

# IMPLICATIONS OF REALLOCATION: EXAMPLES FROM NEW ZEALAND

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## ABSTRACT

*Much of the focus in inter-sector fisheries allocation debates has been on “getting the initial allocation right”. Less attention has been paid to the ongoing role of allocation decisions in achieving fisheries management outcomes as fisheries develop over time. We explore ways in which “reallocation” of shares of available yield between sectors occurs in New Zealand. Using recent examples from rock lobster and snapper fisheries, we illustrate some potential policy, economic, scientific and management effects of reallocation of catch between sectors. We use the examples to demonstrate the importance of complete initial allocation, reliable catch information, and agreed policies to provide certainty on how allocation might change through time.*

**Keywords:** Reallocation, fishing rights, inter-sector allocation policy

## INTRODUCTION

Much of the focus in inter-sector fisheries allocation debates has been on “getting the initial allocation right”. Considerably less attention has been paid to the ongoing role of inter-sector allocation of catching rights in achieving fisheries management outcomes as fisheries change and develop over time.

In a fisheries management framework where the rights of all participants are clearly defined and fully tradable, a dynamic approach to allocation through time is possible. This is seen in New Zealand in the trading of commercial quota. Quota is continually reallocated amongst commercial fishers through market mechanisms. Once initial allocation has been determined, there is no need for government intervention to reallocate quota among participants. Individual rights holders make decisions based on the value of the quota to them.

However, in New Zealand the rights of other fishers – customary Maori and recreational<sup>1</sup> – are not as clearly defined as those of commercial fishers and are not tradable, either within or between sectors. In the absence of a fully developed rights-based fisheries management regime encompassing all participants, government periodically has to intervene to adjust allocations between sectors. These interventions can result in reallocation of catch between sectors. By introducing an additional source of uncertainty and potential conflict into fisheries management, reallocation can have significant implications for the rights, interests and incentives of all sectors.

In this paper we explore the implications of reallocation by examining two recent sustainability decisions where inter-sector allocation was a significant consideration. We provide a brief background on New Zealand’s fisheries management regime and government policy on inter-sector allocation. For the two case studies – the CRA 3

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<sup>1</sup> The term “recreational fishing” is used in this paper to be consistent with the wording of New Zealand’s fisheries legislation. However, “amateur fishing” is a more accurate descriptor.

rock lobster fishery and the SNA 8 snapper fishery – we discuss the allocation decision and its implications for fisheries management, science and the incentives and behaviour of fisheries participants.

## **BACKGROUND: LEGISLATIVE & POLICY CONTEXT OF CASE STUDIES**

Since 1986, New Zealand's fisheries have been managed largely through the quota management system (QMS). The QMS and other elements of the fisheries management framework are set out in the Fisheries Act 1996. The Act has a clear purpose statement: "*to provide for the utilisation of fisheries resources while ensuring sustainability*". The main mechanism for ensuring sustainability is the setting of a Total Allowable Catch (TAC) for each of the 550 stocks in the QMS. Within the TAC, allowances are made for Maori customary fishing, recreational fishing and other mortality caused by fishing and a Total Allowable Commercial Catch (TACC) is set<sup>2</sup>.

### **Customary fishing**

Customary (i.e., non-commercial) Maori fishing rights are set out in regulations developed following negotiation between the Crown and Maori. Customary fishing rights take the form of the right to authorise the taking of fish for customary purposes and the right to apply to government to establish local areas in which customary management can be exercised.

Customary fishing rights are specific to iwi or hapu (tribal groupings) and are not generally transferable. In comparison with other types of fishing rights, customary rights have a strong spatial component with the potential to be spatially exclusive.

Information on actual customary harvest is limited, but is expected to improve as better reporting processes are implemented. The regulations do not provide for government to limit customary fishing, except in order to ensure sustainability. There is no explicit mechanism to ensure that customary catch remains within the allowance.

### **Recreational fishing**

Although recreational fishing is one of New Zealand's most popular activities, recreational fishing rights are the least clearly defined. Individuals have a right to fish provided they comply with the rules. Rules include daily bag limits, fish size restrictions, closed areas and seasons, and method and gear restrictions.

Information on recreational harvest is poor. The main data source is a series of diary surveys. The surveys have produced widely differing estimates of recreational catch for some stocks and do not have the confidence of stakeholders.<sup>3</sup> Nevertheless these highly uncertain and contested estimates are often the only available information for setting recreational allowances and for use in stock assessments. The lack of reliable information on recreational catch means it is difficult to assess whether the total recreational catch of a stock is within the allowance.

