INITIAL ALLOCATION OF INDIVIDUAL TRANSFERABLE QUOTA IN NEW ZEALAND FISHERIES

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1. INTRODUCTION AND BACKGROUND

1.1 Introduction

In 1986 New Zealand introduced management by individual transferable quota (ITQ) for 26 of the country's most economically-significant fishery species. The system has since been expanded and extensively modified, and remains the most comprehensive and perhaps most robust example of ITQ management in the world today. The system was born of dual motivations: (a) concern for the stress on stocks being imposed by rapidly expanding effort in the inshore fin-fisheries; and (b), the desire for a mechanism to allow the domestic industry to capture rents and build capacity in the deep-water sector, dominated in the past by foreign fleets.

This paper summarises the policies and processes encompassing the initial allocation of ITQ fishing rights in New Zealand. Both primary data and existing published sources have been used in compiling this account. Although a reasonable volume of published material exists on the New Zealand quota-management system, much of this is only generally descriptive of the policy process, focusing more on accounts of system features and, more rarely, on outcomes. This paper assembles existing material on the establishment of the system, reconciles some of the disparity in these accounts, adds supplementary data where useful, and provides some analysis and commentary on the processes and outcomes of the allocation of ITQ in New Zealand.

The following (Section 1.2) gives some background to the fisheries and a synopsis of management history leading up to the adoption of the quota system. Section 2 then outlines the nature of the ITQ harvesting right implemented in New Zealand. Section 3 deals with the method used in allocation of quota, discusses the objectives of the allocation process, the consultative and policy process by which that method was determined and the method itself. Section 4 deals with the data and computational issues for quota allocation, and Section 5 with the appeals processes for addressing the concerns of fishers with regard to their entitlements. Section 6 touches on the administrative resources required to manage and implement the allocation process, and Section 7 provides a brief evaluation of the process and outcomes. The final Section (8) reflects on the general issues raised by the case study.

1.2 New Zealand fisheries management – Life before quota

New Zealand is an island nation in the South-west Pacific. It was settled by Polynesians (the Maori) from about 800 AD, and by Europeans from the late 18th Century. Fishery resources have always been significant as a food source and as trade goods, but are only moderately abundant in international terms. The estimated maximum sustainable yield for the Exclusive Economic Zone (EEZ) of 4.1million km^2 is something over half a million tonnes, with about one third of the zone fishable by modern 'industrial' demersal methods. Early Europeans were attracted to the exploitation of seal and whale populations, but these resources were well depleted by 1900. The first government regulation of commercial fishing came with the passing of the *Fisheries Act 1908*, and active policies encouraging judicious exploitation were adopted in 1914 following advice from a Canadian consulting academic, Professor E.E. Prince (Riley 1982).

Foreign fishing began in New Zealand's coastal waters in the 1950s, when Japanese vessels first appeared outside the three-mile Territorial Sea. At this time domestic fishing had been under a conservative management strategy since the 1920s, and a strict licensing authority regime since 1945, based on concern for conservation of fish stocks. Entry was limited, gear controlled, area and seasonal closures were used, fish and mesh size minima imposed, and ports for operation and landing of fish were fixed for each boat (Riley 1982). The appearance of large foreign vessels only three miles off the shore prompted the government to commission a Parliamentary Select Committee inquiry into the fishing industry in 1961 (AJHR 1962). Either this new foreign effort would soon destroy New Zealand fish stocks, or the domestic industry was being denied use of a valuable resource without cause. The inquiry resulted in a new policy to expand and develop the local fleet to compete with the visitors for economic benefits from the fisheries resources. In 1963 the previously restrictive licensing policies were overturned, opening domestic access to all-comers, and a period of government subsidy and unconstrained growth took place through to the 1980s.

In 1965 New Zealand extended its management jurisdiction to twelve nautical miles, and by 1970 had moved the Japanese long-liners out of this zone (Sharp 1997). Between 1967 and 1977, the domestic fleet

expanded from 2161 fishing vessels to 5178, encouraged by government tax and loan concessions, with the highest growth in vessel classes under 12m (163%) and over 21m (122%) in length. Landings consequently grew rapidly in both the inshore and the deepwater sectors. More than 100 species were fished commercially using a large number of gear types and methods. However foreign catches grew more quickly, and by 1977 90% of the 476 000t known demersal finfish catch from the EEZ area was being taken by foreign vessels, mainly from Japan, Korea and the Soviet Union (Sharp 1997).

Responsibility for the management of New Zealand's fisheries lay with the Ministry of Agriculture and Fisheries (MAF).[1] Initially, following the declaration of the EEZ, the fisheries outside the twelve-mile limit were managed separately from the inner zone, now the Territorial Sea. Total allowable catches (TACs) were struck for the deeper-water species, and these were allocated preferentially to the domestic industry, and only then to the foreign fleets under licence and government bilateral agreements. The policies offered the foreign fleets less of the prime species and areas than they had been fishing, changing the economic balance and resulting in a much reduced total catch for the next few years (OECD 1997).

Government policies also provided incentives for domestic companies to invest in onshore processing plants and vessels for deepwater fishing, but the main initial domestic involvement in deep-water fishing was developed through joint ventures with foreign companies and foreign vessel charter. Joint ventures brought local crew onto the big vessels and direct involvement of domestic companies in the management of fishing operations and marketing, paving the way for further domestic expansion. Foreign vessels began delivering large catches to onshore processing. By about 1982 local companies had learnt what they needed to know from joint ventures, and arrangements with foreign vessels moved towards simpler contracts in order to charter fishing capacity to catch against domestic company quotas. Foreign vessel charter has remained an important part of deepwater fishing in New Zealand since that time, gradually diminishing as domestic companies have invested in large freezer trawlers. Both arrangements brought greatly increased cash flow to the domestic industry, foreign exchange from exports, and employment in processing.

Throughout the 1960s and 1970s the New Zealand Government had been providing financial assistance to accelerate development of the fishing industry. This increased with the declaration of the EEZ. Concessionary loans were provided for buying and building vessels and establishing and expanding shore-based processing facilities, and suspensory loans were granted for developing export markets and vessel construction (NZDoS 1983). In addition, import duty exemptions were made for purchase of vessels from outside New Zealand, and other favourable tax treatments were applied to the industry. Figure 1 shows the dramatic increase in numbers of larger vessel and in tonnage of the domestic fleet after 1976. Both the number of 24-33m vessels and their total capacity increased by nearly 500% in the decade leading up to implementation of the quota system in 1986, while the number of vessels over 33m in length increased by an order of magnitude. Some of these large vessels, imported under duty concessions to increase domestic participation in the deep-water species, had also been fishing inshore, increasing pressure on stocks (Riley 1982, Martin 1984).

It was at this time that the inshore fisheries began showing signs of stress, and management gradually moved into crisis mode. New powers to declare controlled fisheries were introduced in 1977 and a moratorium on issuing new scallop and rock lobster permits followed in 1978. Alarming fluctuations in catches of the most economically important inshore species: snapper (*Pagrus auratus*), and rapidly increasing catches of vulnerable species of sharks and gropers, brought a total moratorium on the issue of new fishing permits in 1982. These fish stocks were believed to be already over-fished and a review of inshore management provisions was initiated under the auspices of the newly constituted National Fisheries Management Advisory Committee (NAFMAC). Figure 2 shows the long-term trend in the snapper catch, which had been at high levels since the mid-1960s and underwent abrupt fluctuations under increasing fishing effort in the late 1970s before declining sharply. As the most valuable export species and most popular domestic eating fish and recreational catch, the crash of the snapper catch caused grave concern. Figure 3 indicates trends for most of the other significant inshore finfish species, indicating that the catch of these more than doubled between 1975 and 1984.

