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**Objectives-Based Fisheries Management;
Building on 20-years Experience with Individual
Transferable Quotas**

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Introduction

The year 2006 marked the twentieth anniversary of the introduction of the Quota Management System (QMS) in New Zealand fisheries management. This major institutional change made individual transferable quota (ITQ) the quantitative authority for commercial fisheries catches, leading structural change and economic development to transform the New Zealand fishing industry into a prosperous and major contributor to the national economy.

In addition to being a significant anniversary for the QMS, last year also saw significant development of a new objectives-based co-management framework by the Ministry of Fisheries. Created to build on the strengths of the QMS, the new approach seeks to establish a hierarchy of specified objectives for fisheries management – from overall statements of desired outcomes through to detailed standards for processes and management performance – explicitly linked through stated intervention logic. Working to this set of objectives and standards, an agency-facilitated stakeholder process will develop agreed management plans for defined fisheries. Objectives must be measurable and linkages testable, with monitoring of specified performance indicators being integral components of agreed plans.

The new Fisheries Plan framework capitalises on the coherence brought to the commercial sector by secure catching rights under the QMS, attempting to extend this across the broader stakeholder community. It is endeavouring to establish a new process model for agency-initiated co-management that has the potential to draw diverse stakeholders together and develop common goals for management of their fisheries.

After providing a brief introduction to the New Zealand context and the QMS and its history, this paper sets out to assess how the QMS has performed against the assumptions that underpinned its implementation in the mid-1980s. This in turn provides the context for the next step – the development of the Fisheries Plan framework – envisioned to move the overall management system in New Zealand forward into an era of broader stewardship of resources and environment, by all fisheries stakeholders. This new framework and the progress thus far are briefly described.

New Zealand Fisheries: Context

New Zealand's fisheries resources are only moderately abundant in international terms. The estimated maximum sustainable yield for the 4.1m km² Exclusive Economic Zone (EEZ) (see Figure 1), declared in 1978, is something over six hundred thousand tonnes, with about one third of the zone fishable by modern demersal methods.

As in other coastal states, the declaration of the EEZ was driven in part by fishing of the area by distant water fleets of other nations, in New Zealand particularly from Japan, Korea and the USSR. This foreign exploitation of what are now considered New Zealand fish-stocks had begun in the 1950s when the domestic industry was highly regulated. The government response was to completely deregulate fishing in 1963 and to provide subsidies and other encouragement for the domestic industry to compete for a larger share of the catch. The industry responded with a vessel building boom and a rapid increase in catches from the inshore fisheries. However, the foreign fleets also increased their efforts, and by 1977 were taking nearly 90% of the 476,000 tonne known fin-fish catch from the area (Sharp 1997).

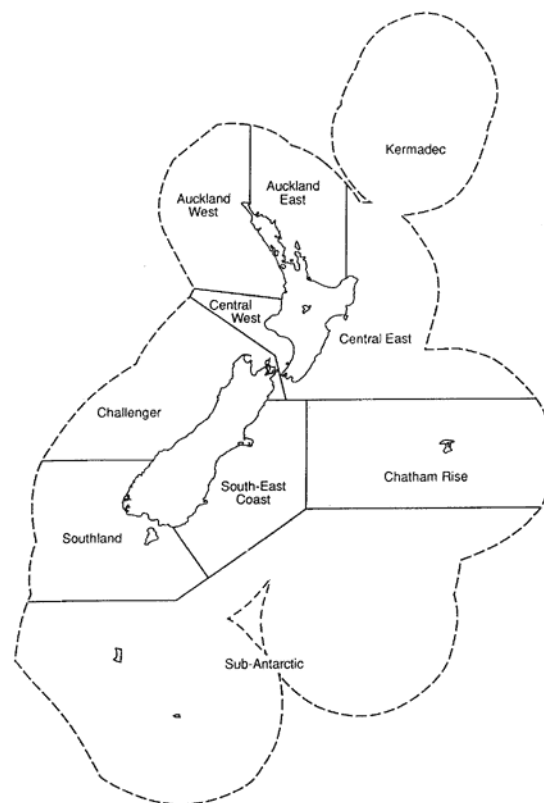


Figure 1 - New Zealand Exclusive Economic Zone, showing the 10 Fisheries Management Areas

Responsibility for the management of New Zealand's fisheries lay with the Ministry of Agriculture and Fisheries.¹ Initially, following the declaration of the EEZ, the fisheries outside the twelve-mile Territorial Sea were managed separately. Total allowable catches (TACs) were struck for the offshore species, and these were allocated preferentially to the domestic industry, and secondly to the foreign fleets under licence and government bilateral agreements. These policies offered the foreign fleets less of the prime species and areas than they had been fishing before

¹ The Fisheries Division of the Ministry of Agriculture and Fisheries was reformed in 1995 as the Ministry of Fisheries.

