# INITIAL POSITION PAPER - PROPOSAL TO REVIEW THE TAC FOR THE COROMANDEL SCALLOP FISHERY (SCA CS) FOR 2003

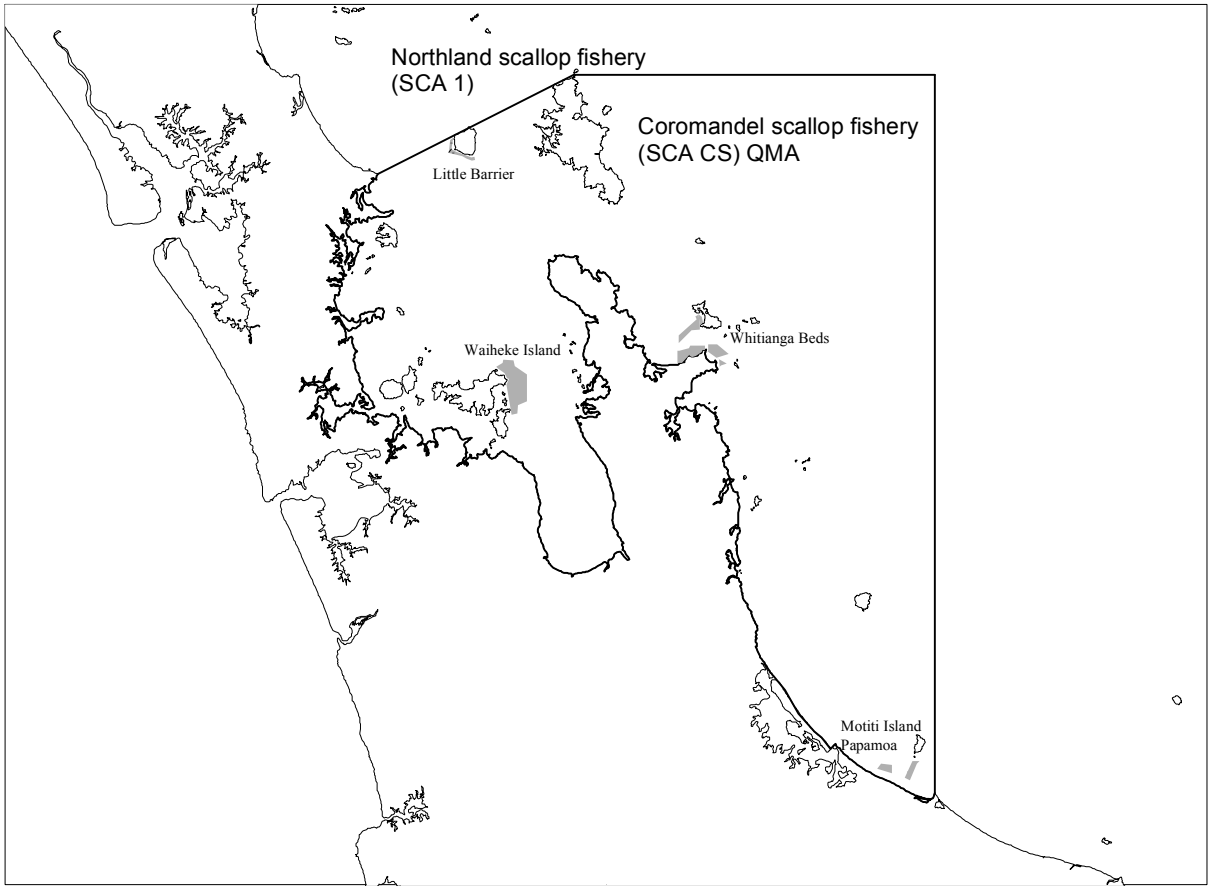


**Figure 1:** **Boundary of the Coromandel scallop Quota Management Area (SCA CS) and the location of the main scallop beds fished by commercial fishers (shaded areas).**

## Proposal

1 MFish proposes to review the total allowable catch (TAC) of the Coromandel scallop fishstock (SCA CS) for the purpose of providing for an in-season TAC increase for the 2003 fishing season. MFish proposes that the Minister, after taking into account information about scallop abundance in SCA CS during the current fishing year, considers the management measures proposed below.

2 The proposal is to increase the TAC for SCA CS from 48 to 93 tonnes meatweight, and within the TAC:

a) make an allowance of 7.5 tonnes meatweight for recreational interests;

b) make an allowance of 7.5 tonnes meatweight for Maori customary interests;

c) increase the allowance for other sources of fishing-related mortality from 11 tonnes meatweight to 20 tonnes meatweight;

d) increase the Annual Catch Entitlement (ACE) from 22 tonnes meatweight to 58 tonnes meatweight.

3 At the end of the current fishing year for SCA CS, the TAC will revert to 48 tonnes meatweight, and the other sources of mortality allowance and ACE will revert to 11 tonnes and 22 tonnes meatweight respectively.

