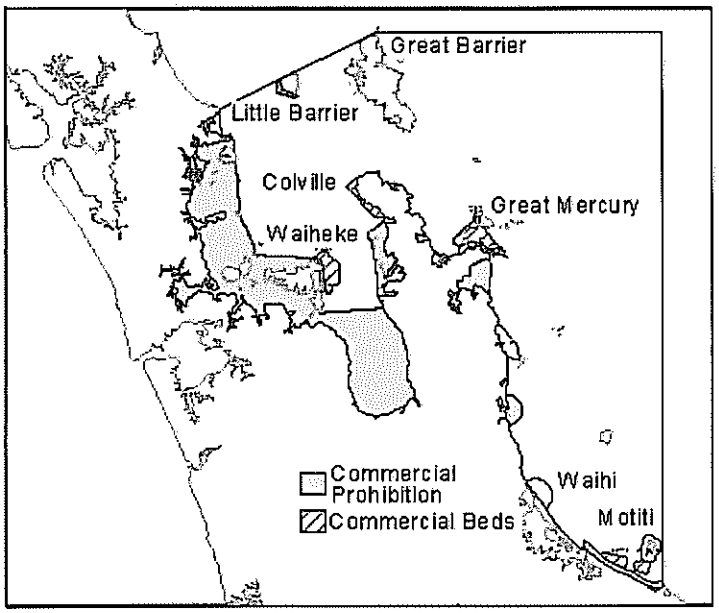
FINAL ADVICE PAPER

2010-11 IN-SEASON REVIEW OF THE TOTAL ALLOWABLE CATCH FOR THE COROMANDEL SCALLOP FISHERY (SCA CS)

Figure 1: Quota Management Areas (QMA) for the Coromandel Scallop fishery (SCA CS)



Summary

1 The Ministry of Fisheries (MFish) is seeking your decision on an in-season total allowable catch (TAC) increase for the Coromandel scallop fishery.

2 A biomass survey undertaken by NIWA estimates the biomass of the Coromandel scallop population to be 540 tonnes meat weight and the current annual yield (CAY) to be 172 tonnes meat weight.

3 Having considered submissions, MFish recommends that you set an in-season TAC of 154 tonnes meat weight, and that you allocate the TAC as follows:

(All weights are in tonnes of meat weight)

TAC	TACC/ACE	Recreational Allowance	Maori Customary Non-Commercial Allowance	Other Sources of Fishing-Related Mortality
154	100	10	10	34

Background

4 You are being asked to make a decision on an in-season TAC review for the Coromandel scallop fishery, allocate the TAC to the Maori customary non-commercial, recreational and commercial sectors and to make an allowance for other sources of fishing-related mortality. In-season TAC increases are provided for by section 13(7) of the Fisheries Act 1996, and are part of the annual management strategy for this fishery.

Consultation

5 An Initial Position Paper (IPP) was circulated to interested parties including: all quota holders within the fishery; the Coromandel Scallop Fishermen's Association; the Hauraki Maori Trust Board; Ngatiwai Trust Board; Te Runanga o Ngati Whatua; the Bay of Plenty Iwi Forum (Mai na Kuri a Wharei ki Tihirau); the New Zealand Recreational Fishing Council; Mount Maunganui Sports Fishing Club; New Zealand Underwater Inc; Piako Dive Club, and ECO.

6 A copy of the IPP was also available for viewing and downloading from the MFish website.

Submissions received

7 MFish received eight submissions to the IPP:

- Coromandel Scallop Fishermen's Association
- Mount Maunganui Sports Fishing Club
- New Zealand Recreational Fishing Council
- New Zealand Sports Fishing/Hokianga Accord/option4
- Ngai Te Rangi Fisheries AHC Limited
- Seafood Industry Council
- Te Ohu Kaimoana
- Whangamata Seafoods Limited.

Biological Characteristics of the New Zealand scallop

8 The New Zealand scallop, *Pecten novaezelandiae*, is found in a variety of coastal habitats. Scallops are functional hermaphrodites, and become sexually mature at about 60–70 mm shell length. They are extremely fecund, may spawn several times each year, have relatively fast growth rates, and live to a maximum of about 6-7 years. However, scallops can also experience high mortality at all life stages. These factors can lead to scallop populations being highly variable from year to year. This variability is thought to be largely independent of fishing pressure.

Coromandel Scallop Fishery

Commercial Fishery

9 The Coromandel scallop population supports a regionally important commercial fishery. Fishing is mainly conducted within a number of discrete beds located at Little Barrier Island, east of Waiheke Island, Colville, north of Whitianga, and the Bay of Plenty (Waihi, Motiti and Slipper Islands) (Figure 1). Commercial fishers typically use self-tipping "box" dredges. About seven commercial vessels currently operate in the fishery. At the current port price of $15.75 per kg, an annual catch entitlement (ACE) of 100 tonnes would return $1,575,000. Whangamata Seafoods reports that the packing house employs 32 people during the scallop season.