Both management and industry had recognised that there were economic as well as stock problems in the inshore fisheries (Riley 1982). Five per cent of the fleet was taking two thirds of the catch, and there were large numbers of part-time operators. From a total of 5184 licensed vessels in 1978, 2942 are reported to have earned less than $NZ500 from fishing (National Research Advisory Council 1980, cited in Wallace 1997). In August 1983 the NAFMAC produced a discussion paper, "Future policy for the inshore fishery," in which they estimated that the inshore fleet was overcapitalised by about $NZ28 million (NAFMAC 1983). The surplus capacity was mainly concentrated on the north-east coast of the North Island.

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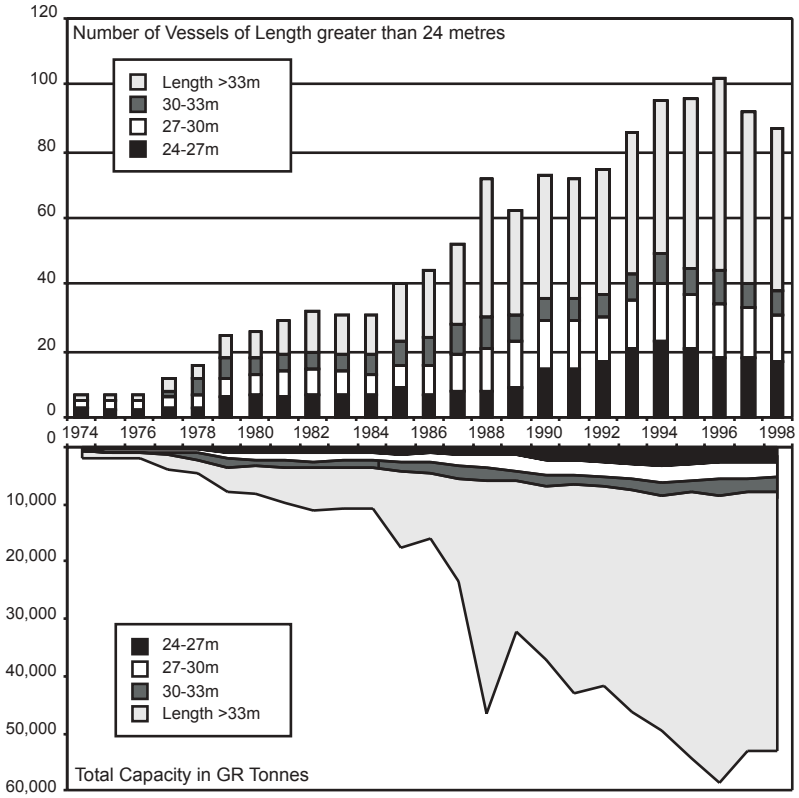
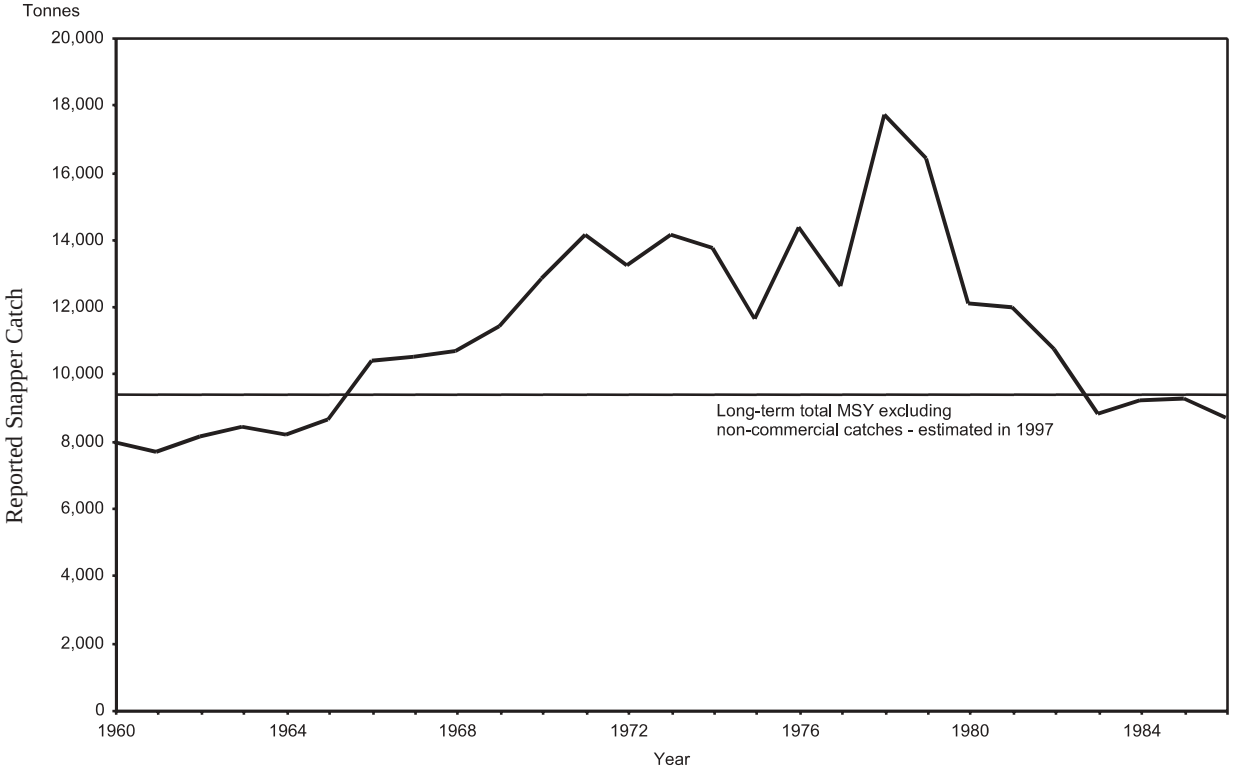
[1] The Ministry of Agriculture and Fisheries was reformed in 1994 as the Ministry of Fisheries (MFish). In this document the agency will be referred to as MAF or the Ministry.

Figure 1
Domestic fleet – Numbers and capacity of large length classes 1974 to 1998



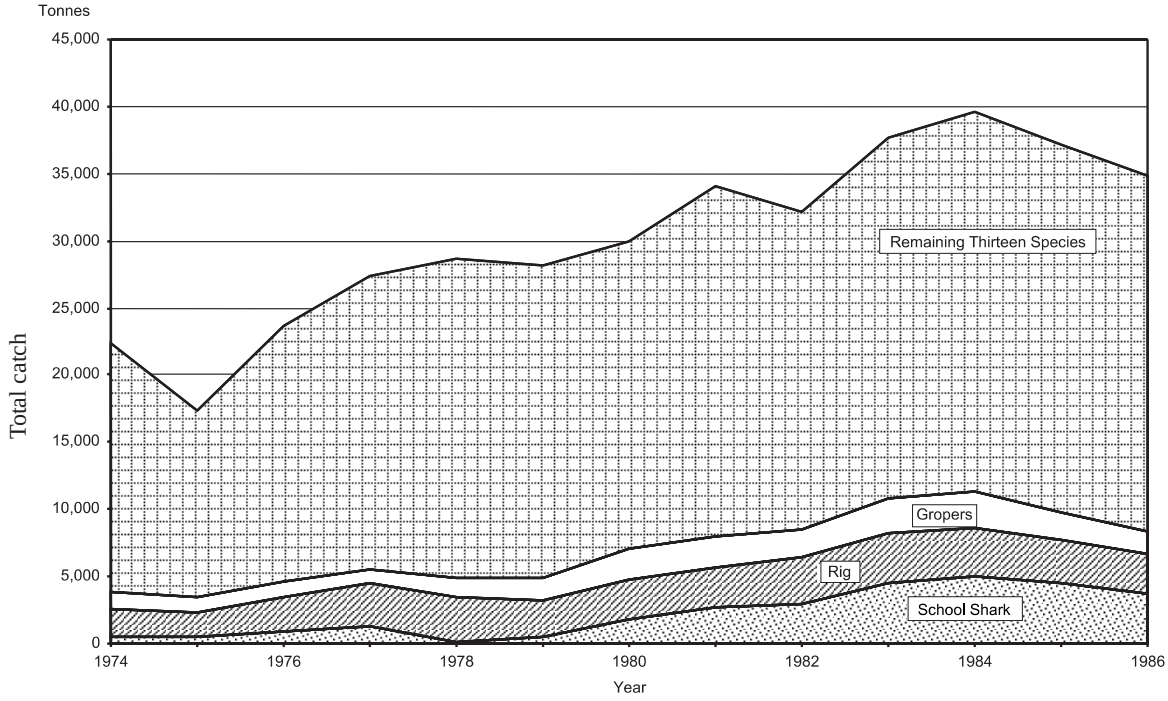
Data sources: King 1985; FSU data; QMS data.

