pinkerton (2015a: 116), of ease of transfer of quota and jobs out of communities and out of countries has certainly become manifest in New Zealand.

The quantity of seafood exports rose from 120,000 tonnes in 1981 to 350,000 in 1998, before declining and stagnating. Moreover, the return per tonne of exports in constant 2002 dollars peaked at $8139 per tonne in 1984 but ranged from a low of $3637 to a high of only $5400 per tonne between 1988 and 2002 (Rees 2006: 106). The value and volume of seafood exports has certainly increased, but this has occurred along with a shift away from high value inshore species to lower value, high-volume deep-water species, and to aquaculture products. Eugene Rees (2006: 143–145) concluded that the variability of returns to fishing, the changing fleet structure combined with increasing overcapacity in the fleet, increasing costs of fishing, changes in the composition of exports to more low-value fish, and currency fluctuations all cut across productivity gains through to 2002.

Indeed, a recent assessment of the fishing, aquaculture and seafood sector noted “falling employment” and “lackluster long-term export revenue growth” but saw opportunities for “strong growth” (Norman 2016: 2). In 2015, employment was down 26% on 2001, with only “modest gains in production per worker” (Norman 2016: 2). While aquaculture employment has been stagnant since 2000 at 600–700 full-time equivalents (FTEs), and fishing employment fell from 2000 to 1800 FTEs, 2100 FTEs were cut from seafood processing through plant closures and automation (Norman 2016: 4). These developments would not be of concern to economists if the sector was increasing its returns and productivity. Despite its important role in merchandise export receipts (equal to the wine industry), the sector is responsible for only 0.3% of all value added in New Zealand (Norman 2016: 3). According to David Norman (2016: 11), the entire sector now worries about finding appropriately skilled labour and the urgent need for recapitalization and investment.

From a longer term perspective, initial increases in profitability proved unsustainable largely because the factors influencing these have little to do with the QMS

or ITQ: cost structures and currency fluctuations are much more important. But David Norman (2016) additionally worries about the need to grow value in the sector and that means: (1) more product (especially aquaculture products); (2) fresher and better quality fish and that means a shift away from generic frozen or filleted whitefish which attract low prices; (3) a coherent New Zealand seafood brand and label; and (4) more precision in harvesting. Thus, the sector is seen to be underperforming and in need of investment and restructuring. In short, a new industry policy is required.

The high initial expectations of the QMS/ITQ regime – increased productivity and performance for commercial interests, better returns on capital, rationalization of fishing effort, marketization of property rights and sustainable management of stocks – have not been achieved over the longer-term, and the resulting mixed performance is alarming in specific ways. I see David Norman's report as damming evidence of the Government's neglect of a coherent national, let alone regional, industry policy for the New Zealand seafood industry. The issue is now whether his report can mobilize support for a concerted industry policy. His report is also evidence for the triumph of rentier practices among the quota owners, who have clearly moved from investment in productive enterprises to capturing rents from their market power in quota (Pinkerton 2015a: 115).

While the ITQ has seemingly curbed 'the race to fish', the QMS has been sorely tested in several important commercial fisheries through serious overfishing of hoki and snapper, the outright stock collapse of orange roughy, and the displacement of New Zealand 'racing' to other jurisdictions, such as Chile (Rees 2006: 147–194). Māori rights in the fisheries should not be construed as the outcome of QMS or ITQ but of political and justice movements within New Zealand society. Despite the recognition of Māori rights in the fisheries, through a protracted, ongoing and controversial process, issues of social equity in the fisheries have not otherwise been addressed. Indeed, De Alessi (2012) interprets iwi management of quota as increasingly complying with asset-based management principles rather than community-based management principles. All of this suggests that the neoliberal rhetoric of 'ITQ' 'success' masks serious issues in the New Zealand fisheries and society.

