



Total Allowable Catch Review for the Coromandel scallop fishery (SCA CS)

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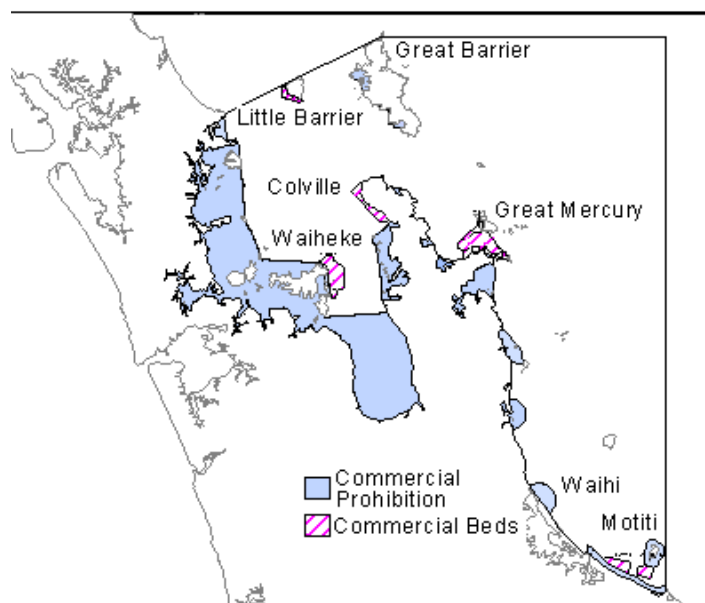
TABLE OF CONTENTS

Total Allowable Catch Review for the Coromandel Scallop Fishery (SCA CS)

Introduction.....	2
Context.....	3
Need to Act	3
Management Approach.....	4
Biological Characteristics of Scallops	4
Stock Status.....	5
SCA CS Fishery.....	6
Proposed Response.....	8
Option 1 (<i>Status Quo</i>)	8
Option 2	9
Option 3	10
Other Management Measures	12
Initial Consultation	12
Conclusion	12

TOTAL ALLOWABLE CATCH REVIEW FOR THE COROMANDEL SCALLOP FISHERY (SCA CS)

Figure 1: Quota Management Area (QMA) for the Coromandel Scallop Fishery



INTRODUCTION

1 The Ministry for Primary Industries (MPI) is seeking tangata whenua and stakeholder information and views on a review of the total allowable catch (TAC), total allowable commercial catch (TACC) and allowances for the Coromandel Scallop fishery (SCA CS) – (see Figure 1).

2 Submissions should be received by MPI by 8 February 2013 and sent to:

SCA CS Submissions
Fisheries Management – Inshore Fisheries
Ministry for Primary Industries
Private Bag 1926
Dunedin 9054

or emailed to FMSubmissions@mpi.govt.nz

3 All submissions are subject to the Official Information Act and can be released, if requested, under the Act. If you have specific reasons for wanting to have your submission

withheld, please set out your reasons in the submission. MPI will consider those reasons when making any assessment for the release of submissions if requested under the Official Information Act.

4 MPI proposes the following options for the TAC, TACC and associated allowances (Table 1):

Table 1: Proposed TACs, TACCs and allowances for SCA CS

Option	Allowances				Other sources of fishing related mortality (t)
	TAC (t)	TACC (t)	Māori Customary (t)	Recreational (t)	
Option 1 (Status Quo)	48	22	7.5	7.5	11
Option 2	96	65	10	10	11
Option 3	131	100	10	10	11

CONTEXT

Need to Act

5 The Coromandel scallop fishery entered the Quota Management System (QMS) on 1 April 2002 with a TAC for the fishery set at 48 t and the TACC at 22 t. The fishery was also put on the Second Schedule of the Fisheries Act 1996 (the Act) to allow for in-season increases in the TAC.

6 This TAC was established at a time when the fishery was beset by both “black gill” disease and a prolific outbreak of a parchment tube worm. The fishing years just prior to the establishment of the TAC, 1999 and 2000, were the two lowest recorded landings for the fishery. The TAC has not been reviewed for the intervening ten years, except through in-season increases.