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<sup>2</sup> Environmental groups and local communities also have an interest in the management of New Zealand's fisheries. However, the allocation of fisheries resources between extractive and non-extractive uses is beyond the scope of this paper.

<sup>3</sup> Several of the surveys are unreliable because of methodological error and more recent surveys produced results that are implausibly high for some fisheries. (Ministry of Fisheries, 2005b).

### **Commercial fishing**

Commercial fishing rights are clearly defined and take the form of “quota shares” referred to as Individual Transferable Quota (ITQ). ITQ is issued in perpetuity, is fully tradable and provides access to a specified share of the TACC for a stock. Each fishing year, ITQ generates an annual catch entitlement (ACE), which is the right to catch a specified weight of the relevant stock. Quota owners may catch or sell their ACE.

ITQ also forms the “currency” of a significant settlement of Maori grievances in relation to fishing. As part of the settlement package, Maori received 10% of quota for species in the QMS in 1989 and 20% of quota for species introduced since 1992.

Accurate monitoring of catch levels is critical to the success of the QMS. A rigorous catch reporting regime provides accurate and timely information on actual commercial catches. As the fishing year proceeds, fishers count their catch against ACE, purchasing further ACE as required or paying a “deemed value” if they are not able to balance catch against ACE. Deemed values are set at a level that is intended to constrain the overall commercial catch within the TACC. This system is reasonably effective, provided TACs and TACCs are set appropriately (with regard to sustainability and utilisation considerations) and the deemed value is set so as to remove the economic incentive for landing fish without ACE. In multispecies fisheries, the setting of TACCs and deemed values can be challenging.

### **Relationship between sustainability and allocation decisions**

TACs form the primary sustainability measure for New Zealand’s fisheries. The Minister of Fisheries is, in general, required to set a TAC at a level that ensures a stock remains at or above a level that will produce the maximum sustainable yield (MSY). TACs are set when stocks are introduced into the QMS and continue to apply until varied by the Minister. Before setting or varying a TAC, the Minister must consult with Maori, commercial, recreational and environmental interests.

After setting or varying a TAC, the Minister is required to consider how to allocate it among sectors by setting a TACC and allowances for customary fishing, recreational fishing, and other mortality (illegal removals, damaged and lost fish etc). Allocation decisions can be described as either proportional or reallocative. Proportional allocation reflects the notion of “shared pain, shared gain” (all sectors share in the reduction or rebuild of a fishery). Reallocation refers to decisions which alter the proportion of catch allocated to each sector.

Sustainability decisions and allocation decisions are therefore legally separate decisions, linked by the fact that every adjustment of a TAC requires subsequent consideration of how to allocate the new TAC among sectors.

### **Allocation decisions in theory**

The Fisheries Act does not contain criteria to guide the Minister in allocating the TAC. There is no explicit priority between the three sectors in law, although in practice the customary allowance is afforded priority. Allocating the TAC is therefore a matter for the Minister’s discretion.

A body of operational policy, based in part on case law, has been developed by the Ministry of Fisheries to inform the Minister's discretion. Significantly, the policy framework has evolved through Ministry operational decisions rather than through policy discussions with stakeholders. As a result, the allocation policy is not supported by commercial or non-commercial fishers.

The Ministry has developed two approaches to allocation – claims based and utility based. “Claims based” refers to allocations made on the basis of catch history of the sectors. “Utility based” refers to allocations based on the utility that would flow from a particular outcome, resulting in allocation to those who value the resource most (Ministry of Fisheries, 2005b). While these two models provide a way of looking at allocation options when a stock is introduced into the QMS, they do not provide adequate guidance on subsequent allocation decisions.

More recently, in relation to allocation following TAC adjustments, the Ministry has stated that it *“favours the adoption of a proportional policy as a default approach when adjusting the TAC. A proportional policy simply reflects that there is no case for reallocating the catch. Where there is no particular reason for making a reallocation, the expectation that a required TAC adjustment would be dealt with proportionally provides a consistent approach for stakeholders. ... [However] A default proportional approach is not intended to fetter [the Minister's] discretion to explicitly recognise the competing demands on a resource. Consideration of individual circumstances may lead [the Minister] to decide to depart from a proportional approach where [the Minister] consider[s] it reasonable to do so.”* (ibid).

All fishing sectors and the Ministry concur that there is insufficient clarity around allocation and that there is a pressing need to develop an allocation system that delivers greater certainty to all stakeholders and reduces conflict.

### **Allocation decisions in practice**

We have analysed allocation decisions arising from TAC adjustments in shared fisheries (i.e., fisheries with important commercial and non-commercial components) for the fishing years 2002/03 – 2005/06. Of the 15 decisions, five were proportional across all sectors and 10 were reallocative.