Figure 2
NZ reported domestic catch for snapper (*Pagrus auratus*) 1960-s1986



Data source: Annala & Sullivan 1997.

Figure 3
Catch histories for selected NZ inshore finfish species: 1974-1986 (snapper and red cod excluded)



Data source: New Zealand Official Yearbook – various volumes.

The NAFMAC document identified that there were poor, and in some cases negative, returns to larger vessels fishing inshore, and this was taken as a further indication of over-fishing of stocks (Sharp 1997), but this is not the whole story. From 1975 until the late 1980s New Zealand had one of the highest inflation rates in the OECD. At the beginning of the 1980s, official interest rates rose to 18% before being constrained by regulation. The industry was investing heavily in larger vessels and processing facilities at this time, with associated high finance costs, thus it faced inflation-driven cost increases particularly for fuel, and a rapidly declining real price of export fish to 1981 (see Figure 4). The economics of fishing were bound to be tough regardless of the state of stocks. In fact, the general economic conditions squeezing the larger operators may have made a substantial contribution to the crisis for the inshore, as vessels increased their fishing effort to make businesses profitable.

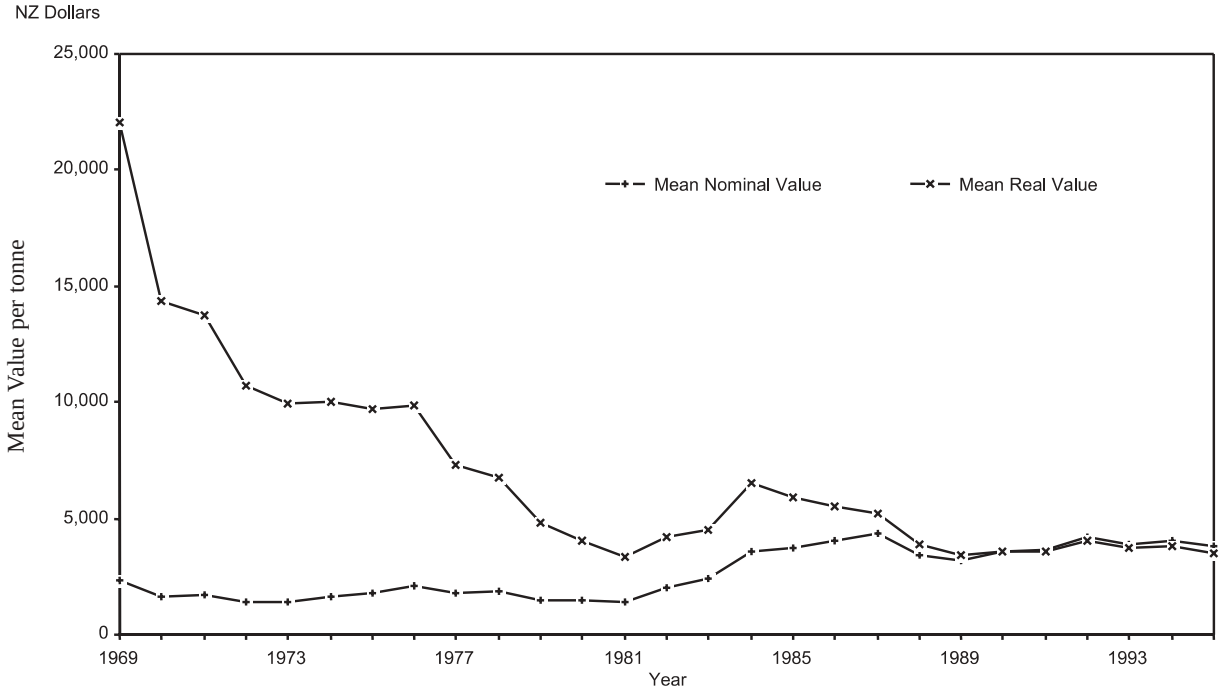
Also in 1983, the first comprehensive rewrite of New Zealand fisheries legislation since 1908 was passed into law, the *Fisheries Act 1983*, creating a new management framework. Despite discussion of quota schemes in policy circles since 1980 (Muse and Schelle 1988), the new Act was based around establishing formal regional fishery management planning, extending the controlled fishery framework, and establishing a special licensing authority for close regulation of fisheries. The planning framework included the division of the EEZ into 10 Fisheries Management Areas (FMAs), and the institution of a process for the establishment of Fisheries Management Plans (FMPs). The preparation of plans was to be a consultative process to be run by the Ministry's regional offices, using networks of local Port Liaison Committees, and a Fisheries Management Advisory Committee (FMAC) for each regional plan.

Some administrative innovations in the Act were to prove particularly fateful. A new definition of the term "commercial fisherman" in the interpretation section of the Act had the effect of permanently excluding 1500-1800 part-time fishers from renewing their licences. To be eligible for a commercial fishing permit, an operator's reported catch during 1982 had to indicate that fishing was essentially a full-time occupation, contributing at least 80% or $NZ10 000 of income.[2] This was perceived as inequitable, particularly by Maori (Waitangi Tribunal 1992:219)[3], but also later by the Ministry itself, the part timer exclusion had negligible impact on landings[4] – a result acknowledged by the Ministry at the time as expected (MAF 1984). Full-time fishers argued that if they were to have their effort cut back, this should only happen after the part-timers had been eliminated (Belgrave 1983). A key rationale for the policy, at least in retrospect, was to prevent expansion of effort through the full-

[2] At this time, average incomes over all sectors in Northland fishing towns was approximately $NZ11 000 (Fairgray 1985).
[3] The exclusion of part-timers was cited as a breach of the Treaty of Waitangi in the Ngai Tahu Sea Fisheries Claim.
[4] Figures from the National Fisheries Advisory Council (1983) published in Sharp (1997) suggest that less than 2% of catch was being taken by this number of the least productive boats.

time deployment of these under-used permits. This was to help curtail the over-exploitation of fish stocks and to protect the livelihood of those who were wholly, or substantially, reliant on the commercial fishery (Dobson 1988). The move certainly reduced administrative loads and the size of the group of fishers to be dealt with in the later implementation of quota.

Figure 4
Mean value of New Zealand seafood exports 1969-95



Data source: New Zealand Official Yearbook – various volumes.

Figure 5 shows the expansion in numbers of small boats in the late 1970s and the sharp reduction subsequent to the 1983 legislation.[5] The underlying area plot shows the minimal effect on the capacity of the inshore domestic fleet (under 33m length), with increasing numbers of the larger vessels more than compensating for the capacity lost through exclusion of small boats. Figure 6 shows the long-term fate of small-boat capacity, with the line plot indicating again the close matching of expanding capacity in larger classes filling the gap as small boats exited. Total numbers and capacity of vessels in the intermediate sizes (12 to 24m) have not varied more than 10% from the early 1970s to the late 1990s. This core capacity of the inshore fleet comprises about 560 vessels with a total capacity of 20 000 gross registered tons (GRT).