7 Commercial landings and in-season TAC increases based on annual surveys have exceeded the 22 tonne ‘baseline’ TACC every year since 2002. This fishing year the in-season TAC is the largest since 2002 at 370 tonnes with commercial landings projected to reach 150 tonnes.

8 Therefore, a review of the TAC is appropriate given the recent performance of the fishery, and to take into account new management initiatives in the fishery such as operation of the “CPUE limit rule” management scheme. New evaluations of risk regarding different

management strategies, and new dredge efficiency estimates are also available to inform the TAC.

Management Approach

9 Since its introduction to the QMS, the SCA CS fishery has been managed using in-season increases to establish a new TAC every year.¹ In-season TAC increases revert to the ‘base’ TAC at the end of each fishing year. For most years, a new biomass survey has been used to determine the in-season TAC.

10 While this approach has been responsive to biomass fluctuations and variation in the annual maximum potential catch, it is an intensive approach with high direct and indirect costs. Annual survey costs are typically \$100k shared evenly between industry and MPI. Indirect costs also arise annually from peer validation of the results and yield calculations, development of Ministerial advice, public consultation and gazettal of the TAC.

11 SCA CS is a Group 2 stock within the draft National Fisheries Plan for Inshore Shellfish (www.fish.govt.nz/en-nz/Fisheries+Planning). Objectives for Group 2 stocks include enabling annual yield from the fishery to be maximised, while maintaining the stock size at or above the level required to ensure sustainability and the spawning stock biomass. Reviewing the SCA CS TAC is consistent with this management approach.

12 Also consistent with this approach, the Coromandel Scallop Fishermens’ Association (CSFA) has implemented a voluntary management strategy, the ‘CPUE (catch per unit effort) limit rule’ to improve utilisation while maintaining sustainability within the fishery. The ‘CPUE limit rule’ has been in place for SCA CS for the past three years and operates across all vessels in the fishery. It aims to ensure that scallop beds will not be fished below a specified level of CPUE (where CPUE is a proxy for scallop density). Once a specified lower CPUE limit of scallops has been reached, fishing within that area of the fishery ceases for the remainder of the season. As well as mitigating risks in terms of natural mortality events or sudden decline, MPI and CSFA are evaluating the strategy as an alternative approach to survey-dependent management and in-season TAC adjustments.

Biological Characteristics of Scallops

13 Scallops are highly productive, believed to be relatively short-lived (four to seven years of age) and able to move short distances. These characteristics, along with their clumped distribution, make identifying appropriate biomass targets or minimum reference biomass levels problematic for scallop fisheries. Targets based on fishing mortality are often

¹ Provided for by s 13(7) of the Act SCA CS being included on Schedule 2 of the Act.

more appropriate than biomass for highly variable species such as scallops. $F_{0.1}$ has typically been used as a proxy for F_{MSY} to determine yield estimates and TACs in this fishery².

14 MPI is continuing to work with stakeholders to determine specific harvest strategies (including target and reference levels) and monitoring appropriate for the characteristics of each scallop fishery.

Stock Status

15 Information on the current stock status is available from a biomass survey conducted by NIWA under MPI project (SCA 2010/01B) in April-May 2012 and reviewed by MPI's Shellfish Working Group in October 2012.

16 The survey was the most extensive to-date, and included a significant area, new to the fishery, located in relatively deep water in the Hauraki Gulf.

17 The survey estimates (in meat-weight) are as follows:

- 1380 tonnes – start of season biomass.
- 370 tonnes – Current Annual Yield (CAY).

18 These estimates are for the surveyed beds only. There is likely to be additional biomass in those areas not surveyed, including areas where commercial scallop fishing is prohibited (see Figure 1).

19 In-season increases have used CAYs with an 82 percent or greater confidence that fishing mortality will be below $F_{0.1}$ to set the TAC. This is a high level of confidence that ensures all potential sources of fishing mortality (such as direct and indirect effects of fishing on adults and juvenile scallops) are taken into consideration and exceeds the requirements set out in MPI's Harvest Strategy Standard (www.fish.govt.nz).

20 The 2012 survey includes new estimates of dredge efficiency³ available as a result of a new study reviewed by the Shellfish Working Group in 2011. The new dredge efficiency estimates suggest that biomass may have been overestimated in past surveys. However, as the new estimates were not applied to the 2012 survey estimates, this year's CAY is likely underestimated.