However, closer analysis tells a more complex story. Of the five proportional decisions, in no case did the allocation “on paper” result in an outcome that was truly proportional in its effect. This is because the allocation decisions were not linked to management measures to adjust the level of non-commercial fishing activity. The lack of adjustment of non-commercial harvest has tended to favour recreational fishers when TACs were reduced and commercial fishers when TACs were increased.

Of the 10 decisions that were reallocative “on paper”, three were proportional<sup>4</sup> and seven were reallocative in their effect on actual catch. As with the “proportional” decisions above, TAC increases favoured commercial fishers (in two cases) and TAC reductions favoured non-commercial fishers (five cases). The catch of customary fishers remained unaffected in all decisions analysed.

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<sup>4</sup> These three decisions were not reallocative in effect because the adjustments in the TACC and allowances were made to reflect improved understandings of actual catches of the sectors.

This brief analysis suggests that in addition to reallocation from adjusting shares within the TAC, reallocation can also occur as a result of failure to adjust management measures to constrain a sector to its allocation. The historical analysis shows that the commercial and recreational sectors have each experienced the negative side of reallocation, in terms of both shares of the TAC and actual catch.

### **Expectations of sectors**

As a result of the uncertain policy environment and the relatively poor specification of non-commercial fishing rights, New Zealand's fishing sectors have developed divergent and strongly held expectations of the allocation regime.

For commercial fishing companies, ITQ is a principal investment. Secure quota ownership provides an incentive to take a long term interest in the sustainability of fisheries. This, together with the setting of catch limits, has enabled inshore fisheries that were depleted in the 1970s and early 80s to rebuild. Quota owners supported significant historical catch reductions with the expectation of future benefit as the stocks rebuilt. Uncertainty around allocation means quota owners are now concerned that any rebuild will be allocated instead to the burgeoning non-commercial fishing sectors. The commercial sector argues that weak security of quota damages the incentives for sustainability that are at the heart of the QMS.

The industry's views on allocation (as set out in submissions<sup>5</sup>) are:

- No fishing sector should have priority over any other;
- In shared fisheries allocation should generally remain proportional when TACs are adjusted, unless the sectors themselves agree to a reallocative approach;
- In the event of reallocation away from the commercial sector, compensation should be paid to quota owners<sup>6</sup>; and
- Ultimately a fully developed rights framework covering all sectors should enable rights holders to make allocation decisions without government intervention.

Maori expect government to maintain the value of the commercial quota assets they were allocated as part of the settlement – particularly as Maori have given up any future claims to commercial fishing rights. Reallocation favouring the recreational sector is seen as an erosion of the rights guaranteed under the settlement (Te Ohu Kai Moana, 2003).

Maori also have a strong interest in the protection of customary fishing rights and consider that there is a hierarchy of rights, with Maori customary fishing rights taking precedence, followed by commercial fishing rights and, lastly, recreational fishing (Treaty of Waitangi Fisheries Commission, 2000).

Conversely, groups representing recreational fishing interests consider that recreational fishing should be given priority. One group objects strongly to the concept of proportional allocation, claiming that it is "*a means by which the Ministry will allocate the minimum possible tonnage of fish to non-commercial fishers to avoid compensation issues for the Crown*" (option4, 2005). Typical concerns include<sup>7</sup>:

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<sup>5</sup> See for example New Zealand Seafood Industry Council (2005).

<sup>6</sup> Industry submissions emphasise that compensation is a common law right where a substantial reallocation occurs (New Zealand Seafood Industry Council, 2005)

<sup>7</sup> Summarised in Ministry of Fisheries (2005b)

- initial allocations did not always explicitly consider non-commercial interests and therefore current allowances should not be “fixed” as shares;
- the commercial share of the fishery has been unfairly inflated by (a) individual fishers appealing to increase their original quota allocation, and (b) use of deemed values to catch in excess of the TACC;
- commercial over-fishing has (according to recreational representatives) depleted stocks that are highly valued by recreational fishers, so the commercial sector should bear the brunt of catch reductions; and
- when stock abundance is low, recreational catch is low relative to commercial catch. Proportional shares should not be fixed on the basis of current recreational shares in depleted fisheries.

It is against this background of an unclear policy environment and divergent stakeholder views that the case studies are set.