1978. This changed the economic balance and resulted in a much reduced total catch for the next few years (OECD 1997).

Government policies at this time also provided incentives for domestic companies to invest in onshore processing plants and vessels for offshore fishing, but the main initial domestic involvement 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 for onshore processing. By about 1982 local companies had learnt what they needed to know from joint ventures, and arrangements with foreign vessels moved to simpler contracts to charter fishing capacity to catch against domestic company quotas. Foreign vessel charter has remained an important part of offshore 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.

At the same time that the offshore fisheries were being domesticated, New Zealand's 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 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 fishing permit moratorium in 1982. 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.

Introduction of ITQs

During 1983 a consultative policy review process was initiated by the Ministry for the inshore fisheries, and a trial "enterprise allocation" (EA) quota scheme was introduced in the offshore fisheries. After several rounds of consultation and a change of government, a decision was made in 1985 to adopt a near-comprehensive ITQ based management system for both inshore and offshore sectors. For the offshore, existing EA quotas were converted to ITQ directly. For the inshore, a complex process of assessment and allocation was undertaken.² Initial allocations of entitlement were based on catch histories from the best two of three qualifying years, and a tendering process was undertaken for reduction of total allocations through a government funded quota buy-back. Where reduction targets were not met for critical species, administrative reductions were made to establish the required TACs.³

² The basis of the QMS is described in Clark, I.N. and Duncan 1986, and Clark, I.N., *et al.* 1988.

³ Under the New Zealand quota management system, TACs are set for overall take of a fish stock, including recreational and indigenous customary fishing. The commercial catch limit is a subset of the TAC and is known as the total allowable commercial catch or TACC.

New Zealand ITQs came into effect in October 1986 applying to 153 management stocks of 26 species – the nine off-shore species under EAs, plus 17 inshore species. Catches from these species at the time comprised some 83% by weight of the total commercial fin-fish catch. Allocations were subject to appeal to a quasi-judicial Quota Appeal Authority, but this did not affect the full operation of the management system or quota trading.

ITQs were created as a perpetual right to a part of the fish harvest, designated in absolute weights of whole fish (in metric tonnes) for a particular species or species group to be taken annually from a specified quota management area. These rights were allocated free of charge to existing participants in the fisheries, and were to be fully compensable in the event of TAC reductions. Free transferability and lease was subject to reporting of all transactions with prices to the Ministry, and to aggregation limits of 20% for inshore and 35% for deep-water stocks. 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 5 tonnes for finfish.

Responsibilities attached to quota ownership included legal obligations to land all catch of quota species, unless under minimum legal size; to submit monthly quota monitoring reports in addition to completing catch and landing returns and catch-effort logs for each fishing trip; and to pay resource rentals on all quota held whether caught or not. Some flexibility was built into the system by allowing the carry-over of up to 10% of uncaught quota to the following year, or for up to 10% over-catch of holdings to be counted against the following year's entitlements.

These characteristics established 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.

Change in the QMS

The nature of the ITQ right underwent a major change in 1990. The original specification of ITQs in tonnes of fish required the government to enter the quota market to buy or sell quota when it wished to alter the total allowable catch. In the late 1980s the system faced the potential for stock collapse in orange roughy (*Hoplostethus atlanticus*) and the need to reduce this valuable quota by large percentages. Under these pressures the system was changed so that ITQs were denominated as a percentage of the total allowable commercial catch (TACC), 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 TACC. This transferred the risks and benefits of fluctuations in fish stock size from the Government to quota owners.

Further change followed as the resource rental charges on quota were dropped in favour of a management cost recovery regime introduced in 1994. A new Fisheries Act in 1996 foreshadowed a range of modifications to the system. The most significant included the division of the quota right into two separate entities, although this was not implemented until 2001. An Annual Catch Entitlement (ACE)

– the currency to cover catch in a specific year – was separated from the perpetual right to receive a share of the annual catch. ACE is specified in kilograms of catch for a particular stock, while the perpetual ITQ right is now denominated in quota shares – of which there are 100 million for each stock.

Expectations of Quota Management

The Quota Management System (QMS) introduced in 1986 has its roots in the economic literature of the 1970s, although the fundamental issues were identified much earlier (Gordon 1954, Scott 1955). Gordon's bioeconomic analysis showed why participants in ungoverned open access fisheries were generally poor. As long as there is a profit to be made, effort will enter the fishery. Additional fishers and effort increase the catching costs for everyone until total costs equal total revenue. Often, labour costs get discounted in the hope that things will get better again in the future. In many cases, along the way the fisheries become depleted below maximum productivity as well, sometimes collapsing entirely.

Controlling escalation of fishing effort directly has proved very difficult due to its many dimensions. The alternative of directly restricting output from fisheries had not fared much better until the idea of individual "fisherman quotas" was suggested (Christy 1973). This was developed rapidly into a blueprint for a new management approach (Maloney and Pearse 1979).

This new approach offered hard limits on extractions from fish stocks, and means to account for these on an individual fisher-by-fisher basis. Quantified catching rights totalling the desired level of harvest are issued to individual fishers. Assuming the individual limits can be enforced, the total quota on issue can be restricted to prevent escalation of effort and the subsequent dissipation of rents and over-exploitation of stocks.