4.4 Emerging Challenges

The agreed neoliberal agenda ran into unexpected challenges, each of which is setting new spatial constraints on where the QMS and ITQ regime is actually allowed to operate. Far from being simply co-opted into the neoliberal fisheries regime Māori pose significant challenges to it because of their assertion of customary fishing rights in coastal areas, and their assertion of treaty partner rather than stakeholder status. An emerging critique of biological stock assessments has combined with conservation movements to challenge the QMS practices and to conserve areas from fisheries exploitation. Long seen as the solution to the lack of growth in the fishing industry, aquaculture developments have been engulfed in controversy,

stymieing industry hopes of evading the QMS and ITQ constraints on their growth. In turn this has made 'fragmented governance' in coastal areas a pivotal political issue. Finally, due to their blemished record as environmental users, the fishing companies found themselves the focus of intense scrutiny with more observers now seeing them as having betrayed not only the environmental stewardship aspirations of the regime but also its national and regional economy objectives.

4.4.1 Māori Rights

In interesting ways, Māori pose significant challenges to the neoliberal regime. The government's transfer of a major fishery company, Sealord, into Māori ownership simultaneously went some way toward compensating Māori for past abuses of Māori interests in the fisheries (Walker 1992), prompted a major dispute among Māori over how the assets were to be distributed, and co-opted them into the QMS and ITQ system (Winder and Rees 2010). Despite this early sign of integration of Māori interests into the QMS and ITQ system, negotiations between Māori and the government over rights in the fisheries have proved protracted (Mccormack 2012a, b). This is because Māori rights are located in marine and coastal space and involve the need to recognize Māori authority over and ownership of resources, as well as the simultaneous curtailment of rights granted to other New Zealanders. The process of establishing Māori permitting of customary fisheries is well under way. In 2010 there were 10 Mātaitai reserves covering 185.4 km^2 and 36 more were proposed. A total of 346 Māori fisheries guardians had been registered. Other developments include the Ministry of Research, Science and Technology's Vision Mātauranga 2007 policy framework for acknowledging, harnessing and developing Māori knowledge. Iwi, who are now important commercial stakeholders in their own right, are prioritizing local development and aquaculture in their future investment strategies, and there were signs in the early 2000s that they would look to develop inshore fishing operations using set nets and small boats in what would be a return to earlier patterns of commercial harvesting. But the main commercial activity of their businesses remains managing quota and leasing ACE holdings, so the extent to which they will break from the sector mould has yet to be seen.

As the government begins to constrain rights allocated under the QMS/ITQ regime, Māori are contesting its new measures. For example, in early 2016, following the government's proposal to establish the Kermadec Ocean Sanctuary by 1 November 2016, Māori fisheries trust Te Ohu Kaimoana (TOKM) filed proceedings against the government in the High Court in March 2016 (Davison 2016a). It argues that the proposed 620,000 km^2 no take zone would extinguish customary and commercial fishing rights. They object to what they see as unsatisfactory consultation with Treaty partners over the new statutes, in effect with 2 iwi and not all 58 iwi whose commercial interests are represented by TOKM. At stake is a catch of only 20 tonnes of fish, but mostly highly migratory species such as tuna (so these could be caught outside the sanctuary) valued at around $162,000. The action by TOKM

is therefore more about participatory governance in the fisheries than about opposition to declaration of a marine protected area (MPA). It highlights the issues of contested legitimacy that now surround government policy.

4.4.2 Critique of QMS Practices

Biological stock assessments were critiqued (Wallace 1988a; Copes 2000; Dayton et al. 2002) and attention was drawn to the ecological impacts of trawling (Turner et al. 1999). Scientific warnings over the seeming lack of concern for ecosystems in QMS management gained weight from the dramatic discovery and subsequent collapse of orange roughy stocks (Clark 2001) and the difficulties firms encountered in maintaining MSC certification of another species, hoki, due to their postharvest practices. New Zealand fisheries policy came under attack for not paying enough attention to ecological sustainability (Stewart and Callagher 2003). A dialogue between fisheries science and ecosystem science was called for since only one of these was actually enrolled in support of the ITQ/QMS framework for commercial fisheries (Le Heron et al. 2004; Massey and Rees 2004a, b). Recently, Cryer, Mace and Sullivan (2016: 2) interpret the Ministry's augmentation of its directed fish stock management with measures to combat incidental capture of protected species, benthic effects from trawling, changes to marine biodiversity and the protection of habitats as signs of a "first-level ecosystem approach to fisheries management", but it is important to understand these measures as the result of a decade and a half of scientific contestation and environmental movement action. The fisheries have yet to witness 'second-level' ecosystem management.