## **CASE STUDY 1: THE SNA 8 SNAPPER FISHERY**

### **TAC and initial allocation**

The SNA 8 snapper (*Pagrus auratus*) fishery is located on the west coast of the North Island of New Zealand. Most catches are taken by the commercial inshore trawl fishery but snapper is also important to recreational and customary fishers. In the period leading up to the case study, the TAC had been set at 2060 tonnes for a number of years. This TAC was shared among a TACC of 1500 tonnes (73% of the TAC), a customary allowance of 50 tonnes (2.5%), a recreational allowance of 360 tonnes (17.5%), and an allowance for “other mortality” of 150 tonnes (7%).

### **TACC and actual commercial catch**

Approximately half of the commercial catch is targeted, with the other half caught as bycatch in closely associated trawl fisheries. When SNA 8 was introduced into the QMS in 1986 it was considered to be over-exploited and the initial TACC was set at 1330 tonnes to enable the stock to rebuild. The TACC was progressively increased to 1594 tonnes in 1989 as a result of decisions made by the Quota Appeal Authority. In 1992 it was reduced to 1500 tonnes. During the period following QMS introduction commercial catches increased and the TACC has been exceeded in all but four years since introduction to the QMS (Ministry of Fisheries, 2005a).

### **Non-commercial allowances and actual catches**

In 1998, a TAC was first set for SNA 8, with a recreational allowance of 360 tonnes. The allowance was set at the upper range of then available catch estimates (ibid). It is widely acknowledged that there is no reliable estimate of recreational catch for SNA 8, with estimates now ranging from 236 tonnes to 1133 tonnes, from surveys that are all considered to be flawed. The management measures applying to recreational fishing at the time of the case study consisted of a minimum size limit and daily bag limits of 15 (northern part of the stock) and ten (southern).

The customary allowance for SNA 8 was set in 1998 at 50 tonnes. Snapper is considered to be an important customary resource, but there was and is no information on the customary harvest.

### **Context of sustainability decision**

The TAC of 2060 tonnes set in 1998 was expected to allow the SNA 8 stock to exceed  $B_{msy}$ <sup>8</sup> by 2008. In 2005 a new stock assessment estimated the current biomass to be approximately 50% of  $B_{msy}$  (range between 38 and 62%) and 8 to 12% of the unfished biomass. The model showed that while low, the stock had continued to hold steady or increase slightly since 1998 and predicted that under the existing TAC, biomass was expected to continue to increase slowly, but would not reach  $B_{msy}$  within the next 20 years. Because of the importance of SNA 8 to commercial and recreational fishers, the Ministry of Fisheries considered that there was benefit in rebuilding the stock at a faster rate than was likely under the existing TAC.

### **Consultation on options**

In June 2005 the Ministry prepared an Initial Position Paper (IPP) outlining three TAC reduction options. For each TAC option, the Ministry proposed two alternative approaches to allocation – a proportional approach, where existing shares between sectors were maintained, and a reallocative approach where the TACC was reduced but the recreational allowance remained unchanged. Under all options the customary allowance remained unchanged at 50 tonnes (Ministry of Fisheries, 2005a).

The IPP noted that if the recreational allowance was reduced, a decrease in the daily bag limit might be required in order to ensure recreational catch would not exceed the allowance. It was also proposed to increase substantially the annual deemed value for SNA 8 to minimise commercial catch above the TACC.

### **Views of stakeholders**

Submissions from industry representatives rejected all proposed TAC reduction options. Industry submitters considered that the *status quo* TAC and allowances should be maintained but be effectively monitored and managed for all sectors and that the Ministry should engage with all sectors to determine management objectives<sup>9</sup>. In particular, industry opposed all reallocative options and emphasised the need to (a) obtain reliable information on non-commercial catch and (b) impose management measures to ensure that recreational catch remains within the allowance.

Recreational fishing representatives supported reducing the TAC to 1510 tonnes (the lowest of the options) and rejected both proportional adjustments to allowances and reductions in the daily bag limit<sup>10</sup>. The views of customary fishers were not articulated in submissions.

### **The Minister of Fisheries' decision**

In September 2005, after considering the submissions and final advice from the Ministry of Fisheries, the Minister reduced the SNA 8 TAC from 2060 tonnes to 1785 tonnes (the middle of the three TAC options). The Minister made a proportional reduction to all allowances – customary, recreational, TACC, and “other mortality”. He adopted this approach because “*he considered it fair that all users share in the pain of rebuilding the stock in the same way all users will benefit from a rebuilt*”

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<sup>8</sup>  $B_{msy}$  is a stock size that can produce maximum sustainable yield.

<sup>9</sup> See for example New Zealand Seafood Industry Council (2005).

<sup>10</sup> Summarised in Ministry of Fisheries (2005b).

*stock*".<sup>11</sup> The Minister reduced the northern area recreational daily bag limit from 15 to 10 fish per person and increased the deemed value payment. He made no changes to management measures for customary fishing.