Transferability of quota enables future rents to be capitalised into the exchange value, and gives quota owners a financial stake in the future well-being of the fishery. This is often portrayed as a clear incentive for stewardship of the resource by quota owners, but is in fact subject to dynamic considerations. Important among these is the growth rate of the fishery biomass with respect to the discount rate, which, if low, can make it economically rational to treat a fishery as a non-renewable resource – that is, to mine it to commercial extinction. Likewise, there are many factors bearing on individuals and firms that may increase personal discount rates to produce a similar effect. So, ITQ should not be expected to turn cowboys into stewards in all cases. However, a general expectation remains that quota ownership should engender more responsible attitudes toward stock sustainability and a realisation that stakeholder participation in fisheries management is important and necessary.

The ability to trade catching rights in a market also offers the potential for owners to compare the value they are obtaining from their asset to the market value. This tends to drive allocative efficiency by encouraging quota to move to those who value it the highest. This may be through having the lowest catching costs, or (perhaps more realistically) through greater opportunities to capture downstream rents. These may arise through scale economies and reduced transaction costs from vertical integration of catching, processing, marketing and distribution in large firms.

Prices also serve as indicators of possibilities for improvement of productive efficiency in existing operations and can drive innovation to lower costs and improve returns. The limitation of entitlements to catch and land fish means that individuals can concentrate their efforts on improving returns per kilo rather than on maximising catch in a race for fish. At a fleet and fishery level, such efforts can be expected to result in some rationalisation of capital assets – particularly vessels, but also in processing capacity, and this rationalisation is likely to have impacts on employment.

ITQs were implemented in New Zealand in the context of the effort to convert the deepwater fisheries from foreign to domestically prosecuted, or at least for rents to be retained within New Zealand. This required the local industry participants to make large investments and take significant commercial risks. The quota system provided both security and flexibility for firms to invest in the fisheries. In particular it enabled the use of distant water fishing nation vessels under charter to local companies holding quota.

In 1986, many thought the ITQ system was the long-term solution to fisheries management issues. However, some of the architects of the ITQ programme considered it an interim step to deal with immediate fisheries issues and a step towards the significantly increased self-management by quota owners that they considered important for long-term management. The desirability of devolved management was debated in the late 1980s and into the 1990s with Pearse (1991), the Task Force (Wheeler 1992), and Independent Reviewer (Hartevelt 1998) all contributing to the debate. Many fishers initially viewed the suggestion as the government shirking its responsibilities to provide management, but over time the logic of the potential benefits of some form of club management by quota owners gained currency.

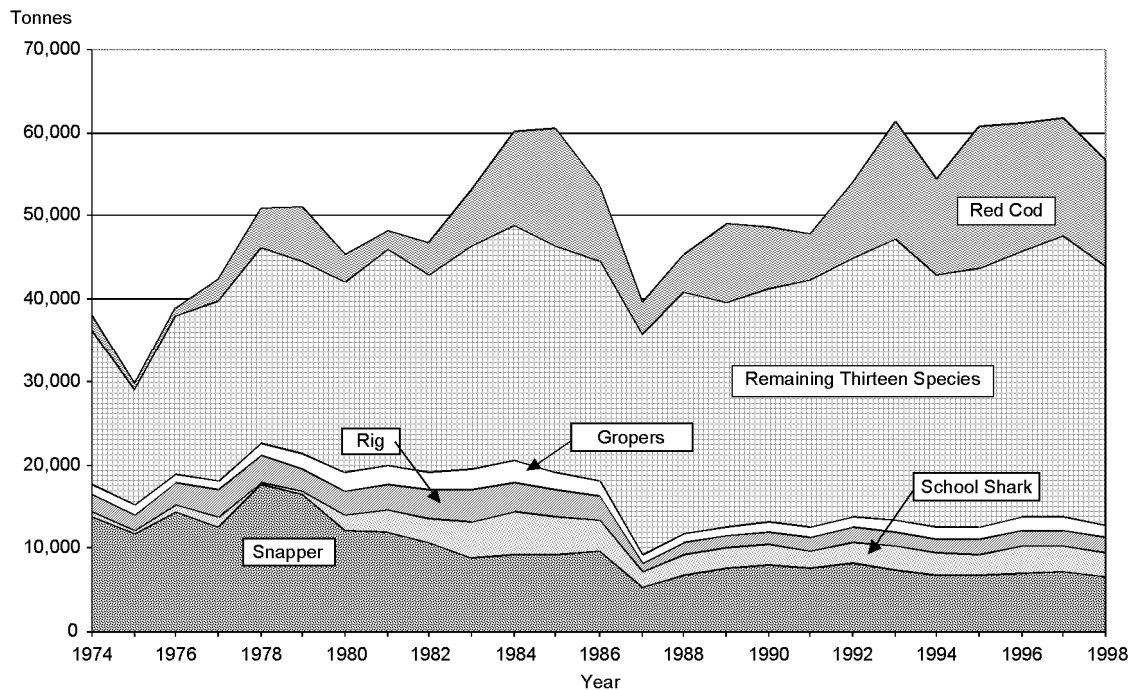
The Fisheries Amendment Act 1999 provided for devolution of fisheries services, but not management. Importantly, it did not provide the coercive powers needed by stakeholders to address the issue of free-riders. By the early 2000s industry support for devolution of fisheries management was strong but Government interest had lessened, a situation which remains.

