SNAPPER (SNA 2)

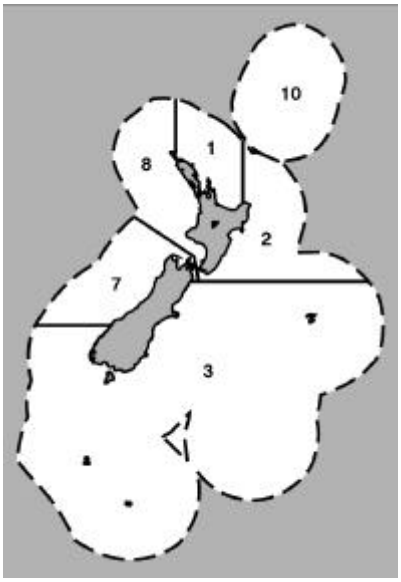

Table 1: SNA 2 landings (tonnes) and TACC (tonnes) since the introduction into the QMS in the 1986-87 fishing year.

Fishing Year	Landings	TACC
1986-87	130	130
1987-88	152	137
1988-89	210	157
1989-90	364	157
1990–91	427	157
1991–92	373	157
1992–93	316	252
1993–94	307	252
1994–95	307	252
1995–96	279	252
1996–97	352	252
1997–98	286	252
1998-99	283	252
1999-00	391	252
2000-01	360	252
2001-02	185[1]	252

[1] As at the end of May 2002, catch in SNA 2 for the 2001-02 fishing year was 184.6 tonnes, according to Monthly Harvesting Return (MHR) figures. At the same time last year the catch was 236.5 tonnes. The TACC for SNA 2 is therefore likely to be exceeded again in 2001-02, although not to the same extent as in recent years.

[2]Management Proposal

1 MFish recommends that for the 2002–03 fishing year:

The TAC is set at 460 tonnes, and within the TAC:

Allowances be set at 20 tonnes for customary Mäori fishing interests, 40 tonnes for recreational fishing interests and 40 tonnes for other sources of fishing-related mortality

The TACC is increased from 252 tonnes to 360 tonnes (an increase of approximately 43%).

Context for Proposal

The fishery assessment for SNA 2 has been updated. The assessment indicates that the stock has rebuilt considerably since the early 1980s and is now at, or close to, the level that would produce the MSY from the stock. It is proposed to set a TAC for the stock at the level modelled by the fishery assessment working group (FAWG), which is close to the Maximum Likelihood Estimate of MSY. Allowances for both the recreational sector and customary Mäori that meet existing needs are proposed. The proposed TACC level that results from this approach is comparable to the recent level of annual commercial catch from the fishery.

Current Information

Fishery Background

Most of the catch in the SNA 2 fishery is taken by the commercial sector. However the fishery also supports important recreational and customary fisheries.

Commercial Fisheries

The commercial fishery in SNA 2 developed from the 1930s and modest annual catches were reported during 1930 to 1950. The fishery expanded from the early 1950s and annual catches steadily increased from about 100 tonnes to reach a peak of about 800 tonnes in the late 1960s and early 1970s. Annual catches declined sharply from the late 1970s to the early 1980s and averaged about 200 tonnes over the latter period.

The SNA 2 fishery was introduced into the Quota Management System (QMS) in 1986. At that time, it was considered that the SNA 2 stock was over-exploited and the initial TACC was established at a low level (130 tonnes) to enable rebuilding of the stock. The TACC subsequently increased to 157 tonnes by the 1988–89 fishing year as a result of the quota appeal process. The TACC was specifically increased to 252 tonnes for the 1992–93 fishing year and has been maintained at that level over the subsequent years.

The establishment of the TACC at 130 tonnes in 1986 influenced the level of annual commercial catch in the subsequent years. However, despite the relatively low TACC, the annual catch increased in the early 1990s and an average catch of about 350 tonnes was maintained throughout the 1990s. Overall, despite apparent changes

in stock abundance, the SNA 2 fishery has sustained an annual reported commercial catch of about 450 tonnes over the 50-year period from 1950 to 2000.