### **Discussion of SNA 8 case study**

While the Minister's decision to implement a proportional reduction in the TAC and allowances resulted in no changes to the relative shares in the TAC, effects on actual removals from the fishery are less certain. Actual commercial catch is likely to be reduced as a result of both the reduced TACC and the increased deemed value (which increases the disincentive on commercial fishers to land fish without ACE). The TACC reduction will have potentially profound economic implications for the industry, particularly by reducing the availability of ACE to cover SNA 8 bycatch in mixed trawl fisheries. In this way the TACC reduction affects the exercise of quota rights in associated stocks such as trevally, red gurnard, warehou and rig.

Reduced recreational bag limits were introduced to give effect to the reduction in the recreational allowance, but the high level of uncertainty associated with both the actual level of recreational removals and the effectiveness of bag limits as a means of constraining overall recreational removals means the implications for actual recreational SNA 8 catch are unknown. Recreational fishing interests consider that recreational fishing success is dependent on stock abundance rather than on particular management measures, so it is perhaps more likely that recreational catch will increase if the TACC reduction results in a more rapid rebuild of SNA 8.

Although the customary allowance was reduced, no management measures were put in place to constrain customary removals to the new allowance.

The Minister's decision was therefore proportional "on paper" but in effect, reductions have been secured for commercial harvest, are uncertain for recreational harvest, and have not been implemented for customary harvest. The SNA 8 case study illustrates the difficulties of discussing proportional or reallocative decisions in the absence of reliable information on all sources of catch.

The SNA 8 stock assessment is based on a state-of-the-art, age-based Bayesian model incorporating information from various fisheries, trawl surveys and tag-recapture biomass estimates (Sullivan et al 2005a). Nevertheless, there are major sources of uncertainty. Lack of information on recreational catches is a particular problem in that it affects both the estimate of stock status but, especially, forecasts of recovery times under different management scenarios<sup>12</sup>. These forecasts form the main basis for risk-based decisions on future TACs. Of most concern is that as the TAC is reduced, the proportion of reliable information (via commercial catch reports) available to the stock assessment reduces. As TAC decisions are risk-based, increased uncertainty in stock status estimates and forecast abundance could lead to further TAC reductions.

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<sup>11</sup> Undated letter from Hon. Jim Anderton, Minister of Fisheries, to stakeholders: "Review of sustainability measures and other management controls for the 2005-06 fishing year." The letter outlines decisions made by the previous Minister of Fisheries, Hon. David Benson-Pope.

<sup>12</sup> The assumed recreational catch in the assessment and forecast was set at either 300 tonnes or 600 tonnes, even though the recreational allowance was 360 tonnes.

On paper for SNA 8 there should be no change in the proportion of reliable information available to the stock assessment process. As noted above, however, while the commercial catch should be reduced and the reliability of data maintained, the actual level of non-commercial removals may not reduce at all, thus forming a greater proportion of the total catch and increasing uncertainty or error in future assessments.

Although commercial stakeholders were comfortable with the proportional TAC reduction in this case, they remain concerned about (a) the lack of information on non-commercial catch, and (b) the ongoing policy uncertainty surrounding future allocation of SNA 8. It remains to be seen how the sources of uncertainty identified in the case study affect the level of quota owners' investment in industry research and management initiatives, not only in SNA 8, but also in other similar fisheries.

Recreational fishers have reacted negatively to the SNA 8 decision. Typical media commentary has been along the lines of "*while the Minister may think these proportional reductions are fair, what is obvious is that proportionalism punishes those who conserve and rewards those who waste and squander. It is hard to imagine a decision that could be more unfair!*" (option4, 2005). The SNA 8 decision did not acknowledge recreational fishers' frustration with proportional allocation. Left unaddressed, this frustration is not conducive to constructive multi-sector engagement in the future management of the SNA 8 and other inshore fisheries.

## **CASE STUDY 2: THE CRA 3 ROCK LOBSTER FISHERY**

### **TAC and initial allocation**

The CRA 3 rock lobster (*Jasus edwardsii*) fishery is located in the Gisborne/East Coast area of the North Island of New Zealand. The fishery has always been important to Maori, and supports important commercial and recreational fisheries. In the period leading up to the case study, the TAC had, since 1998/99, been set at 453 tonnes. This TAC was shared among a TACC of 327 tonnes (72% of the TAC), allowances of 20 tonnes each for recreational and customary fishing (4.5% each), and an allowance of 86 tonnes (19%) for "other mortality", primarily illegal removals.