Outcomes (Report Card)

This section briefly assesses the performance of the New Zealand QMS in respect of the expectations described above.

Control of exploitation

The QMS has lived up to the expectation of controlling the level of exploitation of fish stocks. This is illustrated well in the inshore stocks that were causing concern in the period immediately prior to QMS implementation. Figure 2 shows the catches of the main inshore species from 1974 to 1998. The four species of most concern at the time of implementation are shown at the bottom of the graph. During the 1970s catches had expanded to unsustainable levels and snapper catch in particular was declining under the pressure of high levels of effort.



Data sources: King 1985; QMS data

Figure 2 - Total catch for New Zealand inshore finfish species: 1974-1998

Introduction of the QMS in 1986 brought the exploitation of these species quickly under control, while allowing effort to be redirected to under-utilised species. Aggregate catch for the inshore was not reduced overall, but was effectively constrained on a stock by stock basis to levels estimated to be sustainable. Annala (1996) reported improved biological status of fisheries after ten years of the QMS and, more recently, The Ministry of Fisheries (2006) reports that of the 60-70% of stocks for which information on stock status is available, over 80% are considered to be at or near target levels (Ministry of Fisheries 2006). However, the high costs of obtaining good information mean that accurate assessment of stock status remains a challenge.

Some issues remain unresolved however. In particular, no clean solution has been discovered to the problem of by-catch of both high and low value species in trawl fisheries generated by single species quota allocations. Management mechanisms allow for fishing to proceed despite the problems, and safeguards are in place to stop fishing if sustainability is believed to be threatened. However, dealing with the potential mismatch between catch mixes and available quota mixes in individual fishing operations is the subject of ongoing work.

Rent capture

A benefit of transferable catching rights is the indication of profit expectations given by quota prices. Prices for quota trades rose steeply in the early years of the QMS, with the total value of quota exceeding NZ\$3 billion by the mid-1990s. After dropping back a little values continued to rise to reach an estimated \$3.7 billion by 2004. This relatively stable long-term capital valuation of surpluses in commercial fishing indicates significant rent capture. This profitability has fuelled development of the sophistication of the industry and some new high value fisheries, and importantly allowed the industry to contribute substantially to the costs of research and management of the fisheries.

The profitability of the fishery is also demonstrated by the facts that, since 1994, most of the costs of managing commercial fisheries have been paid by the industry through levies, and that, unlike fishing industries in many countries, the New Zealand industry receives no government subsidies.

Allocative efficiency

As expected, the QMS has allowed rights to flow to those who value them more highly. In the inshore fisheries, large tonnages of quota changed hands in the first year as a result of both a government quota buyback and market trading. Around 25% of those to whom quota was issued sold out in this first year. Significant takeover activity seems to have occurred with large companies buying out medium sized operations. In the following years a steady low rate of concentration of catching rights has continued in most sectors (Connor 2001).

It should be noted that concentration of catch ownership was quite high before QMS was introduced. Although significant ownership restructuring has taken place since implementation, the basic economic character of the sector in New Zealand has always dictated a concentrated industry structure. This is exaggerated in the deepwater fisheries which require high capital investment and are overwhelmingly export oriented. The value derived from New Zealand's fisheries is over 90% from exports, but in total represents less than 1% of the global trade in fish. This means exporters need to be locally large – and hence few – to be able to successfully compete in the world market.

By 1993 three firms held 53% of the total quota by weight, with a greater share of the deepwater species (60%) and less of the inshore (20%). However, in the inshore fisheries 70% of quota by weight has been held by the top 5% of quota owners since the QMS introduction and has trended very gradually toward greater concentration since. Economic pressures on the big companies in recent years have driven some takeover activity, but to date the largest firms have resisted the proposition to merge.

One limitation of the early QMS was the transactions costs of quota leasing. This was addressed in the implementation of annual catch entitlement (ACE), which allows the annual right to land fish to be traded independently of the quota right. This has significantly lowered transactions costs and allowed more flexibility in catch strategies.

An assessment of the New Zealand ITQ system by Kerr *et al* (2003) concluded that, “In general the evidence thus far suggests that the market is operating in a reasonably efficient manner and is providing significant economic gains”.

Productive efficiency

It can be useful to consider the affects of institutional change on the physical attributes of the production chain independently of allocation, despite the strong linkages. An important expectation of quota management concerns rationalisation of fleet capacity to reduce the costs of fishing. Despite the significant restructuring of quota ownership following implementation of the QMS, the capacity of the core fleet of inshore vessels has stayed remarkably constant over along period. Several factors are worth mentioning.