## Management Framework

4 During 2001, the Minister of Fisheries agreed to set a TAC (under section 13 of the Fisheries Act 1996 (the Act)) for SCA CS at 48 tonnes meatweight to apply from the start of the fishing year on 1 April 2002. Section 13 requires the TAC to be set at a level that will maintain or move the stock towards or above the level that will produce the maximum sustainable yield (MSY), having regard to the interdependence of stocks.

5 MSY is defined, in relation to any fishstock, as being the greatest yield that can be achieved over time while maintaining the stock's productive capacity, having regard to the population dynamics of the stock and any environmental factors that influence the stock. A requirement to maintain stocks at a level that is capable of producing the MSY is generally recognised internationally as being an appropriate fishstock target, although there is some international support for MSY representing a minimum threshold level.

6 The Minister also decided in 2001 to include SCA CS on the Second Schedule of the Act. A stock listed on the Second Schedule may have its TAC increased during the season under s 13(7) of the Act after consideration of information about the abundance of the stock. At the start of the next fishing year, the TAC reverts to the level set at the start of the previous fishing year. The TAC can only be increased during the fishing year and not decreased.

7 Since 1978, surveys have been used to estimate the abundance of scallops in the Coromandel scallop fishery. Yield estimates based on these surveys have been used to set limits on catch (including the TAC, TACC, and allowances) for the fishery.

8 In making his decision on required services for 2002-03, the Minister agreed to an optional survey for SCA CS during 2003. Quota holders decided that scallop abundance should be assessed during 2003. A research survey was undertaken in May 2003 to assess SCA CS.

9 The objective of an in-season TAC increase is to manage the stock at or above a biomass level that will produce the MSY, or move it towards such a level. The same considerations (s 13(2), s 13(3)) to achieve the direction and rate of change towards the MSY level must be taken into account in making an in-season adjustment as in setting the original TAC.

10 Section 20(4) of the Act states that the increase of the TAC cannot result in an increase to the total allowable commercial catch (TACC) during the fishing year. However, under s 68(1), if the Minister is satisfied that after considering the matters required for TACC setting (as prescribed under s 21(1)) he would have made an in-season increase to the TACC but for the prohibition against that in s 20(4), then he may create additional ACE for fishers equal to the amount of the increase in the TACC that he would have made.

11 Sections 21(1) and 68(1)(b) provide that in setting or varying the TACC the Minister shall make an allowance for Maori customary fishing, recreational fishing, and other sources of fishing-related mortality. However, those allowances do not automatically revert to the original allowances at the start of next fishing year. The TAC only reverts. Therefore, if the Minister decides to increase any of the allowances for the remainder of the current fishing year, then part of his decision will also be that the allowances will reduce to the original level at the start of the next fishing year on 1 April 2004. This process was followed during the 2002 fishing season for SCA CS in providing an in-season ACE increase for commercial scallop fishers.

## Steps in the process to review the TAC

12 To progress this review, MFish proposes the following steps:

- consideration of the survey information about the abundance of scallops in SCA CS during the current fishing year;
- consultation with quota holders, tangata whenua, stakeholders and Te Ohu Kai Moana in order to review the TAC, allowances, and ACE for SCA CS (**this paper**);
- the Minister's consideration of MFish's final advice and his decision on the proposal;
- notice of any increased TAC agreed to by the Minister to be notified in the *New Zealand Gazette.*

## Fishery information

### *Species Biology*

13 Scallops (*Pecten novaezelandiae)* inhabit waters to about 60 m deep, but are more common in the Coromandel fishery in depths of 10 to 30 m. Growth rates are

spatially and temporally variable; growth to 100 mm takes between 1.5 and 3.5 years. The maximum age of scallops in unexploited populations is about 6 or 7 years.

14 *P. novaezelandiae* is an hermaphroditic species, each individual carrying both male and female gonads at the same time. Most individuals are sexually mature at about 60 mm, although larger individuals have disproportionately larger gonads. The commercial minimum legal size limit of 90 mm probably mitigates risk of recruitment failure, as scallops mature and spawn before reaching the size limit. They are extremely fecund and can spawn several times each year (although not all of these spawning events lead to successful spat settlement). Larval development lasts for about 3 weeks, depending on water temperature.

15 Scallops grow rapidly (albeit with considerable variation), have high natural mortality, and exhibit highly variable recruitment. Such a life history results in fluctuating biomass, catch, and reliance on relatively few year-classes.

## *Fishery characteristics*

16 The management arrangements for commercial and non-commercial fishers differ. Extensive parts of the Hauraki Gulf and many inshore scallop beds within SCA CS are closed by regulation to commercial scallop fishing. Therefore, the non-commercial and commercial fishing sectors are separated spatially to a large extent. The main beds in the commercial scallop fishery are found north of Whitianga (at the Mercury Islands), east of Waiheke Island, around Little Barrier, Cape Colville, and in the Bay of Plenty principally around Motiti Island and Papamoa Beach (see Figure 1).