At the current level of the TACC the commercial catch from SNA 2 is principally taken as a bycatch of the inshore trawl fisheries. Despite the increase in the TACC for the 1992–93 fishing year the SNA 2 commercial catch has exceeded the TACC in every year since 1989–90, generally by between 10% and 50%.

Most of the commercial catch is taken by the single bottom trawl method. The method accounted for 85-90% of the annual commercial catch from the 1989–90 to 2000–01 fishing years. The trawl catch is taken as a bycatch of two main declared target species; tarakihi and red gurnard, as well as in a small target fishery. From 1998–99 to 2000–01, these target fisheries accounted for an average 38%, 35%, and 19% of the total SNA 2 catch, respectively. However, there was considerable inter-annual variability in the relative level of snapper catch taken by each of these target trawl fisheries.

The declared target species may have been influenced by a number of factors at various times during the period, including the relative quota mix of the main operators, the relative abundance of the main species, and the surrender options, deemed value and bycatch trade-off provisions that have variously applied. In other words, the actual bycatch/target relationship is difficult to establish with any precision.

Target fishery

The snapper trawl catch is taken within the area of SNA 2 north of Hawke Bay (statistical areas 011, 012, and 013). In recent years, a high proportion of the target trawl catch has been taken in the Cape Runaway area (statistical area 011).

A small scale target longline fishery also operates. In the early 1990s this accounted for around 5% of the catch, but in recent years it has dropped to around 1% of the catch.

Bycatch fishery

From 1998–99 to 2000–01, the snapper bycatch from the tarakihi fishery was evenly distributed between the three main statistical areas. The overall level of snapper bycatch was highest during the early 1990s, but has remained constant at a lower level since 1993–94. Most of the snapper catch from the red gurnard trawl fishery has been taken within the Hawke Bay area (statistical area 013). In the 1999–2000 and 2000–01 fishing years, most of the snapper trawl catch from the SNA 2 fishery has been taken by 20 vessels. In contrast, only two vessels have taken snapper bycatch by Danish seine.

Since 1994–95, a small but increasing proportion of the catch has been taken by the Danish seine method. From 1998–99 to 2000–01, the snapper catch taken by this method increased from about 35 tonnes to 85 tonnes. This catch was principally taken as a bycatch of target fishing for red gurnard around the East Cape area (statistical areas 011 and 012).

Mäori Customary Fishery

Snapper are considered to be an important kaimoana species for Mäori. However, there is no quantitative information on Mäori customary catch available.

Recreational Fishery

The snapper fishery is highly prized by recreational fishers. The 1992/93 and 1996 national telephone and diary surveys estimated the recreational catch from SNA 2 to be 40 tonnes, representing 11% of the total catch from all sectors in the 1996 year. Final results of the 2000 survey of recreational catches are not yet available.

The recreational (and customary) fishery mainly operates in the northern half of the Quota Management Area. Higher catches are likely to be taken close to areas that afford easy access (ie, in the proximity of boat ramps and areas of the coastline that have vehicle access).

Illegal Catch

Quantitative information on the level of illegal catch or other sources of mortality is not available. However, the stock assessment includes an allowance for unreported catch before and after the introduction of SNA 2 to the QMS. These values are based on assumed values used in the stock assessment for the other snapper stocks.

Other Sources of Mortality

Quantitative information on other sources of mortality is unknown.

Fishery Assessment

A comprehensive stock assessment for SNA 2 was undertaken in 2001 using a Bayesian age structured model. The model incorporates commercial and recreational catch histories, fishing selectivity, age frequency data, and a temperature-recruitment relationship. The model includes four annual age frequency distributions from recent sampling of the SNA 2 commercial catch. No estimates of stock abundance were available for inclusion in the model, which creates some uncertainty in the model results. However the model includes four years of age sampling information from the fishery which serves to mitigate this risk.

The stock assessment model incorporates the available SNA 2 catch history from the commencement of fishing in the 1930s. The model predicts that the abundance of snapper declined gradually during the 1930s and 1940s. The population declined more strongly over the subsequent decades under increasing levels of catch and lower than average recruitment. The stock is predicted to have declined to a comparatively low level by the early 1980s. However, in the subsequent years the abundance of snapper has increased under lower than average levels of catch and above average recruitment.