First, when catches of stressed stocks were reduced on introduction of quota, TACs for under-utilised stocks were set at levels above then current catches. This provided one avenue for redeployment of displaced effort. Another was the expansion of domestic fishing of mid-depth fisheries such as hoki, hake, barracouta, and ling, which could be pursued by the larger vessels in the inshore fleet. Although this has not been investigated in depth, the adjustments in targeting and redeployment of the fleet enabled by secure rights and quota trading probably meant that the surplus capacity believed to be present in the inshore fisheries in the early 1980s was mostly put to useful work within the new catch limits.

The impact of the QMS on small vessels was pre-empted to some extent by a 1983 policy that excluded part time fishers from renewing their licences. This cut the under-12 metre fleet by about 50% or over 2000 boats, mainly from the bottom end of the size range. Following the QMS introduction the capacity in this sector contracted further due to exits of some larger vessels, but overall numbers increased as very small boats came back into the fisheries.

Although many small and medium vessels have exited, for the first decade of the QMS, these were mostly replaced in capacity terms by new vessel construction, with a trend towards larger vessels within each size class. Small vessels continued their resurgence into the early 1990s, but declined again, as did all inshore classes, following the introduction of management cost-recovery in 1994. There is some evidence that some medium sized inshore vessels have been locked into the fisheries with no alternative use, but the last decade has seen these coming to the end of their serviceable life. Again some of the capacity has been replaced by larger vessels so numbers have declined more than total capacity of the fleet. These changes are shown in Figure 3.

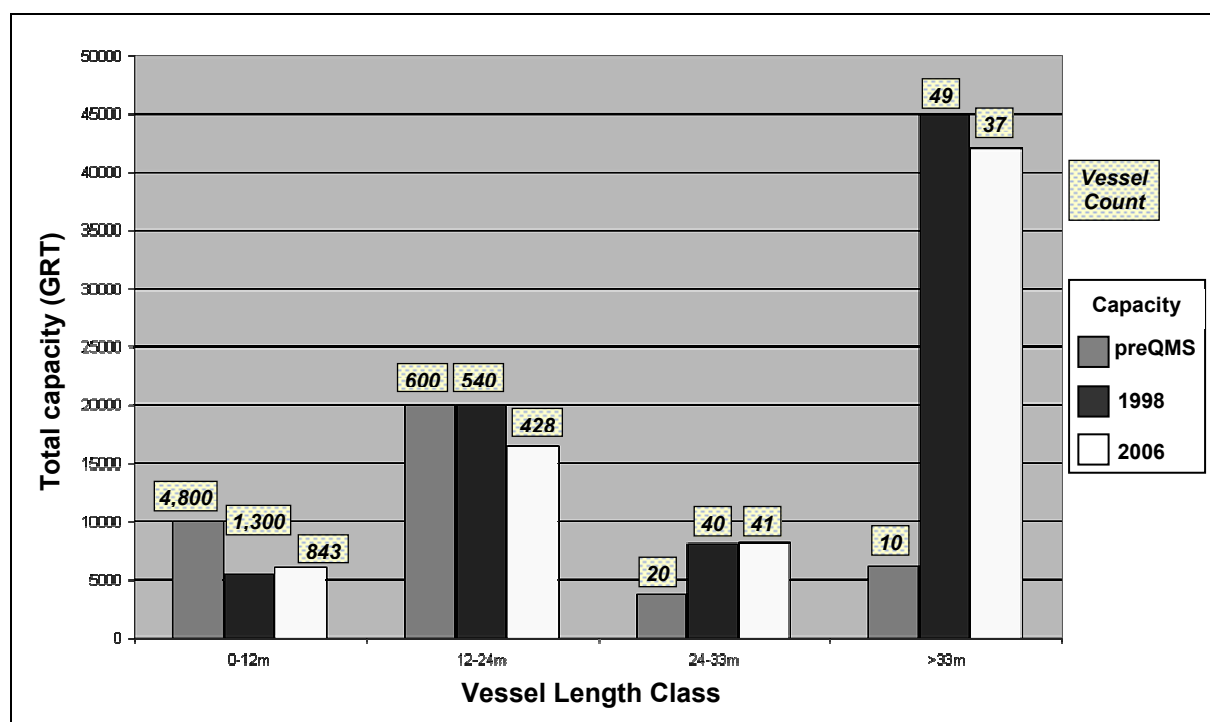


Figure 3 – Long term NZ inshore fleet capacity outcomes

National development

The QMS, and the trial deepwater quota system from 1983 to 1986, undoubtedly assisted in the “New Zealandisation” of the deepwater fisheries previously dominated by foreign fleets. This process transformed the New Zealand fishing industry from a bit player in the economy and taking only 10% of the catch from the zone, to a major contributor to GNP and regional employment within 10 years. Fishing now ranks in the top five export industries contributing in the region of \$1.4 billion in receipts annually, and directly employs some 10,000 people (Ministry of Fisheries, 2006). The industry has invested substantially in processing and adding value to basic product, as well as in the development of aquaculture.