Section 89(g) of the 1983 Act provided for regulations to be promulgated prescribing TACs and empowering the Minister to allocate quota in a discretionary manner to any specified commercial fishers. This was the statutory basis of what was to become the pilot program for quota management in New Zealand. It was put to work immediately for its intended purpose in the deep-water sector, where nine commercial entities, including two consortia, were allocated enterprise quotas for seven species. The significant and increasing magnitude and value of the pelagic and deep-water catch taken by the domestic fleet can be seen in Figures 7 and 8. Catch of inshore finfish species in 1983/4 contributed around 56 000t, *i.e.* less than half of the total finfish shown.[6]

Meanwhile the NAFMAC was developing a range of options for management of the inshore fisheries under the new FMP framework. ITQs were an option included from the beginning, and, through an extensive consultative process lasting nearly two years, much of the fishing industry became convinced that this was the path management should take. By mid-1985 the government had made its decisions and the *Fisheries Amendment Act 1986* brought the Quota Management System into force on 1 October 1986.

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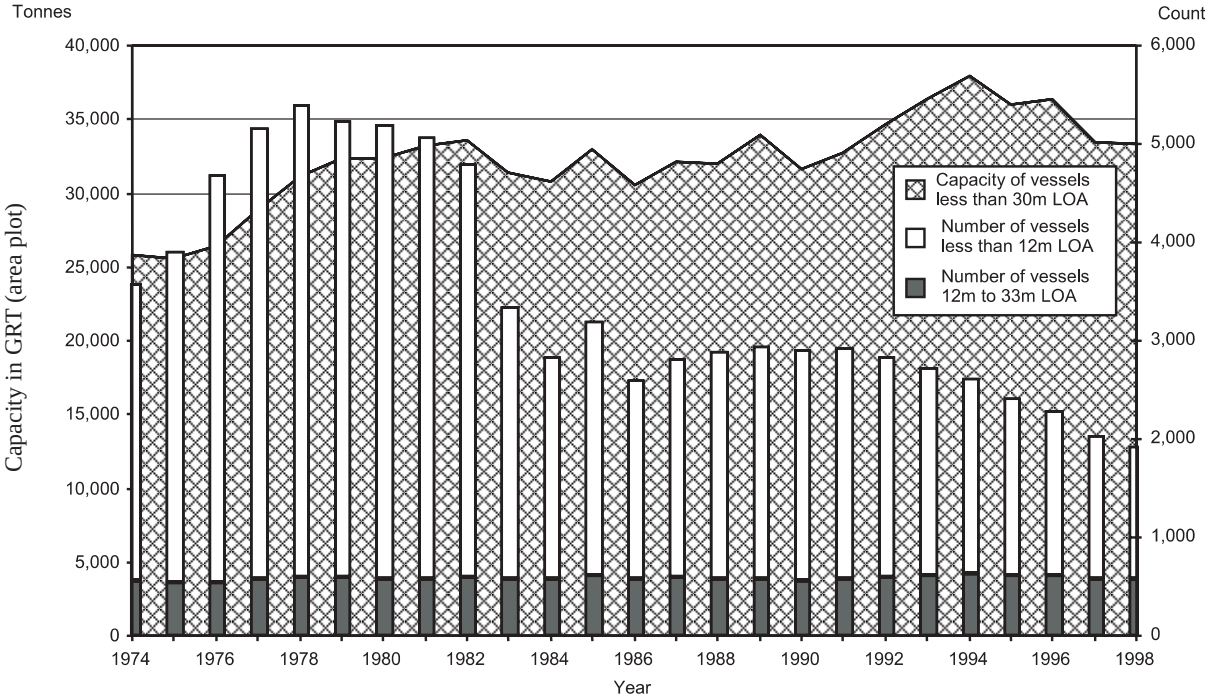
[5] The range of data sources available covering the transition period between 1982 and 1987 show considerable discrepancies. Some data show a more gradual reduction in vessel registrations in 1983-85 than is illustrated in Figure 1. Prior to the exclusion of part-timers fishermen the total number of small boats was starting to decline, but the net loss from exclusions was still around 2000 boats. The dip in the capacity plot in 1983 is split about equally between vessels under, and over, 12m in length, with the rebound, sustained past 1986, due entirely to larger boats.

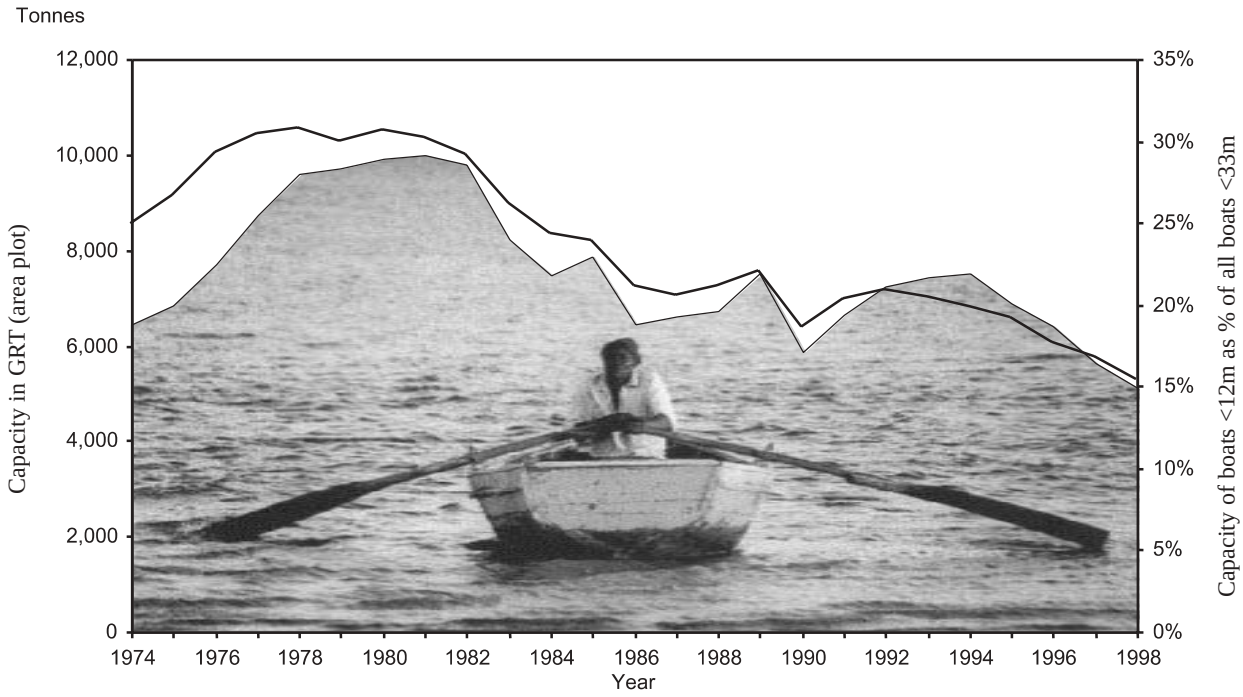
[6] See Figures 9, 10 and 11 in Section 7 for further detail on inshore catches.