10 A number of regulations control the commercial fishery. The three main commercial controls are:

a) Open season from 15 July to 21 December

b) A 90 mm minimum commercial size limit

c) Commercial scallop fishing prohibited areas (see Figure 1).

11 The commercial scallop fishing prohibited areas are established in the Fisheries (Auckland and Kermadec Areas Commercial Fishing) Regulations 1986. They create a significant, but incomplete spatial separation between the commercial and non-commercial sectors.

Maori Customary Fishery

12 The Coromandel scallop population supports an important customary non-commercial fishery. Quantitative information on the level of Maori customary non-commercial take is very limited and there is no reliable estimate of catch. It is believed that the quantum of this take is likely to be higher in years of higher biomass.

Recreational Fishery

13 The Coromandel scallop population also supports an important recreational fishery. The main harvest method is diving, although some dredging occurs.

14 Three key recreational harvest controls apply:

a) Open season from 1 September to 31 March

b) A 100 mm minimum recreational size limit

c) A maximum daily bag limit of 20 scallops per person. However, a diver may take an additional daily bag limit for each of up to two boat safety people.

15 No reliable, fishery-wide estimates of the amount of scallops harvested by recreational fishers exist. Telephone diary surveys have been undertaken on four occasions however, the Marine Recreational Fisheries Technical Working Group states "that the telephone diary estimates be used only with the following qualifications: 1) they may be very inaccurate; 2) the 1996 and earlier surveys contain a methodological error; and 3) the 1999-2000 and 2000-2001 estimates are implausibly high for many important fisheries." The estimates are provided in the table below.

Coromandel scallop recreational take estimates from telephone diary surveys (tonnes)

Survey	Green weight estimate	Meat weight estimate
1993-94	60 -70	7.5-8.8
1996	62	7.8
1999-00	30.1	3.8
2000-01	55.3	6.9

16 A pilot boat ramp survey undertaken from 1 December 2007 to 28 February 2008 estimated the recreational scallop harvest for the area between Cape Colville and Hot Water Beach to be 23.9 tonnes greenweight or 3 tonnes meat weight.

17 It is considered that recreational fishers are likely to attain their maximum daily bag limit and undertake more fishing trips during years of high biomass.

Coromandel Scallops Stock Status

18 NIWA undertook a biomass survey of the commercial scallop beds between 8 May and 31 May 2010. The survey methodology and analytical process has been approved by MFish's Shellfish Working Group. The biomass report is yet to be put before the Shellfish Working Group for approval, however, members of the Group have individually reviewed the report and approved its release.

19 The survey estimates are as follows:

- 540 tonnes meat weight – absolute start of season (15 July) biomass
  (95% confidence interval 370 – 835 tonnes, cv = 0.21)
- 172 tonnes meat weight – CAY estimate
  (95% confidence interval 118 – 263 tonnes)
- 117 tonnes meat weight – CAY*(+indirect)* estimate
  (95% confidence interval 80 – 179 tonnes).

20 The CAY estimates represent the total yield that is sustainable based on the current biomass. The formula used to generate the CAY estimates takes into account the incidental mortality associated with the fishery. As a result, the CAY estimates represent the amount of scallops that could be allocated to commercial, Maori customary non-commercial and recreational interests.

21 NIWA provides two CAY estimates. The 172 tonne CAY estimate takes into account the effects of fishing on adult scallops only. The 117 tonne CAY*(+indirect)* estimate takes into account the effects of fishing on adults and the effects of fishing on the mortality of juvenile scallops shortly after they settle to the seabed. The Shellfish Working Group acknowledges that these latter effects will reduce yield, however, the magnitude of the effect is highly uncertain. There is less confidence in the CAY*(+indirect)* estimate.

22 The above biomass and CAY estimates apply to the surveyed beds only. These are the beds fished by the commercial fishers. These beds are also open to Maori customary non-commercial and recreational fishers. Additional scallop biomass is available to the Maori customary non-commercial and recreational sectors from those areas where commercial scallop fishing is prohibited.

23 The 2010-11 CAY estimates are statistically similar to those of the 2009-10 fishing year (190 and 129 tonnes meat weight respectively). In 2009-10 the in-season TAC review process resulted in a TAC of 155 tones meat weight.

24 The Coromandel scallop biomass has been in decline since 2005. However the current biomass estimate is statistically similar to that of 2009-10.