The QMS precipitated Maori claims for a share of fisheries resources but also provided the mechanism by which these claims were settled. Maori interests in commercial fisheries have grown to the point that they now own about 40% of all quota shares.

Although not solely responsible for this success, there is no doubt that through the security provided by quota ownership, rent capture through effective control of effort, and efficiencies promoted by quota markets, the QMS has enabled the achievement of this potential

Stewardship and the devolution of management

The nature of common pool resources dictates that, if incentives for stewardship among fishers are strong, it is likely that these could only find full satisfaction through coordinated action among a majority of participants. Given such drive, together with the ability to coordinate across stakeholders, it seems plausible that representative organisations might do at least as good a job at management of the fishery as government officials. But it seems these are difficult conditions to satisfy.

That property rights in the catch would engender a universal conservation or stewardship ethic in an industry hitherto prosecuted as a free-for-all at the frontier, was perhaps an overly ambitious hope. Nevertheless, there is some evidence of incentives within the system great enough to promote an active approach to stewardship in specific circumstances.

Over the twenty years of the QMS there has been a great deal of research in the area of incentives for cooperative behaviour, both theoretical and empirical. We now understand more clearly the institutional requirements for the pursuit of joint interests, and can see how the success stories in this regard within the QMS have come about.

Where relatively small numbers of quota owners are involved, returns and quota values are high, and stocks are known to respond quickly to management change, such as in the rock lobster fisheries, examples of cooperative stewardship of resources have emerged. An example is the measures taken to rebuild the Gisborne Rock Lobster Fishery in the 1990s (Breen and Kendrick, 1997). Other examples of concerted action for conservation have occurred where it has become clear that the alternative of government regulation was looming. Examples include management of seabird bycatch in various fisheries, and the development of a multi-stakeholder plan for management of marine activities in Fiordland. However, examples of

effective and durable arrangements without the sanction and significant support of government are rare.

In many fisheries, stewardship is perhaps better characterised as passive. The security of share and control of overall take provided by the QMS allow individual fishers to plan their harvesting more carefully and has largely neutralised the race for fish. Although it is the system that provides the conditions, it is fishers that are generally accepting of the system and catch limits, and that obey the rules because they can see that by doing so everyone benefits. Still, conditions in many fisheries are such that cheating does occur, at the expense of those that obey the rules and of the fishery itself.

It seems that coordinated active stewardship by fisheries stakeholders requires more than the basic quota system and its individualised rights. Ideals such as Coasian bargains between rights holders and enforceable private contracts have not eventuated under the prevailing conditions. Meanwhile the bar has been raised in the judgement of stewardship, as the care taken to protect resources and environment from damaging impacts and to nurture and restore resource systems for the benefit of future as well as current generations. Social values for the environment have changed significantly over the past two decades, and public and political sensitivity has increased. Non-commercial extractive interests are also more prominent, with the establishment of Maori customary fishing as an important consideration along with the diverse amateur fishing sector. So, not only are the issues more complicated, there are more views and represented interests to reconcile in the management of fisheries.

It seems further institutional development is required to lower transactions costs of collective action, and to ensure the re-valued public interest in the natural environment is fully represented, along with those of other extractive users. For the past five years or so the Ministry has been considering these issues under the broad rubric of Fisheries Plans and Objectives-Based Management. The concept of what a fisheries plan might comprise and how it might be developed and administered has evolved as the discussion internally and with stakeholders has advanced. Over the past year or so the Objectives-Based Management framework has firmed up and is now being implemented. The remainder of this paper sets out the vision for this development, and the experience thus far.

Objectives-Based Management

Background

The ITQ system and the wide range of other management tools provided in the Fisheries Act gives New Zealand fishery managers arguably one of the most powerful sets of fishery management measures available anywhere. The Act also provides for development of fisheries plans although, consistent with its desire for stakeholders to take increased responsibility for managing fisheries, the Ministry has, to date, chosen not to prepare fisheries plans, preferring stakeholders to do this. Stakeholders have developed plans for only a few fisheries.

The degree to which Government's intentions for fisheries are specified is limited to the purpose and principles of the Act and a specific fish stock management threshold.

- The Purpose of the Act is to provide for the utilisation of fisheries resources while ensuring sustainability.
- Environmental principles address the need to maintain associated and dependent species above a level that ensures long-term viability, maintain biological diversity, and protect habitat of particular significance for fisheries management.
- Information principles give effect to the precautionary approach, requiring decision-makers to use best available information, consider uncertainty, be cautious when information is poor, and not use lack of good information as a reason to defer making a decision.
- The biomass that produces the Maximum Sustainable Yield is the default stock threshold for species managed in the ITQ system.