17 There are also differences between the sectors in the minimum legal size limit (90mm for commercial fishers, and 100mm for recreational fishers). The duration of the fishing season is controlled by regulation and also differs: 15 July to 20 December (inclusive) in the same year for commercial fishers; and 15 July to 14 February (inclusive) of the following year for recreational fishers. The commercial and recreational fisheries can also be closed under shellfish sanitation requirements.

18 Maori customary fishers are currently able to take scallops for hui and tangi purposes in accordance with regulation 27 of the Fisheries (Amateur Fishing) Regulations 1986. If a kaitiaki has been appointed, then she or he can authorise the taking of scallops under the Fisheries (Kaimoana Customary Fishing) Regulations 1998. Recreational fishers are restricted to a maximum daily bag limit of 20 scallops per fisher per day in SCA CS.

### *Commercial catches*

19 The reported commercial catch has varied from 6.6 tonnes (meatweight) in 2000 to 384.0 tonnes (meatweight) in 1987 (Table 1). Since 1992, limits on the overall commercial catch have been determined from the results of dredge and dive surveys undertaken before the start of each fishing season. However, the catch limits for SCA CS have generally not been caught, notably in 1998, 1999 and 2000 (Table 1).

**Table 1: SCA CS reported landings (tonnes meatweight) from 1986 to 2002 and the sum of permit condition entitlements (tonnes meatweight) for 1995 to 2000, a commercial catch limit (CCL) was set for the 2001 season and a TACC set in 2002.**

| Fishing year | Reported landings (LFRR data) | Sum of permit condition entitlements / CCL / TACC |
|---|---|---|
| 1986 | 162.3 | |
| 1987 | 384.0 | |
| 1988 | 181.9 | |
| 1989 | 103.8 | |
| 1990 | 153.3 | |
| 1991 | 203.2 | |
| 1992 | 146.8 | |
| 1993 | 62.3 | |
| 1994 | 49.4 | |
| 1995 | 88.4 | 85.8 |
| 1996 | 81.0 | 88.0 |
| 1997 | 93.9 | 104.9 |
| 1998 | 36.6 | 110.0 |
| 1999 | 7.7 | 31.0 |
| 2000 | 6.6 | 15.4 |
| 2001 | 22.1 | 22.0 |
| 2002 | 32.3 | 35.0 |

20 The variability of scallop biomass over short timeframes may be partly responsible for why limits on catch have not always been achieved. To reduce this influence as much as possible, surveys are conducted as close to the expected start of the commercial season as possible. Another factor is the difficulty in predicting available yields in a scallop fishery with any precision. The uncertainty due to the variables of dredge efficiency and residual scallop density are discussed in the section on information about abundance during the current fishing year. There is also additional uncertainty when the TACC is allocated in meatweight, because the meatweight to greenweight ratio varies throughout the year. Actual yields will depend on scallop condition, natural mortality and scallop growth.

21 The Coromandel scallop stock fluctuates in biomass from year to year. Recruited biomass in any given year cannot be predicted from historical biomass estimates, nor even from biomass estimates in the previous year adjusted by catch in the intervening season. Nevertheless, the system may not be entirely random. Prior to 1999, there appears to be a relationship between scallop recruitment (as measured by catches 2 years later) and the Southern Oscillation Index (Figure 2).