From the fishing industry's perspective 'operational challenges' have emerged. In early 2016 fishers were reported to be complaining of inaccuracies in TACC setting and of being incentivized to dispose of bycatch at sea since it is illegal to land it without quota rights (Norman 2016). But the issues are far more wide ranging and significant than this plea for clarity implies. In their recently published reconstruction of New Zealand's catch record, Simmons et al. (2015) find that, for the entire period 1950–2010, the actual catch in New Zealand waters was 2.7 times what the Ministry reported to the FAO, and, for the period since the introduction of the QMS, 2.1 times. The difference, they argue, is a matter of misreported catches and underreported industrial catch and discards. In turn, this continual under-reporting has potentially damaging effects on the ability of the QMS scientists to deliver 'accurate' assessments of fish stocks, since catch records are inputs into the stock assessment process (Maguire 2015: 124–125). Their research contests the positive tone of other assessments of the QMS (Mace et al. 2014). In recent months, scandals have reverberated through the Ministry as, first an independent inquiry into fish dumping revealed its systematic failure to bring prosecutions against offenders despite its efforts to assemble evidence (Davison 2016b, Taylor 2016). Then camera footage from Ministry files was released showing dolphin bycatch, again, evidence which

the Ministry had not used to lay charges against the company (Davison 2016c). Not surprisingly, accusations of industry capture of the regulators flew.

Researchers have pointed to the hollowing out of public sector expertise, and reliance on experts who have developed their careers by working for more than one of the key science and policy information providers. This means a situation in which the available independent experts either share detailed insider knowledge of apparently competing approaches from competing service providers or share the same perspective even though working for apparently independent institutions, neither of which may foster development of ecosystem-based management (Massey and Rees 2004a, b; Bess 2012). Thus, aspects of the expertise behind and around the QMS/ITQ regime remain controversial and contested.

In response the Ministry has endeavored to better regulate harvesting practices and fishing places, especially through the development of fisheries plans but also through the declaration of more marine reserves safe from harvesters (Drummond and Wyatt 2002; Winder and Rees 2010; Yang et al. 2010). Recently commercial vessels have been prohibited from harvesting in large areas of the EEZ, though these areas were not that important to the commercial catch. The Ministry set about developing co-management by promoting consultation around local fisheries plans and local conservation plans, but these efforts have been protracted and marked by both some apparent successes, such as in Fiordland, and some frightening incidents, notably a few violent clashes over management of fisheries on the Kaipara Harbour, north of Auckland. Māori film director Barry Barclay's documentary *The Kaipara Affair* (2005) made the cultural dimensions of the disputes explicit. To date, these remain minor, ancillary projects to the intact QMS/ITQ regime.

Conservation directly challenges the neoliberal fisheries regime. To argue that MPAs are required to conserve biodiversity or species is to argue that the fisheries areas of the QMS are not functioning properly: that they do not deliver sustainable utilization and that an alternative regime is required if biodiversity is to be delivered. It is cautionary here to note that under the QMS/ITQ regime the conservation lobby is not framed as a stakeholder. The New Zealand Government set itself a target of placing 10% of its marine area into some form of protection, so as to provide a store of genetic diversity, to maintain the health of the wider marine ecosystems, to provide opportunities for recreation, marine tourism, scientific research and education, and to enhance New Zealand's environmental performance. To date a number of new reserves have been gazetted but the target has not been reached. Both recreational and commercial fishers see the strategy as squeezing them out of marine areas. Proposals for marine reserves tend to focus on waters adjacent to headlands and off-shore islands with deep water, or, in other words, prime fishing areas. Thus, the campaign to identify new marine reserves pits New Zealand's conservation lobby against its fishing lobby, in a way not seen during the first decades of the QMS/ITQ, when conservationists hoped to work through the regime to discipline the fishing industry.