² Refer www.fish.govt.nz/en-nz/Consultations/Archive/2012 for latest survey results and more information

³ Bian, R.; Williams, J.R.; Smith, M.; Tuck, I.D. (2012). Modelling scallop dredge efficiency for the Coromandel and Northland scallop fisheries. Final Research Report for Ministry Industry project SAP2009/13 46 p. (unpublished report held by NIWA, Auckland.)

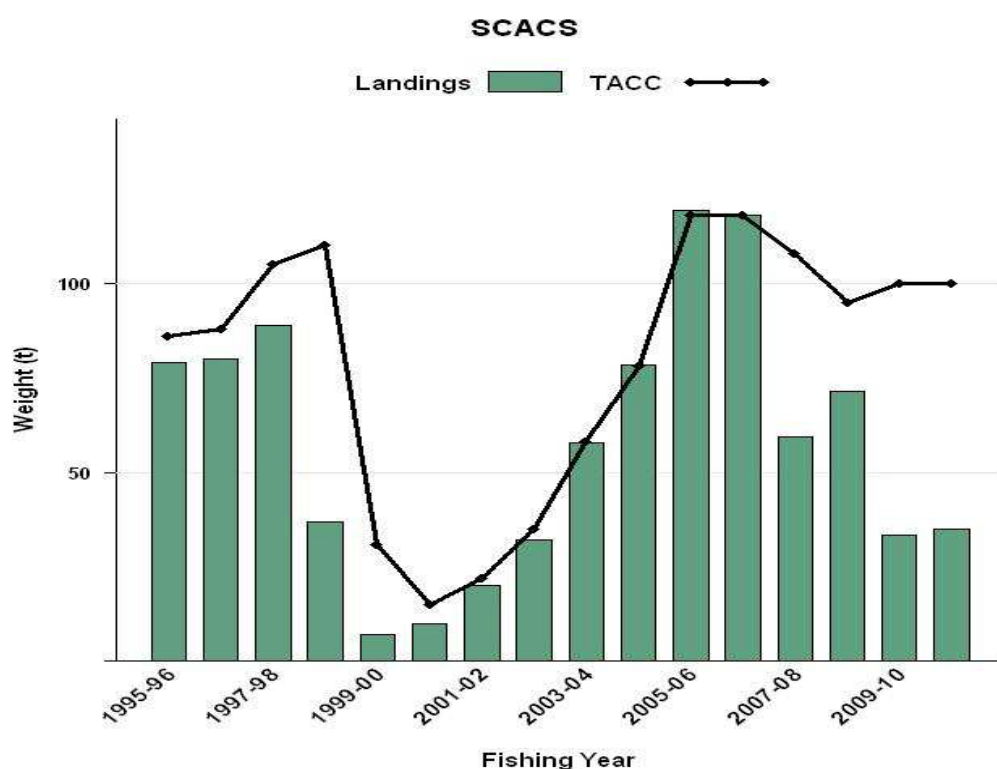
SCA CS Fishery

Commercial

21 The SCA CS commercial season runs from 15 July to 21 December. Around seven commercial vessels operate in the fishery. Harvest from the fishery is measured as meatweight, and there is a commercial minimum legal size limit of 90 mm. The fishery currently has ten quota holders.

22 Commercial fishers typically use self-tipping “box” dredges. The efficiency of these dredges is difficult to estimate and is affected by substrate type, current direction and weather conditions. Dredges cause incidental mortality of scallops and can impact on the seabed. However, the substrate in the areas commercially fished is predominantly sand, which may be less vulnerable to habitat modification than stable substrates. Dredge efficiency and direct effects of dredging are taken into account in the CAY estimates used.

Figure 2: SCA CS commercial landings and in-season TACC (t meatweight). The in-season TACC for the current year (not shown) is the highest in the series at 325 t.



23 In-season TACCs revert to the baseline TACC at the end of the fishing year. For the past three years landings have been constrained by processing capacity and/or by operation of the CPUE limit rule.