Figure 5
New Zealand domestic fleet capacity: vessels less than 33m length – 1974 to 1998



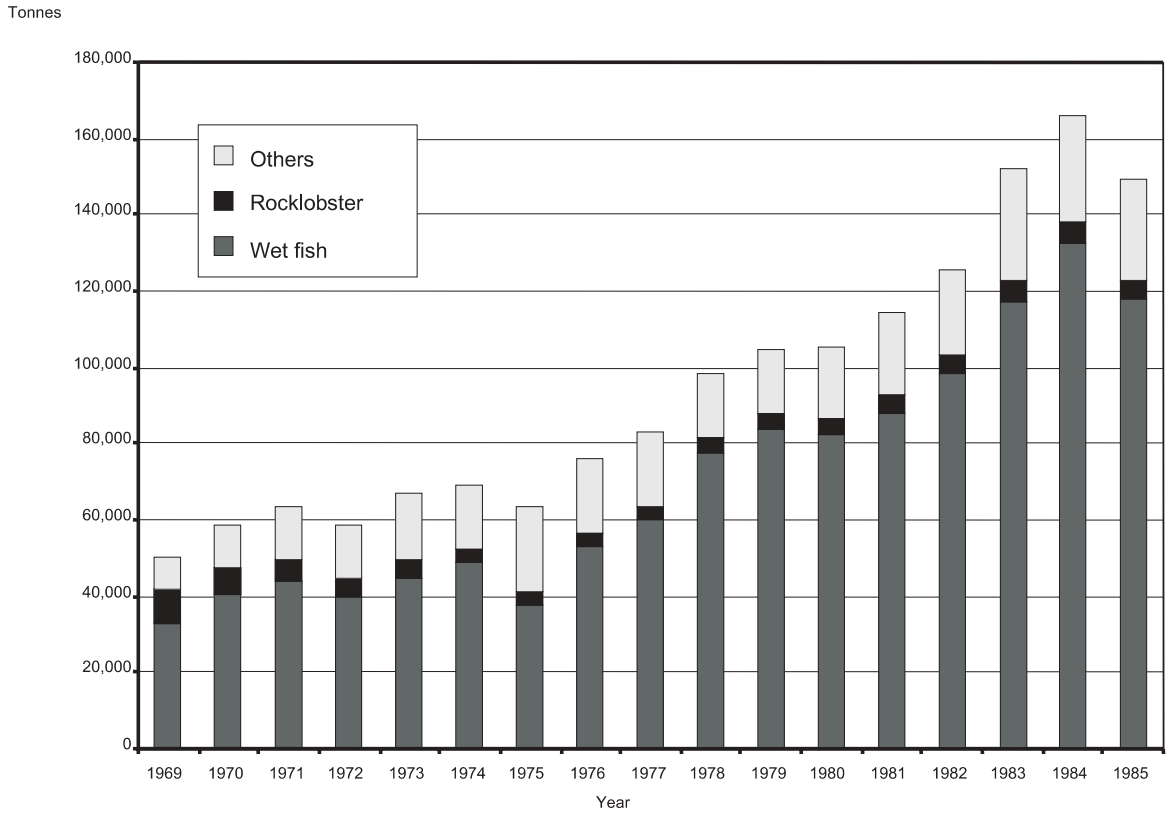
Data sources: King 1985; FSU data; QMS data.

Figure 6
New Zealand small boat sector: Capacity (GRT), and proportion of inshore fleet capacity – 1974 to 1998



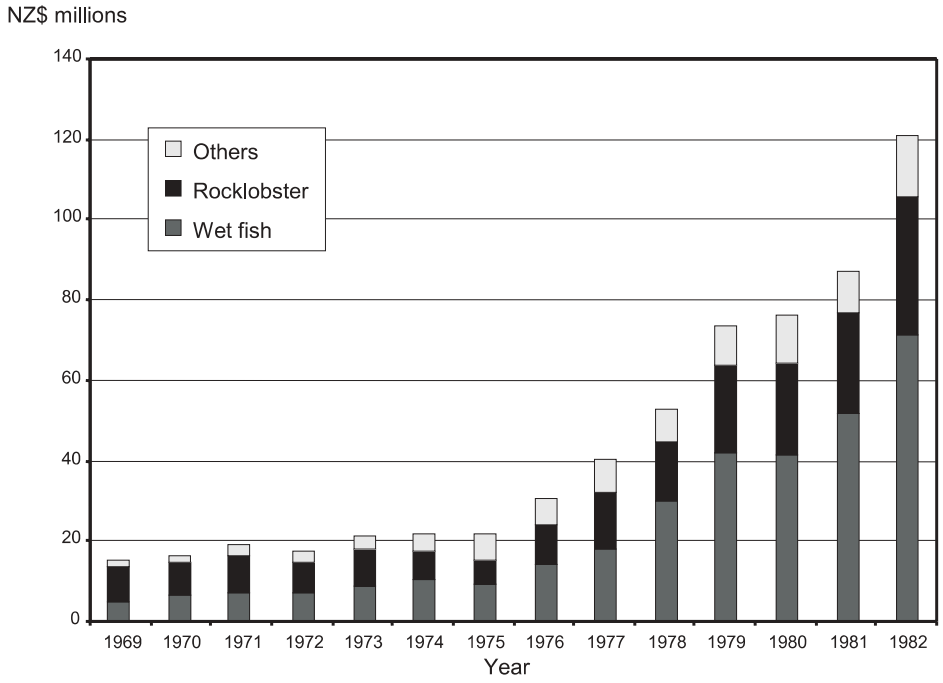
Data sources: King 1985; FSU data; QMS data. Photograph: Bonnie McCay.

Figure 7
Landings by New Zealand domestic fleet 1969 to 1985



Data source: New Zealand Official Yearbook, various volumes.

Figure 8
Landed value of New Zealand domestic catch - 1969 to 1982



Data source: New Zealand Official Yearbook, various volumes.

A significant issue in the lead up to the introduction of ITQs in New Zealand was the change of government in 1984. This ended a long period of intensive economic regulation, and signalled the beginning of one of the most rapid and intense periods of market-oriented regulatory reform experienced anywhere in the world. This was the perfect political climate for the introduction of ITQs, and was coincident with a high level of concern, within both industry and the regulatory agency, to see changes in the management framework to protect failing inshore stocks and build investment in the deep-water sector.

2. THE NATURE OF THE HARVESTING RIGHT

The basis of the legal right to engage in commercial fishing in New Zealand before the introduction of quota management was, and remains today, a fishing permit issued by the government department responsible for fisheries management – then the Ministry of Agriculture and Fisheries (MAF or the Ministry), reformed as the Ministry of Fisheries (MFish) in 1994. Permits were issued pursuant to the *Fisheries Act 1908*, replaced by the *Fisheries Act 1983*, and were subject, in addition, to attached conditions such as area, method and quantity restrictions (required to be substantially the same for all permits of a given class) and to regulations promulgated under the Act. Permits could be legally issued for up to five years but have always been made renewable annually and had never been tradable. From 1963 to 1982 (1978 for rock lobster and scallops) there was no restriction on the number of permits available, and hence there was no need for trade. The system was that of regulated open-access. From March 1982 there was a moratorium on the issue of new permits for the inshore finfish fisheries. The provisions of the 1983 Act regarding the definition of a "commercial fisherman", which excluded part-timers, demonstrated that the permit did not comprise a secure ongoing right to fisheries access, despite the expectation of annual renewal.

During 1983 the deep-water enterprise allocation scheme was also put in place. This program was applied to seven species or species groups[7] of finfish caught in quantity mainly in the greater EEZ outside the 12 mile Territorial Sea[8]. The domestic portion of the TAC for each of these species was allocated as quota to the seven largest companies and two consortia of smaller companies fishing for them. A further amount was to be fished by "others" (mainly owner-operators) as a competitive TAC. Modelled on the then recently-established Enterprise Allocation program for offshore trawlers in Atlantic Canada, the quotas applied to the company, not to the vessel or individual, and were initially valid for ten years. Companies were free to catch their allocation in any way they wished, including joint ventures and foreign vessel charter arrangements. These quotas were transferable with the administrative collaboration of the Ministry, although there was no statutory basis for transferability. This system served as a precursor to the more generalised quota system, giving MAF staff valuable experience with setting TACs and dealing with changes in quota ownership, and the industry a taste for secure quantified access rights (MAF 1982; Clark and Duncan 1986). The same companies were major players in the inshore fisheries and their experience with the deep-water allocations made them firm advocates for development of the ITQ system.