The base case stock assessment estimated the MSY to be within the 495–641 tonne range (derived from the 90^{th} percentiles of the posterior distribution). The Maximum Likelihood Estimate from the assessment model was 478 tonnes, slightly below the lower bound of the base case estimate of MSY. The reasons for the differences between the two assessments have not been satisfactorily reconciled.

For the base case assessment, the model predicts the current biomass is between 90% and 150% of the B_{MSY} level. The stock status was relatively insensitive to a number of the key model assumptions, with virtually all alternative model assumptions indicating the stock was either approaching or above the B_{MSY} level in 2000–01.

The model projected to 2006 to determine the status of the stock under alternative constant catch levels. These future catches incorporated commercial catch (with 10% underreporting) plus non-commercial catch. Two scenarios of total catches were investigated in projections, 317 tonnes (the 2000-01 TACC + 10% underreporting + 40 tonnes non-commercial) and 436 tonnes (2000-01 landings + 10% underreporting + 40 tonnes non-commercial catch).

The biomass projections based on 317 tonnes of removals suggest that the biomass will be between 120 and 230% of the level that would produce MSY by 2006. The biomass projections based on 436 tonnes of removals suggested that the biomass would lie between 100 to 210% of the level that would produce MSY by that time.

Environmental Considerations

The Fisheries Act 1996 includes a number of provisions that require that positive action is taken to address the impacts of fishing on the aquatic environment and that such impacts are taken into account when relevant decisions about sustainability and utilisation are made. The purpose of the Act includes a general obligation to avoid, remedy, or mitigate the adverse effects of fishing on the aquatic environment thereby ensuring sustainable utilisation of fisheries resources.

Snapper are taken by various methods, but bottom trawling accounts for most of the catch. Bottom trawl gear is used to harvest a range of inshore species, and by its very nature affects the physical structure of the substrate and disturbs the benthic community. The vast majority of trawl shots resulting in the capture of snapper are recorded by statistical area, without latitude and longitude references. Hence MFish does not have access to data on the spatial distribution of trawl shots. But in a general sense the trawl grounds within SNA 2 have supported fishing over a long period, and the benthic communities will have been modified accordingly.

The proposed level of TACC increase is essentially to cover the current level of snapper bycatch in these fisheries and, consequently, it is not expected that the level of trawl fishing effort would increase at the proposed TACC level.

Environmental Principles

The Fisheries Act also contains three environmental principles. All persons exercising or performing functions, duties or powers under the Act (including acting under a fisheries plan) for purposes of providing for utilisation of fisheries resources or ensuring sustainability must take into account the following obligations:

> associated or dependent species should be maintained above a level that ensures their long term viability

biological diversity of the aquatic environment should be maintained, and

habitat of particular significance for fisheries management should be protected.

Habitats of significance

No habitats of particular significance have been identified within the confines of the inshore fishing areas within the Quota Management Area for snapper in Area 2. However an area within Hawke Bay, between the Moeangiangi River and the Waihua River, known as the 'Wairoa Hard' is closed to all commercial fishing methods except potting to avoid any adverse effects from active fishing methods. This area is thought to be an important nursery ground for a number of fish species, including snapper.

Maintaining biodiversity

No specific threats to maintaining biodiversity have been identified within the area that the SNA 2 fishery operates. The Te Angiangi marine reserve has been established on the east coast, south of Hawke Bay. This area acts to protect biodiversity for the purposes of scientific study.

Associated and dependent species interactions

The TAC for SNA 2 must be set after having regard to the interdependence of stocks (stocks are defined as units of management under the Fisheries Act). The environmental principles deal with associated and dependant species that are not harvested for sale. There are no known interactions between the SNA 2 fishery and marine mammals that are of concern or specific to the fishery. The fishery does not dispose of any significant amount of fish waste or offal at sea, so the potential for interactions with seabirds is reduced.