Recreational

- 24 There is a strong recreational interest in scallops in SCA CS, mostly in enclosed bays and harbours. The recreational and commercial fisheries are, largely, spatially separate with much of the near shore area closed to commercial scallop fishing (refer Figure 1). Scallops are usually taken recreationally by diving using snorkel or scuba, although small dredges are also used.
- 25 There are three recreational harvest controls. These are:
- Open season from 1 September to 31 March
 - A 100 mm minimum recreational size limit
 - A maximum daily bag limit of 20 scallops per person. A diver may take an additional daily bag limit for each of up to two boat safety people.
- 26 There are no reporting requirements for recreational fishers and scallop catch cannot be reliably determined. Estimates of recreational catch are available from telephone and diary surveys between 1996 and 1999-2000 and vary between 3.8 to 8.8 t meatweight. These estimates are, however, highly uncertain.
- 27 A pilot boat ramp survey undertaken over part of the SCA CS fishery during a peak recreational period (December 2007 to February 2008) estimated the recreational scallop harvest for the area between Cape Colville and Hot Water Beach to be 3 t meat weight.
- 28 New information on recreational catch in the fishery is expected in 2013 from the Large-Scale Multispecies Survey and a new Bay of Plenty recreational scallop and rock lobster survey⁴.
- 29 Commercial fishers can also take scallops (as recreational fishers) if granted an approval issued under section 111 of the Act (in accordance with the conditions imposed on such approval). In the 2011/12 fishing year approximately 0.5 t meatweight was taken under section 111 approvals.
- 30 Diver surveys of scallops were conducted annually in June–July from 2006 to 2010 at selected scallop beds in the fishery to investigate the relationship in scallop abundance between the main commercial and recreational scallop beds. Scallop abundance in commercial and some recreational beds have varied in similar ways but it is difficult to draw firm conclusions about the nature of this relationship.⁵

⁴ Refer www.fish.govt.nz/en/nz/Recreational/Recreational+Research+Programme

⁵ Williams, JR. 2012. *Abundance of scallops (Pecten novaezelandiae) in Coromandel recreational fishing areas, 2009 and 2010*. New Zealand Fisheries Assessment Report 2012/24. 29p

Māori Customary

- 31 Scallops are an important kaimoana species for tangata whenua. Some customary harvest information is available from reporting of customary harvest authorisations. Thirteen customary permits have been issued for 5300 scallops with 1400 scallops reported taken. This relatively low number may, however, not represent total customary catch as customary fishers in much of the fishery are operating under regulation 27 and 27A of the Fisheries (Recreational Fishing) Regulations 1986, in which reporting is non-mandatory for customary landings.

Other Sources of Fishing Related Mortality

- 32 Incidental damage to uncaught or undersize scallops can occur during commercial dredging. The level of incidental mortality expected in the commercial dredge fishery has been previously estimated to be up to 34%. Recent studies indicate incidental mortality from commercial dredging may have been overestimated in the past. Incidental damage during commercial dredging is allowed for in the CAY estimates used for the fishery.
- 33 Other sources of fisheries related mortality are likely to be from recreational dredging and illegal take of scallops. The Ministry does not have reliable estimates of these sources of mortality.

PROPOSED RESPONSE

- 34 MPI is seeking tangata whenua and stakeholder information and views by consulting on the management options for TACs, TACCs and allowances set out in Table 1.
- 35 The Minister is required to set a TAC using the best available information. Key information for SCA CS includes: recorded annual commercial landings, recent biomass survey and CAY estimates for SCA CS. New evaluations of risk regarding different management strategies are also available. In combination, this information suggests the performance of the fishery has changed since the TAC was set in 2002, and that it may be appropriate to set a higher TAC without presenting unacceptable short-term risks to the stock. In the medium and longer term continued monitoring and adjustment of the TAC will be required.

Option 1 (*Status Quo*)

- 36 Option 1 is the *status quo* and proposes no change to the TAC, TACC or allowances for Māori customary, recreational or other sources of fishing related mortality.

- 37 Based on the available information, this option presents a very cautious approach that does not take into account the improved performance of the fishery since the TAC was set in 2002 and the additional research and management information now available.
- 38 The current high biomass means there can be some confidence about biomass levels over the next two years. However, it is likely that the abundance of the stock will decline at some point in the future. Option 1 is an appropriate management approach if it is considered that fishery biomass is extremely unpredictable year to year.