4.4.3 Aquaculture Contested

Conflicts over aquaculture developments rank prominently among the new issues. Investments in aquaculture promise future economic growth (Winder and Rees 2010: 158) unconstrained by the QMS, but these prospects were frustrated, most clearly by the moratorium on aquaculture licenses imposed by the New Zealand Government in November 2001. The moratorium was imposed because of unfair allocations of marine and coastal space by regional councils. It was followed by reforms to aquaculture licensing in 2004 but these stalled over the government's obligation to transfer to Māori 20% of aquaculture space created between 1992 and 2004, a target which proved difficult to achieve. A series of regional agreements were eventually negotiated, the first in 2009, so that only in the last five years has the allocation of new rights been possible. Even so little new space was generated.

Future investment in aquaculture will nonetheless remain difficult, in part, because aquaculture developments fall under multiple regulations and agencies including both local and national governance. The reform process not only closed avenues for new marine farm ventures for a decade, but delegated the right to identify coastal areas for fish farms to regional councils, thus obstructing Māori rights to negotiate such matters with the Crown as Treaty of Waitangi partners. Further, many interests are involved with considerable potential for conflict. For example, the Northland Regional Council, which administers the region located to the north of Auckland, initially declared 125 marine areas in the coastal zone to be suitable for fish farming, but settled on only 19 of these as worthy of an aquaculture management area status, only to subsequently abandon this plan too. New Zealand's coasts are contested spaces and this dramatic contraction of available areas appeased many groups, including recreational fishers, boat owners, coastal residents and property developers but constrained aquaculture development. Māori, fisheries companies, residents, conservationists and recreational fishers are locked in battles for control of marine resources. Māori incorporations have been dismayed by the process: a series of expensive, failed or blocked commercial aquaculture projects have collectively eroded their capital resources. Meanwhile, all aquaculture interests voice concerns over sedimentation and polluting run-off degrading coastal waters, and over future production uncertainties due to a likely more volatile climate (Norman 2016).

4.4.4 Confronting Fragmented Coastal Governance

Together, these emerging issues forced the Ministry to confront the fragmented governance of New Zealand's coastal waters. Hersoug (2002a) noted that the then Ministry of Fisheries acknowledged 37 government agencies and stakeholders in addition to Māori, who, as Treaty partners, exercise guardianship of resources, and must be *partners* in resource management, not simply stakeholders to be consulted. Many developments in the EEZ and coastal waters lie outside the jurisdiction of the

Minister altogether but impact on fisheries management. Chief among these matters are the planning for aquaculture in coastal areas, planning for land-based coastal developments including marinas and boat harbours, management of marine reserves, and the regulation of mineral exploration in the EEZ (Rennie 1998, 2000; Gregory 2008; Hart and Bryan 2008; Winder and Rees 2010). Not one of these matters was even hinted at in justifications for ITQ or QMS. The answer to '*where* are the fisheries?' is increasingly important in the context of competing claims to use the EEZ and coastal waters. Under ITQ, companies have rights to fish for stocks in particular areas, but increasingly these rights are compromised by other, new rights holders in mining, oil and gas, conservation, aquaculture, even defense.

Perhaps the best evidence of the increasingly complex web of marine related management engulfing the fisheries interests is the Environmental Defence Society's recently published guide to managing marine environments (Brake and Peart 2015). The Society is an advocacy group and so its guide to New Zealanders on what constitutes best practice in marine management, in fact endorsed by the Minister of Conservation, situates fisheries management as but one aspect of the multiple layers of New Zealand marine management. Brake and Peart (2015) are at pains to guide environmentally conscious New Zealanders through the maze of marine management legislation, regulations and management practices. These are addressed through separate chapters on EEZ management, marine biosecurity, MPAs, MSP, major marine developments such as marinas, vessel management, marine recreation and tourism, as well as management of catchment-based activities, sand-mining, aquaculture, and exploration for and mining of minerals, oil and gas. Attention is also given to Māori and recreational participation in fisheries management. The effect is to insist on biodiversity and ecosystem health as the corner stones of marine environment management, a direct challenge to the sustainable utilization goal of fisheries management.