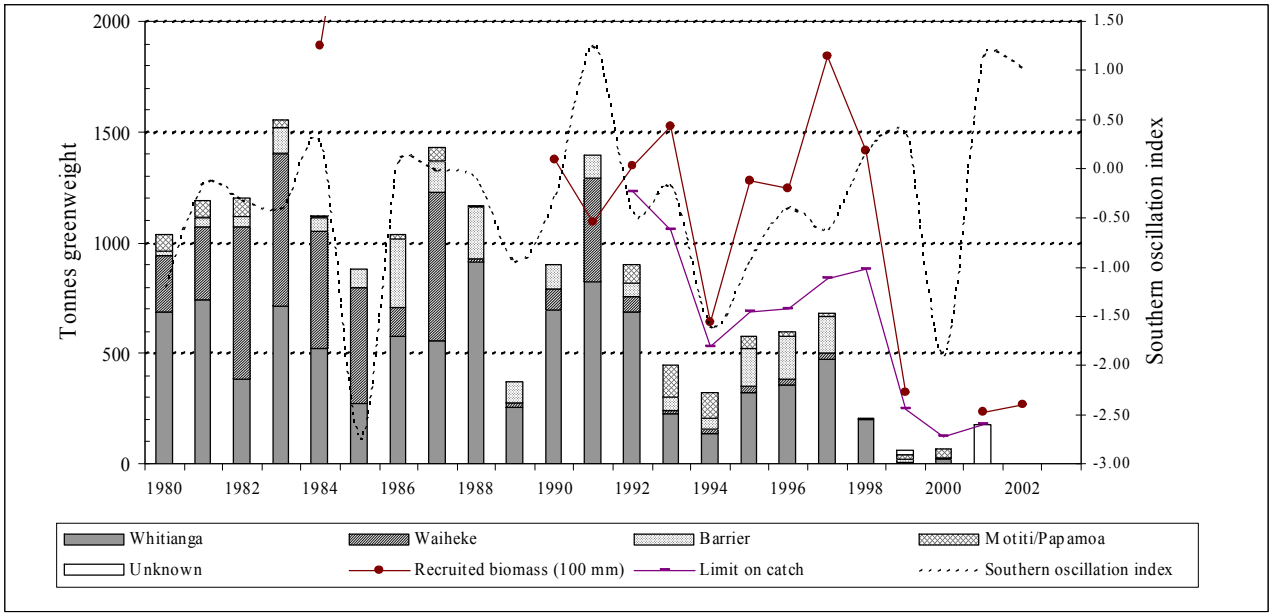


**Figure 2: Reported catches by area, catch limit, survey estimates of recruited biomass (100 mm) for the Coromandel scallop fishery and the Southern Oscillation Index.**

22 The 1999 season was very poor with periods of the season not fished (voluntarily) because of "black gill". Commercial dredging was affected between 1998 and 2000 by the spread of the C*haetopterus* tubeworm into some areas. The tubeworm builds large clumps of parchment-like tubes that make dredging for scallops impossible as the dredge fills with tubes, such that the dredge cannot catch scallops.

## *Recreational catches*

23 Telephone/diary surveys were undertaken during 1993-1994, 1996 and 1999-2000. The recreational harvest estimate from the 1993-94 survey was 8.8 tonnes meatweight. The 1996 survey estimate of the recreational catch was 7.5 tonnes meatweight. The recreational catch estimate from the survey in 1999-2000 was 3.8 tonnes meatweight. The average of these recreational catch estimates is 6.7 tonnes.

24 The recreational diary surveys include catches reported from areas closed to commercial fishing by regulation. The areas closed to commercial dredging by regulation include popular recreational and customary fishing areas such as Kawau Island, Omaha Bay, parts of Waiheke Island and the Firth of Thames, Great Mercury Island, Otama Beach, Opito Bay, Slipper Island, and Motiti Island. The rationale for these closed areas in this fishery is that the closures protect key non-commercial scallop fishing areas from the effects of commercial scallop dredging. These closed areas were initially agreed under a three-year plan negotiated by the sectors. The closures are an allocation measure, rather than a sustainability measure.

## *Mäori customary catches*

25 In common with many other shellfish, scallops are important to Mäori as a traditional food. However, no quantitative information on the level of customary take of SCA CS is available. The level of customary catch is unknown. MFish proposes to set the customary allowance at the level of the recreational allowance – 7.5 tonnes meatweight. MFish has applied a general criterion that, in the absence of information

and where the fishery is of known importance to Maori, the recreational allowance is used as a benchmark to set the customary allowance.

### *Other sources of fishing-related mortality*

26 Quantitative information on the level of illegal catch is not available. However, quantitative information on other sources of fishing-related mortality was gathered in the Coromandel scallop fishery as part of MFish project AKSC03 during the 1996-97 fishing year. This work assessed the incidental effects on growth and mortality of scallops from encounters with commercial dredges of various designs. Individual-based population modeling and yield per recruit analysis suggested there are incidental effects of dredging on growth and mortality rates that are highly influential on the determination of yield from scallop dredge fisheries.

27 The allowance proposed for fishing-related mortality is discussed later in this document, in the section dealing with setting the TAC and allowances (paragraph 55).

## ***Fishery assessment***

### *General methodology*

28 The biological reference points most commonly used in New Zealand are Maximum Constant Yield (MCY) and Current Annual Yield (CAY). These are derived from two ways of viewing MSY – a static interpretation and a dynamic interpretation. Under a static interpretation, MCY is the largest constant commercial catch that may be taken sustainably even if the number of recruits fluctuates from year to year.

29 Under a dynamic interpretation, CAY is the catch to biomass ratio that maximises the sustainable yield from a fishery over time. It is calculated as a constant proportion of the biomass and increases and decreases in tandem with changes in the stock biomass. It is possible to estimate CAY only when the current stock size is known, as is possible in the case of scallops immediately after a survey. The methodology for calculating CAY is set out in MFish's Stock Assessment Plenary report.

30 The current TAC for SCA CS is based on an estimate of MCY for the fishery. This is the level of constant commercial catch that is estimated to be sustainable, with an accepted level of risk, at all probable levels of biomass. However, because of the annual variation of scallop biomass, the CAY provides the most appropriate estimate of yield on which to base any consideration for an in-season increase in TAC.

31 Between 1978 and 2003, recruited biomass at the start of the season, for most years, has been estimated by research surveys. Counts of scallops above a critical size at each survey site are converted to numbers per square metre of seabed according to the area swept by the dredge. The absolute density of scallops is estimated by correcting for the efficiency of the dredges. The numbers of scallops are calculated by multiplying the mean scallop density by the area of each survey stratum. Mean recruit weight is estimated and used to calculate biomass.