### **TACC and actual commercial catch**

Since rock lobsters were introduced into the QMS in 1990, CRA 3 commercial catch has generally tracked changes in the TACC and there have been no significant overcatches. In 2001/02 catches started to drop below the TACC. Although no changes were made to the TACC, from 1 April 2004 the industry implemented a successful voluntary reduction in the commercial catch target (from 327 tonnes to 210 tonnes) out of concern for the status of the stock (NRLMG, 2004a).

### **Non-commercial allowances and actual catches**

Actual recreational catch in CRA 3 is unknown. The Rock Lobster Fisheries Assessment Working Group (RLFAWG) has indicated that it has little confidence in any of the estimates of recreational catch in rock lobster fisheries (Sullivan et al, 2005b). In the case of CRA 3 the RLFAWG simply agreed to assume that recreational catches are close to the allowance of 20 tonnes and have been at this level throughout the life of the fishery (NRLMG, 2004a). Recreational management measures include a minimum legal size and a daily bag limit of six lobsters.

Customary catch in CRA 3 is also unknown and the RLFAWG has little confidence in the estimates of customary catch in rock lobster fisheries (Sullivan et al, 2005b).

### **Context of sustainability decision**

The current CRA 3 management regime evolved from a package of measures developed by a combined user group in 1993 to address the then depleted state of the fishery. The 1993 package included a 50% TACC reduction and other management measures. Stock abundance began to increase (likely due to good recruitment that was observed in all east coast North Island fisheries), and resulted in a series of TAC increases. In November 1999 the Te Tapuwae o Rongokako marine reserve was declared across a 2,400 hectare area that historically had provided approximately 10% of CRA 3 commercial landings. The fishing fleet reliant on those fishing grounds was forced to relocate elsewhere in the fishery. The consequences of that relocation coupled with a steady decline in stock abundance since 1997 led to a detailed review of the CRA 3 stock status and management arrangements.

The management regime for New Zealand rock lobster fisheries focuses on moving stocks to agreed biological reference points ( $B_{ref}$ ) as a surrogate for  $B_{msy}$ . A stock assessment undertaken in 2004 indicated that while the biomass of the fishery was estimated to be well above an agreed lower limit, projections showed the 2007 recruited biomass at just 72% of the target biomass  $B_{ref}$ <sup>13</sup>.

In addition to stock assessment information, the Minister of Fisheries had received correspondence from individuals and groups in Gisborne complaining that the CRA 3 fishery was perceived to have “reached an all time low” and to be “dangerously overfished” (NRLMG, 2004a). Local media cited similar concerns. These concerns were not consistent with the state of the fishery shown in the stock assessment.

### **Consultation on options**

In a departure from standard fisheries management advisory processes, the primary source of advice to the Minister of Fisheries on rock lobster fisheries is the National Rock Lobster Management Group (NRLMG). The NRLMG comprises representatives of commercial, recreational, customary Maori and environmental interests and the Ministry of Fisheries, as well as science advisors.

The 2004 NRLMG Annual Report<sup>14</sup> recommended an aggregate catch reduction to 319 tonnes, comprised of allowances of 20 tonnes each for recreational and customary harvest, 89 tonnes for other mortality, and a commercial catch limit of 190 tonnes.

The NRLMG proposed two options to effect the catch reduction. Under Option One the TAC and TACC would be reduced in line with the recommendations above. Under Option Two the TAC and TACC would remain unchanged. The necessary catch reduction would be achieved through ACE “shelving” similar to that already successfully implemented by the industry in 2004, and entailing quota owners entering into binding contractual arrangements so as to reduce the available ACE for the 2005/06 season to 190 tonnes.

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<sup>13</sup>  $B_{ref}$  is the midseason vulnerable biomass associated with a CPUE of 0.75kg/potlift.

<sup>14</sup> The NRLMG Annual Report is equivalent to a Ministry of Fisheries’ Initial Position Paper.

### **Views of stakeholders**

In submissions on the NRLMG's 2004 Annual Report, all sectors agreed that total catch levels needed to be reduced by way of a reduction in commercial catch but disagreed about how this reduction should occur.

Industry representatives expressed frustration that the only certain way of reducing total removals was to reduce commercial catch, but nevertheless accepted that this was necessary given the inability to effectively monitor and control non-commercial removals. Industry submitters expressed a strong preference for ACE shelving in order to achieve the required reductions but retain current proportionality.

Customary and recreational stakeholders expressed varying views on the two options but all favoured increased use of input controls such as changes to the minimum legal size, commercial closed areas and closed seasons in addition to a reduction in the TAC and commercial catch.