The draft Seabird Interaction with Fisheries in the New Zealand Exclusive Zone - A Review and National Plan of Action 2000 (NPOA) document does not list snapper as one of the fisheries with seabird interactions that are of concern.

Relevant Plans and Strategies

Before setting (or varying) any sustainability measure (which includes a TAC), the Minister must have regard to any regional policy statement, regional plan or proposed regional plan under the Resource Management Act 1991, as well as any management strategy or plan under the Conservation Act 1987. MFish is not aware of any considerations in these plans or strategies that are relevant to setting a TAC in the SNA 2 fishery at this time.

Before setting (or varying) any sustainability measure the Minister must take into account any conservation or fisheries service, or any decision not to require such services, along with any relevant fisheries plan approved under the Act. MFish does not consider that existing or proposed services materially affect this proposal, nor has any fisheries plan been approved.

Research

Historically, limited research data was collected from the SNA 2 fishery. However, over the last decade information has been collected from the fishery initially from a brief time-series of inshore trawl surveys and latterly from length and age sampling of the commercial catch. The trawl surveys proved inappropriate for

monitoring the abundance of snapper. Sampling of the commercial snapper catch was undertaken in 1992, 1997–98, 1998–99, and 1999–2000. The resulting age frequency distributions were incorporated in the fishery assessment for SNA 2 that was undertaken in 2001–02.

The SNA 2 catch sampling programme is scheduled to conduct sampling on a three yearly basis. The next scheduled sampling is being undertaken during 2002–03, with a report required by 31 May 2004. These data would enable the SNA 2 fishery assessment to be updated in 2004.

Observer Coverage

There has been no observer coverage in the SNA 2 fishery. The fishery is dominated by small inshore trawl vessels and there have been no management requirements identified that require the presence of observers in the fishery. There is no observer coverage scheduled for the 2002–03 fishing year either funded through the Ministry of Fisheries or the Conservation Services Levy.

Compliance Information

The commercial catch has consistently exceeded the TACC since the fishery was introduced into the QMS. Over this period there have been a variety of overcatch regimes provided for under the now repealed Fisheries Act 1983. As noted this situation has created some problems with interpreting what is target catch and what is bycatch. Throughout this period, the modelling also anticipates that a 10% underreporting of catch has also occurred, it assumes that this level may continue.

Social, Cultural, Economic Factors

There are currently 41 quota owners, only 8 of whom own more than 10 tonnes of SNA 2 quota. There are 52 holders of ACE, with the amounts of ACE held ranging from 1 to 41 tonnes. There are eight identities who hold more that 10 tonnes of ACE. Since SNA 2 is currently an essentially bycatch fishery, target fishers in the tarakihi and red gurnard fisheries will be required to purchase ACE for SNA 2, pay deemed values or cease fishing if they could not secure sufficient ACE for the catch balancing requirement. As such, the SNA 2 fishery has the potential to be highly constraining on the TAR 2 and GUR 2 target fisheries. The recent history of catches in these two fisheries is summarised in Table 2.

The TAR 2 fishery has been fully utilised over the last 10 years, and overcaught (by less than 10%) in six of those years. The TACC for the red gurnard fishery has been approximately 80% caught for the same period.

The TACC for SNA 2 has been overcaught since its introduction to the TACC. However whereas previously there were a variety of options for dealing with overcatch, now there is one framework – the catch balancing and deemed value payment. Under this framework, the SNA 2 fishery falls into the "all others" category under the catch balancing regime, which means it is subject to differential deemed values. If fishers do not hold sufficient ACE to cover the amount of snapper bycatch, they will incur interim and annual deemed value costs, as well as differential deemed values for the amount of catch above the threshold that triggers the differential. This

is a substantive issue for commercial fishers in a bycatch fishery, and as such it places an emphasis on the TACC being set appropriately.