With respect to the fisheries the authors contend that "There has been a growing awareness that fishing activity needs to be managed by an approach which considers the ecosystems within which the fisheries are located." (Brake and Peart 2015: 188). They note that increasing critical attention is being given to the assumptions of QMS and especially to the idea that 'fishing down' a stock will improve fish reproduction. In addition to the stock assessments of its National Fisheries Plans the Ministry has been producing a series of new standards, such as the Harvest Strategy Standard (2008) and the Research and Science Information Standard (2011) each of which codifies acceptable scientific and business practice in the fisheries. The Ministry has an observer programme to monitor fisher behavior and to collect fisheries data. The Ministry's efforts have shifted towards advancing precision seafood harvesting using less intrusive gear (Brake and Peart 2015: 190–196). The industry is now being forced to come to terms with benthic impacts from fishing methods and with bycatch issues related to non-target fish, seabirds and marine mammals. At issue is the social license to operate. Solutions include innovation, such as a plastic liner to be used in trawls, and modification of trawl nets to allow sea lion escape. This means that new gear, as well as new season and place-based constraints on fishing are being added to the QMS/ITQ system, some of which are being

implemented voluntarily by the sector. Not only do these trends confirm Evelyn Pinkerton's (2015a: 118) diagnosis that ITQs are ineffective on their own and must be buttressed by input controls and effective enforcement, but whether such measures will satisfy the environmental lobby intent on reducing impacts on non-targeted species, impacts on seabed habitat, and the disruption of marine ecosystems remains to be seen.

It is increasingly clear that the EEZ is not simply an ocean space reserved for fishers who are no longer even prioritized in many marine areas. Like the European Commission and the Chinese administration, New Zealand's government is increasingly interested in developing its blue economy in which tourism, mining, energy, transport and aquaculture are all likely to be more commercially attractive than fishing (Winder and Le Heron 2017). Work has begun to pave the way for investments in such a future economy. The EEZ and Continental Shelf (Environmental Effects) Act 2012 provided a framework for identifying and managing environmental effects from the development of aquaculture, mineral and energy production in marine and coastal areas. The need for a framework to facilitate integrated management of especially coastal environments and science-policy dialogue has been signaled by several recent efforts to establish priorities for New Zealand marine science (Bremer and Glavovic 2013; Brake and Peart 2015; Lundquist et al. 2016). Government has dedicated some of the country's scarce research and development funds to a Sustainable Seas National Science Challenge meant to address precisely these issues (Le Heron et al. 2016). This means an opportunity to outline a fundamentally different approach to fisheries management than that developed under the QMS/ITQ framework. Following international precedents, themselves in early stages of development, New Zealand social and marine scientists are currently working on ecosystem-based approaches to fisheries and marine management, using ecosystem services concepts and a natural capital approach to link the functioning of ecosystems with human well-being (Díaz et al. 2015). How much transparency and participation the planning for this new ocean future will have remain to be seen. It is not at all clear that a new mainstream expert management system will replace QMS/ITQ. It may be that the old neoliberal experiments of QMS and ITQ will be compromised by the new, for example, through newly declared MPAs colonizing fishing areas but leaving the QMS/ITQ intact, but operating elsewhere.

4.4.5 Fishing Companies Under Scrutiny

The activities of New Zealand companies have been subjected to intense scrutiny. Eugene Rees (2006: 147–194) noted the unsustainable behavior of some New Zealand companies when operating outside New Zealand waters, most notably their destructive exploitation of Chilean fisheries. There have been scandals at home: a few firms were caught in illegal fishing, others have been implicated in the foreign charter vessel inquiry into the dubious labor practices on these vessels (Stringer et al. 2014), still others have been caught trucking and high-grading fish. When

added to the overexploitation of hoki and the race to fish orange roughy in New Zealand waters it became clear that companies themselves could not be expected to fish responsibly on their own. And yet, as we have seen, Ministry oversight of the companies has again been found wanting in 2016, this time over discards, bycatch and underreporting of catch.