### *Information about abundance during the current fishing year*

32 A research survey of the main Coromandel scallop beds used for commercial fishing was conducted in May 2003. For the overall survey area (including the Cape Colville beds surveyed in 2003), it was estimated there were 15.9 million scallops (with a CV of 18%) at or above a size of 85mm. Scallops above 85mm are expected to grow to the commercial size limit of 90 mm by the start of the season in mid July. The average scallop density during the 2003 survey was more than 0.1 $m^{-2}$ in all areas. This is considerably greater than the traditionally accepted threshold for reasonable commercial fishing of about 0.04 $m^{-2}$.

33 The estimate of the numbers of scallops can be converted to a biomass estimate by making an allowance for only that part of the fishery where scallops occur at a density considered viable for commercial fishing. Critical density will differ for various operators involved in the fishery. MFish considers 0.04 $m^{-2}$ to form the most appropriate basis for critical density for SCA CS, as it conforms closest to a catch rate of 50 kg greenweight per hour. This catch rate is considered by the Coromandel Scallop Fishery Management Committee to be about the minimum for an economic return from the fishery. However, MFish also notes that the biomass estimates are relatively insensitive to critical density, and made a difference of only 3-8% across the range of critical densities tested (0- 0.06 $m^{-2}$).

34 Based on a critical density of 0.04 $m^{-2}$ and an assumed average greenweight of 83 grams, the scallop biomass estimate is 1277 tonnes greenweight (for scallops greater than 85mm) at the time of the survey. This converts to a biomass estimate (1183 tonnes) for the start of the season by allowing for natural scallop mortality and growth.

35 Estimates based on scallops 95 mm and above have been included in Table 2 for recent years to allow a comparison of biomass trends over the history of the fishery. These estimates indicate that there has been an improvement in biomass for 2003 compared to the 2001 and 2002 survey results. However, the 2003 estimate of 486 tonnes (above 95 mm) shown in Table 2 is below average for most of the estimates during the 1990s. It should be noted that the biomass estimated by the 2003 survey is 648 tonnes, but that figure includes the biomass surveyed within the Colville beds, which were not surveyed previously.

36 MFish notes that all of the above calculations assume dredge efficiency rates during the survey based on the highest historical efficiency rates of 77% (sandy substrates) and 70% (silty substrates). MFish and NIWA consider this assumption to be reasonable, and more precautionary than other plausible dredge efficiency options.

**37** Using the assumptions of highest historical dredge efficiency and a critical density of 0.04, the CAY is estimated to be 429.4 tonnes greenweight. This converts to a meatweight CAY estimate of 57.9 tonnes using the standard recovery rate of 13.5% for processing scallops in the Coromandel fishery.

**Table 2: Estimated recruited biomass (tonnes greenweight) at the time of the annual surveys of scallops (95 mm or greater) in various component beds of the Coromandel scallop fishery since 1990, and the total for scallops 85 mm or greater since 1998. Notes: '–' no survey or estimate in a given year; '*' not all beds surveyed, estimate of total biomass probably significantly biased low. '**' excluding the beds at Cape Colville that were surveyed in 2003, but not in previous surveys.**

| Year | Waiheke Island | Whitianga | Barrier Island | Waihi Beach | Motiti Papamoa | Recruited Biomass (t) (95 mm) | Recruited Biomass (t) (85 mm) |
|---|---|---|---|---|---|---|---|
| 1990 | 608 | 767 | – | – | – | 1,375* | - |
| 1991 | 266 | 824 | – | – | – | 1,090* | - |
| 1992 | 73 | 1,272 | – | – | – | 1,345* | - |
| 1993 | 41 | 748 | – | 735 | – | 1,524* | - |
| 1994 | 3 | 481 | – | 153 | – | 637* | - |
| 1995 | 26 | 445 | 258 | 58 | 451 | 1,277 | - |
| 1996 | 28 | 619 | 346 | 19 | 222 | 1,244 | - |
| 1997 | 508 | 623 | 402 | 70 | 199 | 1,839 | - |
| 1998 | 506 | 641 | 99 | 12 | 120 | 1,414 | 2702 |
| 1999 | 18 | 176 | 19 | 0 | 87 | 325 | 752 |
| 2000 | – | – | – | – | – | – | - |
| 2001 | 9 | 83 | 100 | – | 40 | 232 | 685 |
| 2002 | 41 | 141 | 45 | – | 38 | 266 | 790 |
| 2003 | 73 | 227 | 78 | – | 108 | 486** | 1065** |

## *Environmental Issues*

38 The Act prescribes environmental principles that must be taken into account when exercising powers in relation to utilisation of fisheries resources while ensuring sustainability. Associated or dependent species (including non-fish bycatch) should be maintained above a level that ensures their long-term viability. Biological diversity of the aquatic environment (ie, the variability of living organisms, including diversity within species, between species, and of ecosystems) should be maintained, and habitat of particular significance for fisheries management should be protected.