Table 2: TAR 2 and GUR 2 landings (tonnes) and TACCs (tonnes) since their introduction into the QMS in 1986 - 87 fishing year

Fishing Year	TAR 2		GUR 2	
	Landings	TACC	Landings	TACC
1986–87	1382	1410	592	610
1987–88	1386	1568	596	657
1988–89	1412	1611	536	698
1989–90	1374	1627	451	720
1990–91	1729	1627	490	723
1991–92	1700	1627	663	723
1992–93	1654	1633	618	725
1993–94	1594	1633	635	725
1994–95	1580	1633	559	725
1995–96	1551	1633	567	725
1996–97	1639	1633	503	725
1997–98	1678	1633	482	725
1998–99	1594	1633	469	725
1999–00	1741	1633	521	725
2000–01	1658	1633	623	725

The deemed value for SNA 2 is set at $3.00 per kg, or $3000 per tonne. The recent average price (2000-01 fishing year) for quota trading in the fishery is $21,000 per tonne, and ACE is trading at around $1557 per tonne (post 1 October 2001).

Under the catch balancing regime the tarakihi and red gurnard target fisheries will be driven by the availability of ACE for the target stock as well as the abundance of those stocks. However the snapper bycatch fishery will act as a constraint on the extent to which the target fisheries can operate without financial consequence. In short, the cost of meeting deemed value payments for snapper caught and not covered by ACE will act as an incentive for the tarakihi and red gurnard target fisheries to cease operations. If the SNA 2 TACC remains at its existing level this may have a consequence of decreasing TAR 2 and GUR 2 landings below what would otherwise be sustainably utilised.

Increasing the SNA 2 TACC will have economic benefits in the short term, but longer term benefits will be dependant on stock status. The fishery assessment information suggests that the fishery will continue to rebuild under existing catch levels. Earnings from the fishery are likely to increase with greater catches, with some positive downstream implications for the industry.

The focus of the non-commercial groups is on snapper availability, as well as general abundance. Like the commercial sector, these fishers benefit from high abundance which enables snapper to be more easily caught. This proposal, as it stands, addresses stock management issues and is founded on the available information that suggests current catches are sustainable at the present time and will allow the stock to continue to increase in size towards, and possibly beyond, the level that can produce the MSY.

This proposal does not address issues that may arise from any shift in current commercial fishing patterns that may arise from any rationalisation of quota holdings. Nevertheless it is anticipated that commercial interests through the Area 2 Inshore Management Group will take appropriate steps to ensure that ACE is made available to fishers so that any over-catch of a new TACC is avoided.

The Fisheries Act provides a process for dealing with situations where commercial fishing adversely affects recreational catch rates. Nevertheless, the consultation period provides an opportunity for stakeholders and tangata whenua to consider mutually agreeable arrangements that may avoid the dispute resolution procedures being triggered.

Assessment of Management Options

The 2002 fishery assessment indicates that current catches in the SNA 2 fishery are sustainable, and will continue to allow the fishery to rebuild over the next five years. Over that period the stock size is expected to reach the level that can produce the MSY, and, under various scenarios, may be at that level now. The commercial fishery currently overcatches the TACC by about 40-50% and this occurs because snapper is taken as a bycatch of the larger target fisheries for tarakihi and red gurnard. With the introduction of the catch balancing framework under the Fisheries Act, there is a need to review the TACC (and in so doing set a TAC) to determine whether surplus yield is available and could be provided for within a revised TACC.

This proposal seeks to maintain sector group catches at existing levels and provide for the needs of tangata whenua. The fishery assessment model underpinning this proposal will be reviewed in 2004.

TAC Option and Allowances

The Fisheries Act requires that the Minister set a TAC, and make allowances for non-commercial fishing, before varying the TACC.

TAC

There is currently no TAC set for this fishery. This proposal includes the setting of a TAC for SNA 2 at the 460 tonnes, which is considered to be at, or close to the current estimated catch in the fishery.

The proposed TAC of 460 tonnes is close to the Maximum Likelihood Estimate of MSY (478 tonnes), and below the base case estimate of MSY (495–641 tonnes). The current biomass is estimated to be near, or somewhat below the level that can produce MSY and MFish considers the more conservative estimate of MSY to be the appropriate reference in these circumstances.