The Ministry of Fisheries favoured Option One, based on a government legal opinion that ACE shelving was not a legally valid way of ensuring sustainability under the Fisheries Act. Industry legal advisors disputed the Ministry's opinion. The differing legal positions were not able to be reconciled and were both included in the NRLMG's final advice to the Minister (NRLMG, 2004b).

### **The Minister of Fisheries' decision**

The Minister opted for Option One and reduced the TAC to 319 tonnes and the TACC to 190 tonnes. He rejected ACE shelving as an option, informing stakeholders that "*I would be in breach of my obligations under ... the Fisheries Act 1996 if I did not reduce the TAC*"<sup>15</sup>. Recreational and customary allowances remained unchanged at 20 tonnes each, and the allowance for other sources of mortality was increased to 89 tonnes to account for the estimated high level of illegal removals.

### **Discussion of CRA 3 case study**

The CRA 3 situation has been complicated by the removal of 10% of the available fishery through the establishment of a no-take marine reserve. The effect of the establishment of the marine reserve on available biomass was not compensated for at the time by any reduction in the TAC. In addition to potentially exacerbating the declining stock abundance, the marine reserve increased tensions between sectors by displacing commercial fishing into areas heavily used by non-commercial fishers. This highlights the importance at both a policy and operational level of linking spatial measures, whether these are for biodiversity protection, fisheries management or some other purpose, with both fisheries sustainability measures and decisions on inter-sector allocation.

The Minister's decision resulted in reallocation away from commercial fishing in favour of non-commercial fishing. The commercial allocation was reduced from 72% of the TAC to just under 60%, whereas the customary and recreational allowances each increased from 4.5 to 6% of the TAC, and the allowance for other mortality (illegal removals) increased significantly from 19 to 28% of the TAC.

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<sup>15</sup> Undated letter from Hon. David Benson-Pope, Minister of Fisheries, to stakeholders: "Review of sustainability measures and other management controls for rock lobster for the 2005-06 fishing year"

At nearly a third of the estimated total removals, illegal fishing appears to have been the “winner” in the allocation of the CRA 3 TAC. This is of concern to all legitimate fishing sectors, but particularly to commercial fishers because the direct result of increased estimates of illegal catch is a reduction of the TACC. Uncertainty in estimates of illegal removals also increases uncertainty in stock assessments.

The CRA 3 example shows that adjusting commercial catch is often the only sure way of securing a reduction in overall catch. Highly uncertain information on non-commercial removals and lack of measures to ensure that non-commercial catch is constrained within allowances means that reallocative TAC reductions are almost inevitable in response to sustainability decisions in fisheries such as CRA 3. A similar scenario has been seen recently in other shared fisheries such as paua (abalone)<sup>16</sup>.

For the CRA 3 stock assessment, the implications of reallocation are in principle the same as for SNA 8, but provide an even starker example. The stock assessment is state-of-the-art utilizing a length-based Bayesian model and standardised catch-per-unit-effort data which are recognised as providing a good indication of abundance (Sullivan et al, 2005b). The commercial catch prior to the TAC reduction comprised 72% of the catch entering the assessment. Already, considerable uncertainty was created in the assessment and forecasts that needed to be taken into account when framing advice. With the TAC reduction being accomplished entirely through a reduction in the TACC, the known catch entering future assessments will be 60% at most. In the absence of significantly reduced illegal catches or a much better understanding of the level of all non-commercial catches, future stock assessments will be compromised and risk-based advice will likely lead to further TAC reductions.

Industry concern about the effects of reallocation was central to the commercial fishers’ strong preference for ACE shelving to secure the required reduction. ACE shelving was seen as both an expression of responsibility by quota owners, and a means of retaining existing proportionality in the TAC. The history of the CRA 3 fishery and current government policy suggests that commercial fishing will be subject to ongoing constraints on spatial access as areas are set aside for purposes such as marine biodiversity protection and the exercise of customary fishing rights. In these circumstances, and in the absence of clear inter-sector allocation policy, CRA 3 quota owners cannot be certain that any TACC cut that they support today, will be matched by an equivalent increase when stock abundance improves.

The quota owners’ investment in the long-term health of the fishery was demonstrated by their 2004 decision to voluntarily reduce commercial take in advance of any formal stock assessment. The incentives for this type of voluntary effort reduction have been weakened now that commercial catch accounts for only 60% of total removals, and commercial fishers cannot be confident that “pain” today will be reciprocated with “gain” tomorrow.