On the introduction of the quota management system (QMS) in October 1986, a new right was created: the individual transferable quota (ITQ). ITQ was to be a perpetual right to a part of the fish harvest, designated in metric tonnes for a particular species or species group to be taken annually from a specified quota management area (QMA). Each QMA comprised one or more Fishery Management Areas (FMAs), based on the understanding of biological stock distributions at the time (see Figures 9 and 10 for an example). So each species was split into one to ten quota stocks nationally. The 26 species or species groups initially introduced formed 153 stocks, and comprised 83% by weight of all finfish taken in the commercial fishery in 1985 (Boyd and Dewees 1992). These rights were allocated free of charge to existing participants in the fisheries. Free transferability and lease was subject to reporting of all transactions, and transaction prices, to the Ministry, and to aggregation limits of 20% for inshore or 35% for deep-water stocks. Only New Zealand residents, or companies at least 75% New Zealand owned, could own or hold quota. The ITQ allocated rights to utilise the resources, but the fishing permit remained as the right of access. Under the QMS legislation, a fishing permit was to be granted to anyone who fulfilled the minimum quota holdings requirement of five tonnes for finfish. The enterprise allocation system that had been in use for deepwater species since 1983 was unified with the new QMS, with enterprise quota being converted directly into ITQ.

The rhetoric of ITQs at the time of the introduction referred to them as exclusive and perpetual property rights (for example see MAF 1984:9). However they were not referred to directly as property in the *Fisheries*

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[7] In the deep-water fisheries three oreo species are managed as a group – that is subject to the same quota (see Appendix 1). In the inshore fisheries, eight species of flounder and sole are managed as the species group flatfish, and two groper species as hapuku/bass.

[8] These were the deep-water orange roughy and oreo species, hoki, hake, ling, barracouta and silver warehou. See Appendix 1 for a listing of species common and scientific names, quota codes and Total Allowable Commercial Catch (TACC).

Figure 9
New Zealand Exclusive Economic Zone, showing the 10 fisheries management areas

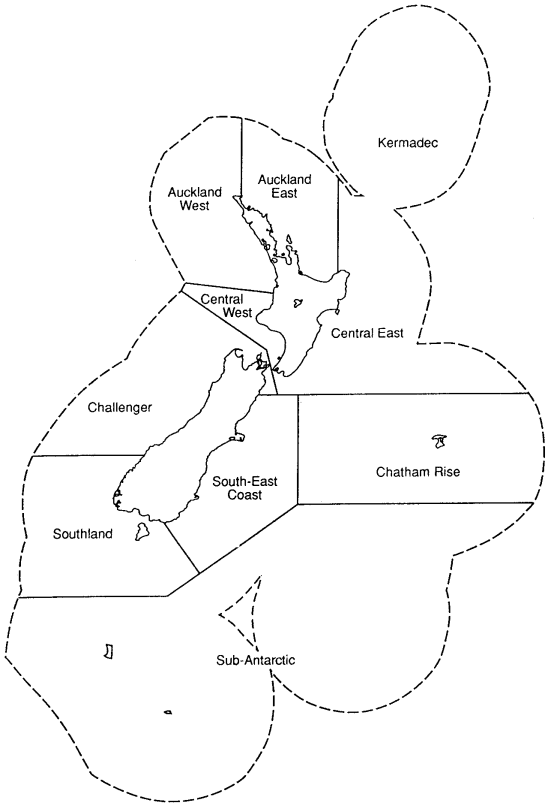
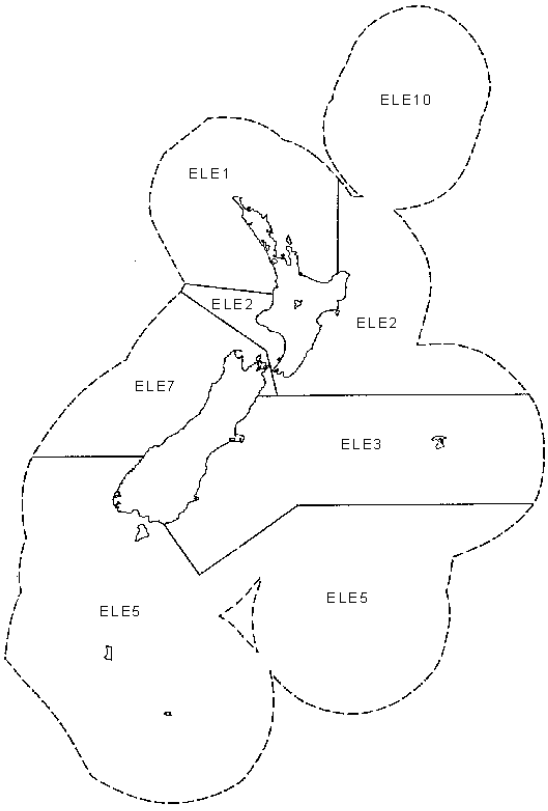


Figure 10
An example of quota management areas (elephant fish)



Amendment Act 1986, but were characterised by the attributes and conditions imposed by Section 10 of the amendment that created a new Part IIA in the principal Act. Key among these, ITQs were:

i. a right to take fish of a nominated species in a specified Quota Management Area in the amount shown in the quota, on an annual basis
ii. allocation in perpetuity
iii. expressed in absolute weights of whole fish measured in metric tonnes
iv. subject to minimum holdings (weights) before fishing is allowed, and maximum holdings (percentage of total)
v. able to be freely transferred by sale or lease and
vi. fully compensable in the event of TAC reductions.

Responsibilities attached to quota ownership included legal obligations to:

i. land all catch of quota species, unless under minimum legal size
ii. submit monthly quota monitoring reports, in addition to completing catch and landing returns and catch-effort logs and
iii. pay resource rentals on all quota held whether caught or not.

These characteristics establish the character of the ITQ as private property in the right to harvest fish from a given stock – not in the fish stocks themselves – and a clear understanding of this character has become generalised in New Zealand since 1986. There was no legal impediment to the use of ITQ as security for bank loans, but the Ministry did not make provision for the registration of liens or caveats against the title to ownership and this in many cases prevented such use.

The nature of the ITQ right underwent a major change in 1990. The original specification of ITQ in tonnes of fish required the government to enter the quota market to buy or sell quota when it wanted to alter the total allowable catch (TAC). When faced with potential for stock collapse in orange roughy and the need to reduce this valuable quota by large percentages, the system was changed so that ITQ were denominated as a percentage of the TAC, rather than as a specific tonnage. Adjustment then implied merely the automatic *pro rata* adjustment of all ITQ holdings at the beginning of each season to match the TAC.

The two systems have different effects on who bears the burden of uncertainty in fisheries management. In the initial system the government incurred all of the consequences of the uncertainties surrounding stock assessments, species biology, environmental change, impacts of fishing practices and so on, that in other commercial areas are borne by the industry. In the proportional system the industry faces the uncertainty. This may have consequences for levels of investment, but should also improve incentives for industry to invest in supporting science and management information in order to reduce uncertainties concerning stock size and dynamics, and therefore future TAC levels. This new industry interest in research reinforced the need for industry and management to engage in policy dialogue and may thereby produce more coherent management policies.

Arguably, the proportional system implies something closer to ownership rights to the fish stock, as quota owners are able to capture any changes in the value of the whole stock. If new information reveals stocks to be larger or more productive than previously thought or restraint leads to stock size increase in previously overfished stocks, the value of an individual holding increases accordingly. The ability for someone to capture changes in asset value is a significant test of ownership applied by law courts. Under the original New Zealand system of tonnage-designated quotas, the government captured such changes in value.