Yet fishing firms argue that their poor behaviour is the result of market failure and an inability of government to effectively manage markets. Constraints on growth at home due to the QMS and ITQ system, and the moratorium on aquaculture development, prompted some companies to seek out new opportunities to 'race for fish' either in jurisdictions with less restrictive fishing regulations than those enforced in home waters or by 'discovering' new stocks at home. The lesson learned was that constant vigilance would be required if the tendency to race for fish is to be avoided. Quite simply, companies desired growth rather than sustainability. So, while the recent rapid expansion of crayfish/rock lobster exports, rising from 11 to 22% of all seafood exports by value 2000–2015, and with 91% of these shipped to China (Norman 2016: 6), is gratifying for companies as they seek to bolster their bottom lines, this development has produced alarm among marine environment observers, who have apparently noticed worrying declines in the presence of this species even inside marine reserves (Raewyn Peart 2016, personal communication). A disconnect remains between company behaviour, QMS science and marine environmental science under the QMS/ITQ regime.

Most recently, New Zealand companies have been in the spot light over the terrible labour conditions on board foreign owned trawlers fishing for them in New Zealand waters (Stringer et al. 2014) and the relocation of their filleting operations from New Zealand processing facilities to China (Stringer et al. 2011). Such research can be read in various ways: as evidence of continued exploitative behaviour of labour in the industry, which has everything to do with the moral economy of exploitation in the neoliberal fisheries (Pinkerton 2015b); as evidence of the commitment of researchers to contribute towards critical social science; and/or as evidence of the new management imperatives at work in the fisheries administration. As they wrestle with shifting exchange rates and lower prices for white fish, New Zealand companies have turned to lobster, mussels and oysters, which together now account for 41% of export values, to licensing foreign trawlers and to overseas processing to eliminate costs from their balance sheets on the 45% of export value derived from frozen fish and fish fillet sales (Norman 2016: 6). In turn these developments expose the unsustainability of the company strategies at work behind the QMS/ITQ regime, strategies that compromise or conflict with the regime's environmental management goals and practices.

4.5 Conclusion

In the New Zealand fisheries literature ITQ, the race for fish, the QMS and the tragedy of the commons now play much reduced roles, even though they have an ominous presence in the sector's rhetoric. This reflects the state of knowledge on and the patterns of inquiry and critique emerging around ITQ, QMS and fisheries management generally. Attention has shifted to planning for aquaculture, conservation of inshore species through marine reserves, the development of additional place-based controls on fishing, registration of recreational fishers, and re-regulating EEZs for mineral extraction among other new uses. At the same time the managerialism that came with the neo-liberal policy framework of ITQ is at work. The movement away from centralized state control, towards diffuse, client-centered managerial interventions and assessments has consequences for how fishing communities and property rights are understood, how fisheries investment functions, how enforcement and conservation are carried out, how fisheries are assessed, and what the characteristics of ecosystems are thought to be. And on all of these matters New Zealand's QMS/ITQ regime now has questionable legitimacy. The long-term effects of ITQs are therefore broader in scope than the sustainability of particular fish stocks or whether expected economic growth and efficiency have been achieved. The point is that ITQs in New Zealand were only the bow wave and in the wake of that neoliberal boat came many other vessels. It is the identity, dynamics and effects of these other boat wakes that are crucial in the New Zealand scene and its futures.

Under the current fisheries regime in New Zealand the fishing industry claims a high standard of professionalism and has effective representation through the seafood cluster initiative in Nelson and through SeafoodNZ, its industry organization. Companies perceive the industry as the primary stakeholder in marine planning, a status legitimated through three decades of legislation and regulation, and by the value of quota. At work here are the neoliberal projects beyond ITQ and QMS that frame the fisheries (Pinkerton 2015b; Pinkerton and Davis 2015), in this case not the defunding of agencies responsible for environmental management but the consolidation of a fisheries regime based on a core group of stakeholders who were deliberately allocated the fisheries at the expense of small-scale fishers, and, later, labour rights and regional economies, and were aided by the government in their efforts to achieve agreed goals: economic growth, exports, 'efficiency', increased capitalization of the fisheries, and higher returns. These aspects of the broader neoliberal project became increasingly legible. There was, first and foremost, an economic understanding of the fishing industry and how it was to be managed.