39 The history of commercial dredging in the Coromandel scallop fishery dates back to 1968, and trawling has occurred in the area since the late nineteenth century. There is no doubt that these fishing methods have an impact on the seabed. There is some information available providing evidence of broad-scale changes in benthic communities that can be directly related to fishing. The seafloor in the area has also been modified by the impact of land-based activities over a much longer period. However, significant areas of habitat in the Firth of Thames and inner Hauraki Gulf are not open to commercial dredging.

40 MFish is not currently aware of any habitat of particular significance for fisheries management that requires additional protection. MFish does not consider that the proposed catch levels recommended by this paper will put at risk the long term viability of associated species or biological diversity within the area of the fishery.

41 NIWA has suggested that high mortality may have occurred in 1998 between the time of the survey and the fishing season in 1998. The cause of this mortality is not known, but an associated and very visible "black gill" condition was reported in several species of filter-feeding bivalves around the Coromandel Peninsula in 1999. A NIWA

study concluded that the black gill condition was probably not indicative of a causative disease agent, and suggested that broad scale environmental conditions were probably responsible in some way. Fishing effort was voluntarily reduced during 1999 in comparison to previous seasons due to the presence of "black gill". "Black gill" has not been a factor in the fishery since 1999.

42 Since 1997, populations of the large tubeworm (*Chaetopterus spp.)* have spread throughout the nearshore marine environment in northeastern New Zealand. The taxonomic identity of the tubeworm is still uncertain. A Uniservices research report maps the distribution of the tubeworm around northeastern New Zealand, and discusses the species taxonomic status and the ecological effect of *Chaetopterus* species in other parts of the world.

43 The tubeworm affects scallop fishing by clogging dredges, and has impacted on dredging mainly at the beds at Little Barrier Island and Whitianga. In addition to the affect on fishing, the presence of vast numbers of the tubeworm, combined with its rapid spread, has raised concerns about the potential ecosystem effects of this organism. The effect of the tubeworm on associated species including scallops, and on the benthic ecosystem is unknown. Where the tubeworm forms dense mats covering large areas of the substrate, it is probable that its presence is having a significant impact on the benthic community.

44 As suspension feeders, large populations of the tubeworm are likely to alter links between pelagic and benthic systems by removing large quantities of phytoplankton from the water column. *Chaetopterus spp* is also likely to be competing directly with other suspension feeders such as scallops for food and for habitat.

45 Research also indicates that tubeworms that are broken, such as may occur during storm events or when disturbed by dredges, are capable of regeneration. This can result in an increase in population size as when broken, a single worm can form two separate individuals. Finfish are likely to be exerting biological control through predation of the tubeworm.

### *Current and potential research*

46 The current fisheries services applying to this fishery include optional surveys to estimate yield from the commercial scallop beds. Consideration could be given to future surveys of scallop abundance and yield within the areas of the fishery that are open to non-commercial fishing only.

## Proposed TAC, allowances, and increase in ACE

### *TAC setting*

47 Under s 13 of the Act, the TAC must be set at a level that will maintain the stock at or above, or move the stock towards or above, the level that will support the MSY. As SCA CS is on the Second Schedule to the Act, under s 13(7) the Minister can increase the TAC in-season after considering information about abundance of the stock.

48 MFish notes that there is no current assessment of the entire SCA CS stock on which to base a TAC. The available assessment information on yield is based on a survey of

the main commercial scallop fishing beds. The CAY method estimates sustainable yield from areas primarily utilised by commercial fishing. The CAY estimate is a proxy for MSY, and the proposed increase in the TAC to 93 tonnes is likely to move the stock towards the MSY level.

49 The increased TAC is determined from the best available information on yield from the commercially fished parts of the stock, plus estimates of catches by customary Maori, recreational fishers, and estimates of other sources of fishing-related mortality. It is proposed that the total available ACE for commercial fishers for the 2003 season be based on the CAY estimate (57.9 tonnes meatweight) rounded off to 58 tonnes meatweight, and that figure contributes to the proposed increase in the TAC. The estimates of Maori customary and recreational catches are proposed to remain at 7.5 tonnes meatweight each. That figure exceeds the average estimated recreational catch during a period when the overall assessed abundance of SCA CS was closer to the long-term average abundance. MFish therefore considers that it remains a reasonable basis for contributing to the determination of the TAC while the stock biomass appears to be below average (see Table 2). The proposed estimate for incidental mortality is increased from 11 tonnes meatweight to 20 tonnes meatweight to allow for the larger scallop biomass compared to 2002. At the end of the current fishing year for SCA CS, the TAC, ACE, and allowances will revert to the initial levels at the start of the fishing year.

50 There are, however, some elements of uncertainty (discussed earlier) regarding dredge efficiency and critical density of scallops in the CAY assessment, and the relationship between the CAY estimate and the actual catch for each season. The Minister could make a final decision on the TAC, allowances, and ACE at a level different to that proposed in this paper, after considering the uncertainty of the information and stakeholders' views provided in submissions.

## *Allowances and increase in ACE*

51 In considering an in-season TAC increase, and the setting of allowances and the TACC under s 21, MFish believes that the most relevant consideration is that the fishing sectors are largely spatially separate in this fishery and that the CAY estimate relates primarily to the scallop beds mainly fished by the commercial sector. Therefore, it is reasonable to allocate any additional yield assessed from the scallop beds mainly fished by commercial fishers to that sector.