For most fisheries there are no specific plans or fishery-specific objectives. This makes it difficult to determine how the suite of available management tools should be used in each fishery and what research and other management services should be undertaken. It also results in uncertainty for stakeholders about how the Government will respond to any fishery management issue. With only high-level Government intentions clearly stated, stakeholders can only infer likely responses from an assessment of responses to previous issues. This results in inefficient interactions between stakeholders and Government as high level generic issues are debated each time operational decisions must be made.

Objectives-based management is intended to fill these gaps and help ensure the available fishery management tools and the research and other services purchased for particular fisheries are clearly directed at achieving fishery-specific objectives.

Overview

At its simplest, objectives-based fisheries management is being clear about what we want to achieve through management, and designing management of a fishery to meet those objectives efficiently. In practice, what we want to achieve must include both Government requirements reflecting national interests, and stakeholder preferences. In the system under development, Government requirements are described in terms of Outcomes and Standards. Stakeholder preferences are described in terms of Goals.

The different components of the objectives-based management approach are shown in Figure 4 and described in the following sections.

It is expected that managing fisheries to achieve clearly defined objectives will result in significant improvements, including:

- Increased transparency in how and why fisheries are managed
- Improved tangata whenua and stakeholder understanding, input and buy-in to the process of fisheries management
- Easier decision-making

- A stronger link between objectives and management by better integrating science, policy, compliance, and other services
- Increased likelihood that government obligations will be met and the benefits obtained by stakeholders maximised

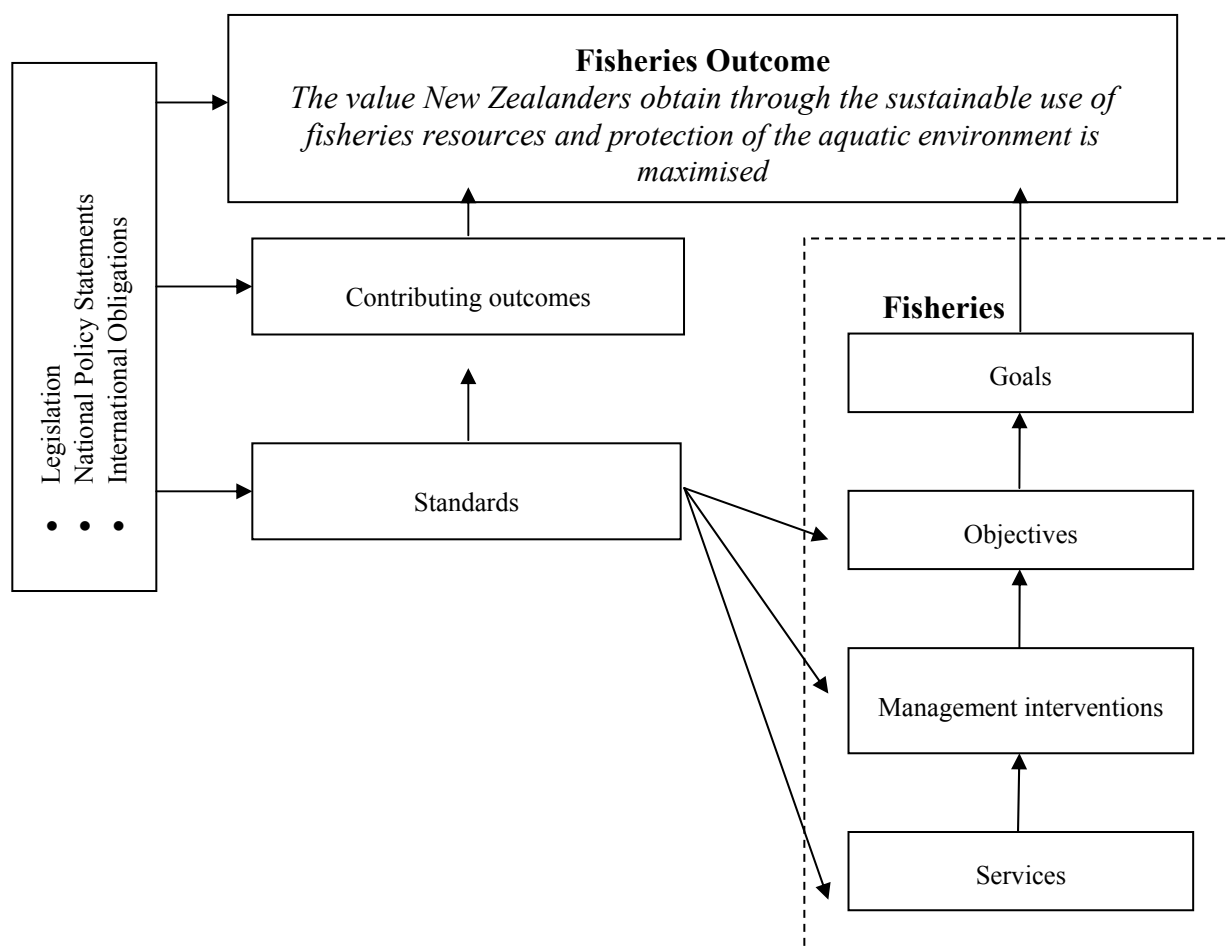


Figure 4 – Overview of Objectives-based Fisheries Management

Outcomes

Outcomes are used to describe, at a high level, the results that the Ministry believes are required, and that it intends to achieve, through fisheries management policies and interventions. Outcomes will be informed by and derived from a number of sources including legislation, national policy statements, and international obligations. They are of broad scope, and will usually be achieved over the long-term. Outcomes are not specific to particular fish stocks, but are intended to guide the development of more detailed strategies and policies, particularly fisheries standards.