However, the fisheries sector is now underperforming in economic terms and this threatens the political legitimacy of the QMS/ITQ regime. Now this is a new situation: the regime and the industry have usually been reported as having been 'successful'. On its own terms, the *initial* relative 'success' of the New Zealand experiment with ITQs – establishment of a new property regime, an end to subsidies in the fisheries, reduced fishing in the inshore fisheries, effective enforcement of the QMS, establishment of a professional and adaptive fisheries management system

backed by stock assessment science, and fisheries managed well for sustainability within the constraints of commercial imperatives – cannot be seriously doubted, but it is vital to understand the limits to this 'success'.

First, New Zealand's neoliberal fisheries project has had to be adapted to meet other pressing political realities, especially the need to negotiate Māori rights, but also the need for conservation policies, place-based controls on fishing, and input controls in the fishery. Alongside 'ITQ' there now stands a formidable array of other fisheries management practices that are vital to the management 'success'. And those practices, including Māori guardianship of resources and ownership of assets, make the QMS/ITQ regime a profoundly hybrid management system. This means that 'successes' cannot simply be attributed to QMS and ITQ. Equally, the need to develop additional fisheries management measures attests to the inadequacies of the QMS (Pinkerton 2015a), even though the elaboration of new Zealand's fisheries management as a place-specific management system has not displaced the QMS/ITQ regime. Together, marine ecosystem science and the environmental lobby have effectively critiqued the QMS and worked to hedge it in with new expectations, practices and constraints.

Second, guaranteeing and limiting privileges to the fishery so as to promote recapitalization of the fisheries for economic growth proved to be an effective short-term industry policy, but has not been followed up with commitment to a long-term industry policy. Resource allocation is only one component of industry performance. New Zealand fisheries companies now face constrained opportunities, have demonstrated unsustainable behavior in the face of resource constraints, and are now under pressure to add value and grow volume to meet government expectations. As they respond, they are less likely to question the rules of the QMS/ITQ regime, than to worry about the combination of apparently low returns on the high value of the quota assets they possess, a problem that shapes their behaviour: they have already become quota rentiers as Evelyn Pinkerton (2015a) expects. Norman (2016) foresees consolidation, elimination of mid-sized companies, increasing use of joint venture processing facilities, and increased market concentration which will bring with it heightened risks and market dependencies. He further finds that the sector's contribution to New Zealand GDP peaked at $940 million in 2003 and since then has fallen 16%. Given this unwanted performance what form will the future economic trajectory of the sector take and under what policy? The economic sustainability of fisheries management in New Zealand is seriously in question.

Third, the system cannot simply be transferred to other jurisdictions by importing the model of actually transferable, individually owned quota. No, the grounds for this policy 'success' lie in both a broad range of neoliberal experiments within New Zealand that legitimated and buttressed the policy and its effects, the absence and, where necessary, elimination of any serious opposition to the project, and the unique situation of a small and underdeveloped industry which could be directed into growth paths in particular ways by the government. ITQ rewrote the 'social contract' in New Zealand with, in the long-term, profound implications for fishing communities, as well as costly social transformations (Pinkerton 2015a: 120). Moreover, the framing of 'success' in QMS terms was initially possible because of

the weak voices of ecosystems science and the environmental lobby, a situation that no longer holds in New Zealand. Such conditions would also need to be exported with the ITQ model if it is to be 'successful' in the ways that it was in New Zealand.

Finally, now 30 years old, the QMS/ITQ project is being hedged in by growing interest in ecosystem-based integrative planning for marine and coastal areas. Whether a more prominent role for ecosystem science than before will improve environmental outcomes – and it may be that it does not – is one issue, but it is alarming that this new project shows distinctive neoliberal tendencies and is envisioned by government as a vehicle to be used to increase exploitation of marine and coastal resources (Winder and Le Heron 2017). At least the domestic politics over coastal developments and marine uses is now far more prominent, intense and contested than in the early 1980s when a shell-shocked public was amazed by the audacity of its neoliberal policy writers. In future New Zealand's QMS/ITQ regime will be subject to intense contestation, both direct and indirect, as the politics of managing New Zealand's seas and coasts sustainably are played out.

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