52 Non-commercial beds have not been assessed, but scallop abundance in these areas is likely to have also increased. MFish notes there is no statutory obligation to make a proportional adjustment to Maori customary, recreational, or commercial interests when the TAC is varied pursuant to s 13(7) of the Act. However, s 68(1) requires the Minister to consider the provisions of s 21, under which he has the discretion to determine allowances.

### *Recreational interests*

53 MFish recognises that the recreational scallop catch will vary from year to year in accordance with scallop availability. Given that the SCA CS recreational fishery is not managed under a CAY strategy and since the fisheries sectors are largely spatially separate, MFish proposes to retain the current allowance for the recreational fishery at

7.5 tonnes meatweight. That allowance exceeds the average estimated recreational catch and the most recent estimate (1999-00). MFish notes that the 1996 estimate of recreational catch in SCA CS of 7.5 tonnes meatweight was determined when the overall stock abundance was closer to the longer-term average abundance. The allowance proposed for recreational fishing is based on expected catches at that higher level of abundance. MFish considers that the proposed allowance will adequately provide for recreational fishing while the SCA CS stock remains at a relatively low level of abundance.

### *Mäori customary interests*

54 In common with many other shellfish, scallops are important to Mäori as a traditional food. However, no quantitative information on the level of customary take of SCA CS is available. MFish proposes to set the customary allowance at the level of the recreational allowance – 7.5 tonnes meatweight. MFish has applied a general criterion that, in the absence of information and where the fishery is of known importance to Maori, the recreational allowance is used as a benchmark to set the customary allowance.

### *Other sources of fishing-related mortality*

55 NIWA has presented the estimate of CAY exclusive of incidental mortality. However, using NIWA's model, the level of incidental mortality can be calculated as a fixed proportion (34.4%) of the CAY estimate (the proportion is based on an estimate of incidental mortality derived from a yield-per-recruit model developed by NIWA in 1997). Therefore, MFish proposes to increase the allowance for other sources of fishing-related mortality from 11 tonnes meatweight to 20 tonnes meatweight for 2003.

### *Increasing ACE*

56 The TACC will not increase if the Minister decides to increase the TAC. However, under s 68(1), if the Minister is satisfied that he would have increased the TACC but for the s 20(4) prohibition on increasing the TACC, and after considering allowances for customary and recreational catch and other fishing-related sources of mortality, then he may create an additional amount of ACE equal to the amount he would have increased the TACC by. Any increase in ACE will be distributed proportionally amongst the scallop quota owners according to the formula in s 68(2).

57 In determining the potential for an increase in the TACC, MFish believes that the most relevant consideration is that the fishing sectors are largely spatially separate in this fishery. The 2003 CAY estimate relates primarily to the scallop beds fished mainly by the commercial sector, and MFish considers that it is reasonable for any additional yield assessed from those beds to be allocated to that sector. The CAY estimate from the 2003 survey of commercial scallop beds is 57.9 tonnes. MFish considers that the Minister can be satisfied that the CAY estimate provides adequate grounds for increasing the TACC, but for the impediment of s 20(4). On that basis, MFish proposes that the Minister can consider making available an additional amount of ACE equivalent to the TACC increase he would have considered.

58 MFish proposes that the level of ACE for the SCA CS fishery for the 2003 season be increased to 58 tonnes meatweight (rounded up from the CAY estimate of 57.9 tonnes meatweight).

59 Based on a port price of $16.00 per kilogram of meatweight ($16,000 per tonne), the proposed increase in ACE of 36 tonnes meatweight equates to an increased gross return to the commercial fishers of $576,000 for the 2003 season.

## Other legislative considerations

60 Before setting or varying any sustainability measure, s 11(1) of the Act requires the Minister to take into account specified matters. These include:

i) any effects of fishing on any stock and the aquatic environment;

ii) any existing controls that apply to the stock or area concerned;

iii) the natural variation of the stock concerned.

61 Evaluation of the available information on the effects of fishing has led to a number of restrictions that underpin the existing commercial fishery management regime for SCA CS. These restrictions are consistent with the overriding obligation to avoid, remedy or mitigate the adverse effects of fishing. They are implemented through a combination of regulations and voluntary agreement and include:

a) restrictions on dredge size to reduce adverse effects on the benthos;

b) five day fishing week and daylight only fishing (reduces fishing intensity);

c) daily catch limits to reduce fishing intensity (Coromandel Scallop Fishermen's Association initiative).

62 The proposal recognises that biological systems can be inherently variable, and stocks are prone to fluctuations in abundance. This particularly applies to scallop populations.

63 Section 11(2A) of the Act requires that before varying any sustainability measure the decision-maker must take into account any approved fisheries plan, any conservation or fisheries required services, and any decisions not to require fisheries services. The current fisheries service applying to the fishery is a pre-season survey to estimate CAY for the fishery. The survey estimate has been considered and forms the basis for the proposals contained in this paper. There are no conservation services applying to the fishery. There is no draft or approved fisheries plan for the Coromandel scallop fishery.