The other key issue in the nature of ITQ rights in New Zealand has been the presumption of Crown (state) ownership of the resource, and thereby an ability of the Government to create exclusive rights of access. The indigenous people of New Zealand, the Maori, challenged this presumption immediately following the Cabinet decisions in May 1985 to implement the quota system. The challenge was eventually successful in achieving recognition that the quota system as initially conceived contravened both the *Treaty of Waitangi* and the *Fisheries Act 1983* itself. Two High Court injunctions were granted in late 1987 preventing further implementation of the system pending negotiations between the parties, but not before the major allocations of quota were completed. The issue of Maori commercial fishing rights was not finally settled until 1992. In the interim, the only additional species added to the QMS was rock lobster (and the associated packhorse-cray) in 1990. By agreement among the parties, rock lobster quota was limited in term to 25 years, but was subsequently converted to a perpetual right following the final settlement of Maori claims.[9]

[9] For details of Maori claims to fishery resources and the settlements reached see (Waitangi Tribunal 1988; Memon and Cullen 1992; Waitangi Tribunal 1992; Munro 1994; Wickliffe 1995; Hooper and Lynch 2000).

3. THE METHOD OF ALLOCATION

3.1 Policy objectives

As is usually the case with fisheries management, there was a multiplicity of objectives sought by the introduction of the ITQ system in New Zealand. The unification of the deep-water and inshore management systems was an objective in itself, but the aims for the two sectors were far apart.

Two major objectives for the introduction of the QMS in the inshore fisheries were to provide a viable means to halt effort expansion, to reduce catches immediately so as to allow over-fished stocks to recover and to promote rationalisation of the over-capitalised fleet. The strategy adopted in allocating ITQs reflected both the economic logic by which the system had been advocated, and the need to gain and maintain the support of fishers for the management system. That catch reductions would be compensated by government was a principle agreed early in the discussion of quota management. The Government's condition for providing compensation was that reductions in fishing pressure were to be binding and permanent. Compensation reinforced the concept that quota represented an explicit quantified property right and implied a discipline on the regulator to fully justify cuts before acting. It also offered a means by which fishers could determine themselves who would contribute to the reduction of effort, and provide a dignified exit from the fishery for those who chose to retire.

For the government's part, they had one eye on the future, particularly of the deep-water fisheries, where this principle would pay a handsome dividend: they would be able to tender large quantities of quota to the industry as domestic capacity expanded. The goals for the deep-water fisheries were the rational development and "New Zealandisation" of harvesting without getting into the trap of over-capitalisation, and for the government to realise revenues through quota auction sales and resource rentals. It was this combination of outcomes, which would allow the government to cover compensation costs for inshore restructuring by selling quota for the deep-water species, that drove the choice of tonnage-based quota. The original deep-water enterprise allocations had been proportional, but were switched to fixed tonnages for the introduction of the more comprehensive QMS (Clark *et al.* 1988).

For the inshore fisheries, the policy discussion document published by the new Government in September 1984 listed the following objectives and aims:

"The objectives of [the ITQ policy] are:

i. to achieve the long-term continuing maximum economic benefits from the resources;
ii. to preserve a satisfactory recreational fishery." (MAF 1984:6)

"Aims of proposed policy:

i. to rebuild fish stocks to their former levels;
ii. to ensure that catches are limited to levels that can be sustained over the long term;
iii. to ensure that these catches are harvested efficiently with the maximum benefit to fishermen and the nation;
iv. to allocate each entitlement equitably based on fishermen's current commitment to the industry;
v. to manage the fisheries so that fishermen retain maximum security of access to fish and flexibility of harvesting;
vi. to integrate the ITQ system of the inshore and deepwater fisheries;
vii. to develop a management framework that can administered regionally in each fisheries management area;
viii. to financially assist the harvesting sector to restructure its operations to achieve the above aims;
ix. to enhance the recreational fishery." (MAF 1984:10)

The main objectives of this generic list distil down to stock conservation, economic efficiency and equitable allocation. The overall economic allocation objective of the ITQ policy was to maximise the net economic return to the nation (Annala 1996). On the other hand, the objectives of the initial allocation process were to ensure that entitlements were equitably based on fishermen's commitment to the industry at that time, and to financially assist the harvesting sector to restructure its operations to achieve the overall economic allocation objective.

At the operational level the objectives for the allocation process boiled down to putting in place the ITQ system while maintaining and enhancing the support of fishers. This was constrained by a requirement for catch reductions in what were believed to be threatened inshore stocks and a limited budget for compensation.

3.2 Process used in determining the allocation method

The management planning structure and process mandated in the *Fisheries Act 1983* established a framework for Ministry consultation with the industry and other interest groups at the regional (FMP) level. This comprised a network of local Port Liaison Committees and regional Fishery Management Advisory Committees (FMACs) to work with MAF staff in each regional centre to build the fisheries plans. In addition, a National Fisheries Management Advisory Committee (NAFMAC) was established to advise on national policies, with

representation from all industry sectors including processors, fishers, share-fishers, the New Zealand Fishing Industry Board (FIB) and government.

The NAFMAC, supported by MAF and FIB staff, reviewed the state of the inshore fisheries and released a detailed discussion document in August 1983 (NAFMAC 1983). This set out an analysis of the problems – over-exploitation of stocks and overcapitalisation, and supplied a detailed account of the state of the fisheries, divided into 14 regions, of industry structure, and proposed a range of policy alternatives including ITQs.

In September twelve Port Liaison consultative meetings were held by the NAFMAC around the country for discussion of the review. Some 1500 people including 900 full-time fishers attended these meetings. Discussion revolved around: MAF resource yield estimates and the degree of their correspondence with fisher perceptions; a means of immediate effort reduction including removal of part-timers fisheries and cancellation of 'sleeper permits' and unused method endorsements; and long-term management policies. There was general consensus on the need to stop inshore effort expanding, and that the moratorium on permits and further species endorsements of existing permits should be maintained. Fishers viewed ITQs as having merit but were sceptical of the ability of the Ministry to monitor compliance with such a system, and feared increased dominance of large companies through concentration of quota ownership (Cooper 1983). At this stage quotas were one of a range of options being considered, all of which were viewed as potentially working within the FMP framework. Following these discussions with industry and further review by MAF and FIB staff, the NAFMAC made their report to the Minister of Fisheries in late 1983 (Belgrave 1983).

The NAFMAC documents included both interim and long-run yield estimates (prospective TAC levels) produced by the Ministry for inshore species. The interim estimates represented major reductions for some species of high economic importance thought to be over-fished. MAF scientists reviewed the figures again in April 1984. This review attempted to define natural stock boundaries for the quota system, and attempted to separate the issues of long-term sustainable yield, from the management problem of how to get there by setting lower interim TACs (McKoy 1986). Two further reviews were carried out in March 1985 and 1986 before final TACs were set. These assessment reviews were the precursors to the annual stock assessment rounds later carried out by the Ministry as part of the QMS.

In the meantime, the New Zealand Government was heading for a fiscal crisis, culminating with Prime Minister Muldoon calling a snap election in July 1984. Policy decision-making had gone into recess to the frustration of the fishing industry (Martin 1984). However, the Government changed with the election. The new Cabinet had a reformist economic agenda and accepted the policy recommendations of MAF and NAFMAC quickly, publishing a proposal in September 1984 setting out policy for the quota management system, more or less in the form it would be implemented two years later (MAF 1984). Consultation meetings with industry continued. A two-month tour by several teams of MAF and FIB staff in early 1985 put the proposals to commercial fishers through a country-wide series of some 65 public meetings (Muse and Schelle 1988). Two "mini-summit" meetings were held between industry leaders and the Minister of Fisheries, and the Federation of Commercial Fishermen conducted a referendum of all licensed fishers in March 1985 before approving the policy in principle (Anon. 1985). Final proposals were aired at an industry conference, before Cabinet approved the quota system policies in May 1985 including the allocation process.