Further, the Maximum Likelihood estimate is premised on the minimum level of recruitment that could have sustained the reported catch history and provides greater confidence (less risk) given the lack of abundance indices in the model. While an estimated catch of 436 tonnes was used in the model runs, no allowance was made for a customary catch, hence MFish considers an appropriate (rounded) TAC that conforms with the fishery assessment assumptions to be 460 tonnes.

Recreational Allowance

There are no regulations that prohibit or restrict fishing arising from decisions taken by the Minister under s 311 of the Fisheries Act to be taken into account when determining the allowance for recreational fishing.

As noted, recreational catches of snapper in SNA 2 have been estimated to be 40 tonnes. It is unknown how stable that level of catch has been over the past decade or whether it is likely to have increased in recent years. The criterion MFish uses for setting allowances is at the best estimate of current catch. Accordingly MFish proposes an allowance of 40 tonnes to provide for recreational catch. MFish notes that this allowance can be updated as improved information comes to hand.

Customary Allowance

There are no mataitai reserves or temporary closures in place within the QMA for SNA 2 that would need to be taken into account when making any allowance for customary fishing.

The fishery assessment does not include any consideration of an allowance for customary fishers, as there is no quantitative information available on the level of customary catch. However MFish notes that snapper is considered an important species to Mäori. The criterion within the MFish policy for setting allowances that is most closely met by the snapper fishery is for an allowance of half the recreational allowance to be set. Accordingly, MFish considers that an allowance of 20 tonnes should be made to provide for the use of snapper by Mäori in this fishery at this time. MFish notes that this allowance can be updated as improved information comes to hand.

Other Sources of Mortality

No quantitative information is available on the level of illegal catch or other sources of mortality. The proposal relates to a predominantly bottom trawl fishery that will have an element of incidental mortality associated with the bycatch of snapper.

In addition the decade of overcatch in this fishery may have been accompanied by additional catch being taken and possibly not reported. MFish acknowledges that initially at least, some of this underreporting may continue as quota holdings are rationalised. These matters have been incorporated into the fishery assessment and MFish proposes that they be incorporated into the allowance setting process. Accordingly, MFish proposes an allowance for other sources of fishing-related mortality of 40 tonnes.

TACC

The proposed allowances total 100 tonnes. This leaves a balance of 360 tonnes to be allocated as TACC under this proposal.

An increase to the TACC will generate additional ACE to cover commercial catch. Should that occur, it will be important for the SNA 2 quota holders to actively manage the distribution of ACE to avoid continued overcatch in the fishery.

Commercial interests could also consider actively engaging with non-commercial interests in the fishery to identify areas where it may be important to avoid additional commercial fishing effort being directed into.

Compliance Implications

MFish provides poaching and black market, commercial, customary Mäori, and recreational enforcement services. This proposal does not have any substantial implications for those existing services. An increased TACC may assist in managing some of the issues associated with availability of snapper in the SNA 2 fishery which is not reflected in the current TACC. However, it remains to be seen whether it will address other issues such as misreporting and overcatch of the TACC, and illegal fishing.

Administrative Implications

The proposed TACC increase, if approved, may have issues associated with rights to quota for fishers who incurred a reduction in catch history at the time of entry into the QMS. This has yet to be established.

Conclusion

A fishery assessment for SNA 2 has recently been completed. The assessment indicates the abundance has substantially increased since 1986 and the fishery has rebuilt to at or around the B_{MSY} level. It is proposed to establish a TAC for SNA 2 at a level close to the conservative estimate of the MSY for the stock.

It is proposed to make allowances based on the best available information on current removals and to increase the TACC to a level comparable to the recent level of commercial catch from the fishery. The commercial sector is requested to manage the allocation of ACE to ensure future catches do not exceed the proposed new TACC.

Preliminary Recommendation

MFish recommends that for the 2002–03 fishing year:

a TAC for SNA 2 be set at 460 tonnes, and within the TAC:

Allowances be set at 20 tonnes for customary Mäori fishing interests, 40 tonnes for recreational fishing interests and 40 tonnes for other sources of fishing-related mortality

The TACC is increased from 252 tonnes to 360 tonnes (an increase of approximately 43%).