Option 2

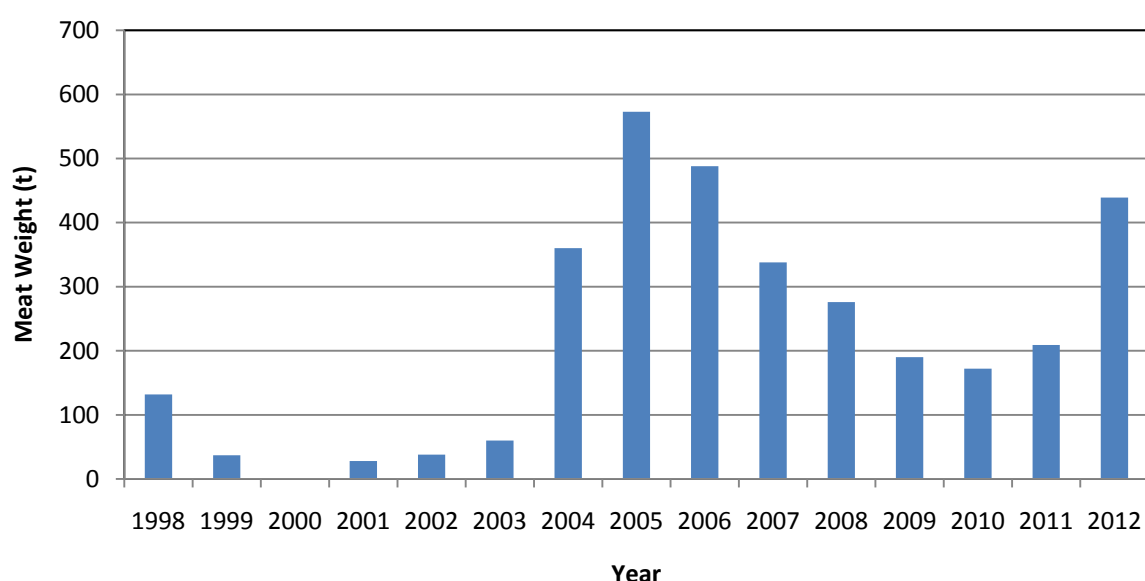
- 39 Under Option 2:
- The TAC increases from 48 tonnes to 96 t
 - The allowance for Māori customary catch increases from 7.5 to 10 t
 - The allowance for recreational catch increases from 7.5 to 10 t
 - The allowance for other sources of fishing related mortality is retained at 11 t
 - The TACC increases from 22 to 65 t.
- 40 Option 2 uses the average commercial landings over the last 10 years (65t) to set a TACC. It takes into account the additional research and management information that has been gathered since the TAC was set in 2002, as well as initiatives such as the CPUE limit rule.
- 41 Commercial landings have exceeded the current 22 tonne TACC every year for the last ten years, suggesting long-run production from the fishery is higher than the current TACC.
- 42 As biomass can be anticipated to vary from one year to the next, average landings can only be an indicator of productive capacity, rather than future abundance. Under both Option 2 and Option 3 the fishery will continue to be monitored for significant changes in abundance. Risks around rapid declines will also need to be mitigated by continued operation of the industry CPUE limit rule strategy. MPI will annually review the performance of the strategy, and will re-evaluate the abundance of scallops in the fishery in 2014/15. Re-evaluation will either be by way of a biomass survey, or through an alternative monitoring approach that has been approved by MPI's Shellfish Working Group.
- 43 Under this Option, in-season increases will continue to be required if the fishery is considered to support a higher TAC in any given year.

- 44 It is proposed under Option 2 to retain the current allowance for other sources of fishing related mortality at 11 t. There is uncertainty regarding incidental mortality from recreational fishing for scallops and there are incentives for illegal harvest of this high-value shellfish. MPI notes that dredge effects on incidental mortality of scallops from commercial dredging are already taken into account in the CAY estimates used to set TACs (and therefore landings) over the last 10 years.
- 45 The current biomass estimates indicate that those areas of the fishery outside of the new Hauraki Gulf bed are at similar levels to previous surveys. Information from recreational fishers suggests the new Hauraki Gulf bed is too deep for non-commercial fishers to access. Diver surveys of recreational fishing areas also indicate there is no firm relationship between scallop abundance in commercial and some recreational areas. Taking these factors into account MPI proposes a small increase in allowances for the Māori customary and recreational fisheries to 10 t each.