Conspicuously absent from the process to this point was effective consultation with Maori. Although Maori had mandated representation within the FMP liaison network, no systematic attempt was made to consult with established Maori decision making and information networks by, for example, seeking MAF representation. A two-day National Fisheries Hui (meeting) – *Te Runanga a Tangaroa* – was held in October 1985, well after decisions were finalised, but this did not directly address commercial fishing issues or the quota system. Maori fisheries interests were conceived generally as non-commercial "traditional" fishing along with cultural and spiritual values. They were therefore not seen by the Government as in conflict with the incipient QMS (*e.g.* the speech by Ken Shirley MP, reported in Cooper 1987:17).

3.3 Allocation method chosen

The basic principle of both allocation schemes was that quota entitlements should reflect established commitment to the fishery. For the deep-water fishery in 1983, catch levels were combined with the companies' degree of investment in on-shore processing, employment and fishing capital to determine commitment. Allocations of quota were only to be made where this commitment would provide at least 2000t per company. The smaller operators were allowed to combine into consortia to achieve this level and attract allocations. The remaining smaller participants were to continue to fish under competitive TACs comprising more than the sum of their historical catches, to allow for further development by these operators. Investment in vessels was assessed separately for mid-depth and deep-water quotas, with vessels less than 30m in length excluded from the assessment for deep-water species such as orange roughy, as they are unable to fish at the required depths (Muse and Schelle 1988).

Summary of New Zealand fisheries management changes 1977-1987	
1977	Controlled Fisheries introduced by amendment of *Fisheries Act 1908*; Exclusive Economic Zone Act passed;
1978	200 mile EEZ declared; TACs set for deep-water species and split between domestic and foreign licensed fishers; Permit moratorium on scallops and rock lobster;
1982	Finfish permit moratorium imposed; Deep-water quota policy proposed;
1983	Deep-water quota policy implemented – Transferable Enterprise Allocations for 9 companies over 7 species, plus competitive TAC for "others"; NAFMAC inshore assessment/ discussion document released and nation-wide consultation meetings "NAFMAC Circus"; *Fisheries Act 1983* passed – Fisheries Management Planning framework with new consultation requirements and network of Port Liaison Committees and Fisheries Management Advisory Committees;
1984	Change of Government to favour "marketisation" of state sector; "Blue Book" (ITQ) policy proposal for inshore fisheries published;
1985	Intense consultation on proposals – more circus meetings, Ministerial summit meetings, etc. NZFCF ballot of members approves quota policy; Industry conference approves policy; Cabinet approves policy; Provisional catch history notified; Review of objections begins;
1986	Reviews of objections complete; PMITQ and GMITQ issued; Quota buy-back tender and offers proceed; Quota Management System goes live on 1 October – 26 species, 156 stocks;.
1987	Quota Appeal Authority begins hearing appeals; 3 more species included in QMS; High Court Injunction granted to Maori to stop further implementation.

In the inshore allocations, the primary criterion for judging commitment was to be catch history over the three years 1982-84. The need to reduce catch levels of some stressed inshore species had been openly discussed in all the consultation meetings from 1983 and was accepted by the key parties. The government was committed to compensate reductions and proposed to finance a quota buy-back scheme. The allocation proceeded in a series of steps, firstly assessing catch histories, followed by a buy-back tender round, and thirdly administrative adjustments were made to match quota holdings to TACs. Appeals were provided for at two stages of the allocation process.

A large haul of orange roughy taken within the New Zealand EEZ
Photo credit: NIWA, Wellington, New Zealand.

The catch history assessment step entailed an initial appraisal by the Ministry of landings records for the three qualifying years, and the reporting of these to each fisher in mid-1985. They were then asked to choose two of these three years to be used to establish their quota entitlements, and were able to request an administrative review if the figures were believed to be inaccurate or unrepresent their usual fishing activity. The reviews were undertaken by six regional objections committees coordinated by a national overview committee. These committees provided the Director General of MAF with recommendations for changes to assessments.

Following the reviews, final averaged best-two-of-three-year catch histories were calculated and notified to fishers in April 1986 as Provisional Maximum ITQ (PMITQ) for each fish quota stock. Fishers also received notice of their Guaranteed Minimum ITQ (GMITQ), which represented the amount of quota they would be allocated if the proposed new lowered TAC for that stock was split proportionally across all the assessed catch histories. That is, if the TAC for a stock were to be set at say 60% of the total of all PMITQ, then each individual's GMITQ would be 60% of their PMITQ. Each fisher then knew they would eventually be allocated an amount of quota that was between these two figures.

The proposed TACs for some inshore species required a large reduction in catches, with cuts varying by area and species (see Table 1 aggregates by species). In the Auckland Fisheries Management Area the overall average of proposed reductions was 28%, with individual species reductions of up to 64% (Fairgray 1986).

Table 1
Aggregate catch reductions proposed for inshore species in 1984 policy proposal

Species	1983 Catch (tonnes)	Proposed TAC (tonnes)	Change from 1983 catch (tonnes)	(%)	Long-term yield (tonnes)
Alfonsino	1120	1760	+640	+57	TBD
Blue Moki	580	125	-455	-78	500
Bluenose	730	900	+170	+123	900
Blue Warehou	5100	5100	0	0	5100
Elephant fish	815	440	-375	-46	TBD
Flatfish	4630	TBD	0	0	TBD
Gemfish	4480	4500	0	0	TBD
Gurnard	3930	3000	-930	-23	3550
Gropers	2490	800	-1690	-68	1200
Red cod	8800	8800	0	0	8800
Rig	3750	1070	-2680	-72	1750
School shark	3930	1000	-2930	-75	1500
Snapper	8750	6000	-2750	-31	8500
Tarakihi	4700	3500	-1200	-25	4200
Trevally	3800	2100	-1700	-45	3000

Data source: MAF 1984: page 28.
Catches include those by domestic, foreign charter and foreign licensed vessels.
TBD = To Be Decided.

In addition, the totals of PMITQ for many species were appreciably higher than the actual catch in any of the years immediately preceding the quota system, due to the averaging of best years, declining catches in some stocks and extenuating circumstances accepted in the reviews.[10] Table 2 shows the prior catches, total of PMITQ and new TAC levels for species suffering the main reductions.

To adjust allocations down to the new TAC levels, a quota buy-back scheme was used. This was part carrot and part stick. The stick was the threat of uncompensated administrative *pro rata* reductions of quota – potentially down to GMITQ levels – if carrots were not taken up voluntarily. The carrots comprised an opportunity to tender to have part or all of a PMITQ bought back by the government. Each fisher was invited to submit bids of amounts that they would be prepared to accept as compensation for giving up a specified package of quota. Effectively this invited operators to cash out of the fishery, or to adjust their catch mix by selling down depleted stocks, at an agreed price, and from a higher level of quota than they would otherwise end up holding.

The Government had a budget limitation on compensation and a heuristic algorithm was to be used to optimise clearing prices for each stock in the tender round, with all fishers tendering up to the clearing price paid at this rate for giving up PMITQ (Clark and Duncan 1986). However, bids by fishers were too high to fulfil the objectives within budget. At bid prices, $NZ100m would have achieved only 60% of the required reductions (Muse and Schelle 1988). Following some attempts at valuation of the critical stocks with the aid of a bioeconomic model (Geen 1987), the government set clearing prices for the tender round so as to attain about 25% of required cuts. A second chance was then offered all remaining fishers to sell further PMITQ back to the government, or be faced with administrative cuts. This time the offer was at a fixed price set about 20% below the prices paid in the first round. A strong response was received, but all TACs were not yet satisfied (Clark and Duncan 1986; Clark *et al.* 1988). A total of 15 800t of quota had been bought back out of a target reduction of 21500t, at a cost of $NZ42.5 million, of which 85% was paid out for four of the 19 species (see Table 2).

[10] See Section 5 for further details of the reviews.