At the highest level, the Ministry has adopted a single outcome towards which all fisheries management efforts are directed:

The value New Zealanders obtain from the sustainable use of fisheries and protection of the aquatic environment is maximised.

In this single outcome, value includes the full range of values obtained by different stakeholders from fisheries and the interaction of fisheries with the aquatic environment. It is described in more detail through the three contributing outcomes that have been adopted by the Ministry:

- *The health of the aquatic environment is protected*
- *People are able to realise best value from the sustainable and efficient use of fisheries*
- *Credible fisheries management*

These three contributing outcomes will be further described by a series of increasingly specific levels of outcomes. The lowest level of outcomes will become standards that can be applied in management of particular fisheries and against which performance can be assessed.

Standards

The use of formal standards is increasing in fisheries management and in other areas such as air and water quality. In fisheries management standards are used both by governments (e.g., US National Fisheries Standards established under the Magnuson-Stevens Act) and independent certification agencies (e.g., Marine Stewardship Council Principles and Criteria).

In the New Zealand fisheries context a standard describes the minimum performance considered necessary for fishery outcomes to be achieved. Standards will generally be used to describe the required management results applicable to specific fisheries or other management units. Standards set out minimum levels of performance expected from a fishery. They do not preclude managers aiming for a higher standard. Standards may be set for ecosystems and fisheries, as well as for management activities. They may be expressed as a qualitative description, or a number, or criteria to determine how a numerical value will be arrived at. Over time, standards will cover all the necessary components of management required to ensure that fisheries outcomes are met.

Two types of standards will be developed: process standards and performance standards. Process standards will define the quality of administrative performance that must be achieved. Examples include consultation requirements and reporting requirements. Performance standards define the minimum levels of performance in respect of specified components of ecosystems such as fish stock size and habitat structure, and the use of fisheries resources, including allocation between fisheries sectors.

Fisheries plans

Fisheries plans are the main planning tool that will be used to implement objectives-based management for specific fisheries. The primary purpose of a fisheries plan is to set out clear linkages between the objectives set for a fishery and the management measures and services used to achieve those objectives.

The Ministry intends initially to develop around 26 fisheries plans covering New Zealand's fisheries. Over time, these plans will be the primary mechanism for the

Ministry and stakeholders to collaborate on the management of fisheries. Each fisheries plan will cover a number of fisheries grouped primarily on the basis of similar species and/or geographic areas. It will cover the activities of all sectors involved in the relevant fisheries. Each plan will contain the elements outlined below.

Goals are statements of how different stakeholders can obtain best value from a fishery. Examples include maximising long-term economic return, and maximising the catch rate for the recreational sector. Goals are aspirational in nature and cannot all be achieved simultaneously in a particular fishery. Goals are deliberately high level, and are not used to determine specific actions – instead, they establish the broad direction.

Objectives are specific management results designed to achieve goals while meeting relevant standards. Objectives must all be able to be achieved simultaneously, so trade-offs between goals are required when determining objectives for a particular fishery. Objectives provide the basis for management measures, services, and monitoring.

Management measures are the rules that are implemented to meet objectives. Each objective has a series of measures designed to meet the objective, grouped together as a strategy. These may include research projects, regulations, codes of practice, and decision rules etc.

Services are those things that must occur to implement the measure (e.g., staff time required to develop a code of practice or analyse results).

Monitoring is the reporting systems implemented in a fishery to ensure measures are carried out and objectives are being met. Each fisheries plan will need to detail how performance against standards will be monitored.

Consistent with earlier attempts to encourage increased stakeholder responsibility, stakeholders are encouraged to identify their goals for the fishery and, as far as practicable, work with the Ministry and other stakeholders to determine agreed objectives, management measures, and services. The Ministry will provide overall coordination for all plans.

Progress to Date

Good progress is being made implementing Objectives-Based Management. Key milestones in 2006 included completion of three “proof of concept” fisheries plans for the Foveaux Strait Oyster, Southern Blue Whiting, and Coromandel Scallop Fisheries, development of a new information system, and consultation on the first fisheries standards, including the important harvest strategy standard.

Twenty-six plans describing current management of all New Zealand fisheries are scheduled for completion by mid-2007. These, and the fisheries standards, will be used as the starting point for the Ministry and stakeholders to develop new objectives-based plans for all fisheries over the next five years.

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