Non-commercial fishers will benefit from the faster stock rebuild forecast to arise as a result of the reduced TAC and TACC. The Minister’s decision did not signal any need for constraint or conservation by non-commercial fishers and reinforced an

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<sup>16</sup> In 2002/03 PAU 5B, PAU 5D and PAU 7 TACs and TACCs were reduced and non-commercial allowances remained unchanged, and in 2003/04 the PAU 5D TAC and TACC were reduced again.

expectation of non-commercial priority. Ongoing and potentially escalating levels of tension between sectors is one possible consequence.

A further point arising from the CRA 3 case is that “spillover” from unresolved allocation issues affects other aspects of fisheries management. In this case, the prolonged (and still unresolved) legal debate between the industry and government on ACE shelving arose purely because of commercial fishers’ concerns about the effects of reallocation. Both parties spent considerable time and effort debating legal points that would not have arisen had a policy providing allocational certainty been in place.

## **GENERAL CONCLUSIONS**

Although it has been 20 years since a rights-based approach to fisheries management was first initiated through the QMS, it is unlikely that New Zealand will be able to move in the short to medium term to a fully developed rights-based framework where ongoing allocation decisions can be made through trade between sectors rather than by government intervention. In retrospect it is surprising that in these circumstances New Zealand’s fisheries legislation has not provided clear guidance on inter-sector allocation. The lack of guidance in either legislation or government policy has resulted in a high level of uncertainty, as illustrated by the case studies.

Policy uncertainty with respect to inter-sector allocation is contributing to loss of value from fisheries for all sectors, including by creating a poor environment for commercial investment in inshore fisheries. For the industry, uncertainty arising from stock variability is unavoidable and is factored into commercial decision making as a standard investment risk. In contrast, policy uncertainty imposes a real and measurable cost on quota owners, yet is largely avoidable.

This is particularly significant as the impacts of allocation decisions on incentives and behaviours are felt beyond the fisheries in which specific allocation decisions are made. Allocation decisions in SNA 8, for example, have direct impacts on quota owners and fishers in SNA 8 and associated trawl fisheries, but also send signals to participants in similar shared inshore fisheries such as kahawai (*Arripis trutta*) and kingfish (*Seriola lalandi*). Likewise, decisions made in CRA 3 affect the incentives and behaviours of participants in other rock lobster fisheries and shared shellfish fisheries.

The case studies show that policy uncertainty has contributed to unnecessarily high levels of inter-sector conflict. In both examples the allocation decision became highly politicised, with recreational and commercial representatives lobbying the Minister for a favourable outcome. In the SNA 8 example, commercial fishers emphasised government liability for compensation in the event of reallocation, and recreational fishers initiated legal proceedings against the government in relation to the kahawai fishery where similar allocation decisions were being made. Inter-sector allocation is always going to be politically sensitive, but clear guidelines, developed with stakeholder participation and in the context of agreed fisheries management objectives, should reduce potential areas for debate.

The New Zealand Government has recently announced a policy initiative to commence talks with key recreational, customary and commercial groups about

allocation of shared fisheries<sup>17</sup> but political barriers to dealing decisively with some of the contentious issues surrounding allocation remain. A lesson that can be drawn is the importance of developing clear guidance on inter-sector allocation at the earliest opportunity, so as to improve certainty and reduce future conflict before divergent sector views become entrenched. This is particularly important if multi-stakeholder fisheries management is to be successful.

A further point arising from the case studies is that issues around allocation of the TAC can be complicated by and confused with other allocation issues such as (a) the effects of spatial allocation and access, and (b) the sharing of actual removals from a fishery which, in the case of non-commercial fishers, may be related to stock abundance rather than to “on paper” shares of the TAC. TAC allocation decisions currently form a focus of debate but, in reality, the desires of different sectors may be better met by focusing on spatial allocation or setting agreed management objectives. The case studies suggest that TAC allocation, spatial allocation, and development of stock management objectives are inter-linked and should occur through an integrated process involving all parties with rights and interests in the fishery.

Finally, the case studies demonstrate the fundamental importance in a fisheries management regime based primarily on output controls of (a) reliable and timely information on non-commercial catch and (b) a commitment to constraining catch of all sectors within allowances. Both case studies make clear the link between lack of non-commercial catch information, uncertainty in stock assessment, higher sustainability risks, and conservative commercial catch limits. If progress is not made on these two issues, debates about TAC allocation in New Zealand fisheries will continue to generate a lot of heat but will be largely academic. The strongly held, principled positions adopted by various sectors on proportional, non-proportional, claims based, or utility based allocation will simply become a distraction to the real business of managing fisheries so as to ensure sustainability and provide benefits to all sectors.

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<sup>17</sup> Talks To Commence On Allocation In Shared Fisheries. Press Release by New Zealand Government, 16 Jan 2006.

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