Option 3

- 46 Under Option 3:
- The TAC increases from 48 tonnes to 131 t
 - The allowance for Māori customary catch increases from 7.5 to 10 t
 - The allowance for recreational catch increases from 7.5 to 10 t
 - The allowance for other sources of fishing related mortality is retained at 11 t
 - The TACC increases from 22 to 100 t.
- 47 Option 3 takes into account the current high CAY estimates for the fishery to set a higher TAC than Option 2 and enables the commercial fishing industry to obtain more value from the fishery. As for Option 2, it also takes into account the additional research and management information that has been gathered since the TAC was set in 2002, as well as initiatives such as the CPUE limit rule.
- 48 CAY estimates give a “point in time” estimation of stock status for those areas of the fishery that were surveyed. The graph of CAY estimates (Figure 3) illustrates the difference between estimates of sustainable harvest from year to year. It reflects that between 1999 and 2003 the fishery was beset with both “black gill disease” and a proliferation of a parchment tube worm (*Chaetopterus*). These not only competed with suspension filter feeders, such as scallops, but also obstructed fishing by rapidly clogging the dredges. The TAC for SCA CS was set in 2002 during this low ebb in the fishery. Since 2004, the fishery has shown significantly improved performance.

Figure 3: SCA CS CAY estimates from 1998/99 to 2011/12 (tonnes meat weight)



No survey was undertaken in 2000. The 2011 estimate is a forecast based on the 2010 survey data.

- 49 As for Option 2 the fishery will continue to be monitored for significant changes in abundance. Risks around rapid declines will also need to be mitigated by continued operation of the industry CPUE limit rule strategy. MPI will annually review the performance of the strategy, and will re-evaluate the abundance of scallops in the fishery in 2014-15. Re-evaluation will either be by way of a biomass survey, or through an alternative monitoring approach that has been approved by MPI's Shellfish Working Group.
- 50 Given the biological characteristics of scallops, MPI considers it is likely that scallop abundance in the fishery will fluctuate even in the absence of fishing. However, the current high biomass means we can have some confidence about biomass levels over the next two years.
- 51 Other factors that also give confidence around this option include; that the majority of both last year and this year's fishing effort is being targeted at the new 2W beds, spelling the remainder of the fishery; and that commercial fishers indicate they anticipate harvesting significantly less than the current 325 t in-season TACC because of processing and quality issues.

Other Management Measures

- 52 MPI previously considered the deemed value rates for SCA CS earlier in 2012, and determined that the current rates provide appropriate incentives to fishers to balance their catch with ACE.

INITIAL CONSULTATION

- 53 The proposed changes to the TAC were raised at the Mai i Nga Kuri a Whareki Tihirau Fisheries Forum Meeting on 3 December 2012. Also a letter was sent to Iwi representatives requesting written input into the draft IPP on the 6th of December. No specific input has been received.
- 54 The proposals outlined in this IPP have also been discussed with commercial scallop fishery representatives. They have indicated a preference for Option 3, and consider the options presented should place greater weight on the use of the CPUE limit rule approach.

CONCLUSION

- 55 MPI is seeking information and views from tangata whenua, fishery stakeholders and other interested parties to inform the review of catch limits for SCA CS.
- 56 The TAC for the fishery has not been reviewed for ten years. Setting the TAC involves enabling annual yield from the fishery to be maximised, while maintaining the stock size at or above the level required to ensure sustainability and the spawning stock biomass.
- 57 In view of the current high biomass abundance, MPI considers there is confidence about biomass levels over the next two years. However, it is noted that variation in recruitment makes it likely the abundance of the stock will decline at some point in the future.
- 58 Options 2 and 3 increase the TAC and involve higher risks that need to be taken into account in terms of monitoring the fishery. Risk should be seen in the context of the large current biomass in the fishery, that MPI will re-evaluate the abundance of scallops in the fishery in 2014-15 (either by way of a biomass survey, or through an alternative approved monitoring approach), and that the industry CPUE limit programme will continue to mitigate risks of sudden declines in biomass.
- 59 It is important to note that the Minister has broad discretion in exercising his powers of decision-making. The Minister will make his own independent assessment of the

information presented to him by both MPI and stakeholders before making a final decision.