64 In relation to s 11(2) of the Act, there are no provisions applicable to the coastal marine area known to exist in any policy statement or plan under the Resource Management Act 1991, or any other management strategy or plan under the Conservation Act 1987, that are considered relevant to the setting of sustainability measures for the Coromandel scallop fishery.

65 Under s 11(2)(c), the Minister must have regard to sections 7 and 8 of the Hauraki Gulf Marine Park Act 2000 as part of the Coromandel scallop fishery is part of the area defined as the Hauraki Gulf for the purpose of that legislation. In summary,

sections 7 and 8 articulate the national significance of the Hauraki Gulf to sustain the life-supporting capacity of the environment and note that management objectives for the Hauraki Gulf are to protect the life supporting capacity of the environment and to maintain the contribution of the natural resources to the social, recreational, and economic well-being of the people and communities of the Hauraki Gulf and New Zealand. Setting a sustainable commercial catch limit on a fishery resource, having taken into account the environmental principles of the Fisheries Act 1996, is consistent with these objectives as it provides for utilisation while ensuring sustainability.

66 Section 11 of the Act also provides for the setting or varying of sustainability measures other than a TAC or catch limits. The Minister may determine that area closures and seasonal constraints required for the annual management of this fishery be set as sustainability measures. As mentioned, a number of commercial closed areas are already in place in the Coromandel scallop fishery, although these are not considered sustainability measures.

67 Stakeholders have indicated their preference for a harvesting strategy that primarily involves in-season adjustment of the TAC. However, they have also identified that an overhaul of current regulatory controls is overdue. Issues identified for review include the commercial minimum legal size, regulatory controls on days of the week fished and the requirement that fishing occur only in daylight. Stakeholders could undertake a review of the management measures as part of the development of a management plan for the fishery.

## Administrative implications

68 There will not be an opportunity to amend the 2003-2004 cost recovery levies prior to the end of the SCA CS fishing season. Consequently, an over recovery of approximately $20,000 will occur because levies are set on a per unit basis (per kilogram or quota share), and the number of units will increase. In setting future levy orders, levy payers will be credited the $20,000 over recovery.

69 In addition, the ratio of TACC to TAC will increase from 46% to 62%. Crown costs will be reduced by $8,303 due to the change in TAC and ACE. Consequently, the levies for all fish stocks for all species will be reduced slightly or will round off to the same amount.

## Consultation

70 In June, MFish asked stakeholder representatives and members of the Shellfish Working Group to review the draft NIWA research report entitled "Dredge survey and stock assessment for the Coromandel scallop fishery, 2003". The report forms the basis of the proposed TAC change. No comments of a scientific nature were provided on the draft. The document has therefore been accepted as the final report.

71 Prior to the statutory consultation with stakeholders involving this paper as the key document, there has been no other preliminary consultation. The 2003 in-season review of the Coromandel scallop TAC is based on the process that operated for SCA CS in 2002, and stakeholders are now familiar with the process. Stakeholders will

have three weeks to provide MFish with written submissions commenting on the management proposals, and a consultative meeting is proposed during that period. The short time for consultation is necessary because of the relatively short fishing season, which closes on 20 December. Any in-season changes to the management measures for SCA CS need to be implemented as early as possible to be meaningful within that season.

## Summary

72 The Fisheries Act 1996 imposes an obligation to provide for the utilisation of fisheries resources as long as sustainability is ensured. Two management options are proposed for the Coromandel scallop fishery.

73 The proposed management measures take into account the estimate of CAY for the Coromandel scallop fishery that supports the increase in the TAC from 48 tonnes meatweight to 93 tonnes meatweight. This would allow additional utilisation and income to commercial fishers who derive part of their livelihood from this fishery. Alternatively, the Minister could decide to make different changes to the management measures in consideration of the uncertainty in the CAY assessment, and the relationship between the CAY estimate and the actual catch for each season.

74 MFish considers that the proposed measures for the SCA CS fishery are consistent with the purpose and principles of the Fisheries Act 1996 and associated obligations.

## Preliminary recommendation

75 MFish proposes that:

a) The TAC for SCA CS is increased from 48 to 93 tonnes meatweight, and within the TAC:

   i) an allowance of 7.5 tonnes meatweight is made for recreational fishing;

   ii) an allowance of 7.5 tonnes meatweight is made for customary fishing;

   iii) the allowance for other sources of fishing-related mortality is increased from 11 tonnes meatweight to 20 tonnes meatweight;

   iv) the ACE for quota owners is increased from 22 tonnes meatweight to 58 tonnes meatweight; and

   v) at the end of the current fishing year for SCA CS, the TAC will revert to 48 tonnes meatweight, the allowance for other sources of fishing-related mortality will revert to 11 tonnes meatweight, and the ACE will revert to 22 tonnes meatweight.