Management Options

25 The management regime used by MFish for this fishery is a responsive approach that reflects the highly variable nature of the scallop biomass. The in-season TAC review process seeks to protect the stock during years of low biomass by having a low baseline TAC, which can be increased in-season so that fishers may enjoy the benefits of increased harvest during years of high biomass. This approach is consistent with Fisheries 2030 objective of *New Zealanders maximising benefits from the use of fisheries within environmental limits.*

26 In the IPP MFish proposed the following options for the in-season TAC review for the Coromandel scallop fishery (SCACS):

(All weights are tonnes of meat weight)

Stock	Option	TAC	Customary allocation	Recreational allowance	Other sources of mortality	TACC /ACE
SCACS	(baseline)	48	7.5	7.5	11	22/22
	1	154	10	10	34	22/100
	2	148	10	10	33	22/95

In-Season Review of the Total Allowable Catch

27 In-season TAC increases are provided for under section 13(7) of the Act. Section 13(7) requires you to have regard to sections 13(2), 13(2A), if applicable, and to 13(3).

28 Although the biomass survey provides an assessment of the current scallop biomass within the fishery, as virgin biomass is unknown MFish cannot determine the current status of the fishery in relation to the level of the stock that can produce the maximum sustainable yield (B_{MSY}). In such circumstances, you may set a TAC under s 13(2A) of the Fisheries Act.

29 Section 13(2A) requires you to have regard to the interdependence of stocks, the biological characteristics of the stock, and any environmental conditions affecting the stock. It requires you to set a TAC –

a) Using the best available information, and

b) That is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, B_{MSY}.

30 You must not use the absence of, or uncertainty in, the best available information as a reason for postponing or failing to set a TAC.

31 Section 13(3) requires that in considering the way in which and rate at which a stock is moved towards or above B_{MSY}, you must have regard to such social, cultural, and economic factors as you consider relevant.

Analysis

32 The 2010 biomass report indicates that the TAC of 48 t could be increased whilst ensuring sustainability.

33 The Coromandel scallop fishery is a target fishery with relatively little bycatch. It is managed as a separate management unit from adjacent stocks. The CAY estimates are based on the biomass estimate of the fishery and are generated from actual surveys. These estimates, therefore, take into account the interdependence of stocks issues you are required to have regard to.

34 The biology of scallops is well understood. Scallops demonstrate a highly variable biomass from year to year. The management approach used by MFish recognises this high variability and uses current biomass estimates generated from a survey to support the in-season TAC review.

35 Environmental conditions are believed to be the primary drivers for the highly variable nature of scallop biomass. Setting a TAC based on a current biomass estimate minimises uncertainties associated with changes in the stock biomass as a result of changing environmental conditions.

36 In relation to section 13(3), increasing the TAC maximises the sustainable yield from the fishery and maximises social, cultural and economic benefits by providing for increased utilisation for recreational, customary and commercial fishers. More specific analysis of the economic benefits of increased commercial utilisation is set out in paragraph 76 below.

37 Relevant matters for you to take into account when setting or varying a TAC include:

(a) Any effects of fishing on any stock and the aquatic environment

(b) Any existing controls that apply to the stock or area concerned

(c) The natural variation of the stock concerned.

38 You must also take into account the following environmental principles.

a) Associated or dependent species should be maintained above a level that ensures their long term viability

b) Biological diversity of the aquatic environment should be maintained

c) Habitats of particular significance to fisheries management should be protected.

39 There are a small number of existing controls that apply to the fishery as detailed in paragraphs 10 and 14. The TAC options do not alter any existing controls, their operation or effectiveness.

40 The commercial scallop fishery is a dredge fishery. Dredging is a non-selective fishing method and will catch species of no commercial interest to the fishers.

Dredging is also known to reduce habitat heterogeneity and biological diversity. Although such effects cannot be avoided, commercial fishers tend to fish the same areas each year and only use a small proportion of each habitat type. These two factors minimise the impacts of the fishery on these matters. A larger TAC will most likely result in increased dredging activity however, the relationship between TAC and area dredged is unlikely to be linear as during years of high scallop population biomass, scallop densities will also be higher.

41 The Mount Maunganui Sports Fishing Club and New Zealand Sports Fishing/Hokianga Accord/option 4 comment in their submission on the effects of commercial scallop fishing on particular areas; Waiheke, Waihi, Papamoa and Motiti.

42 MFish understands that commercial fishers target areas of high scallop densities and avoid areas such as papa rock reefs as they are potentially harmful to dredges. Whilst the CAY*(+indirect)* is not as reliable as the CAY estimate, it does give some indication of the sustainable yield taking account of the effects of the fishery on the stock, settlement of spat, and effects on the benthic environment.

43 Maori customary and recreational fishers catch scallops by diving or by using a small lightweight dredge. These harvest techniques have few impacts.

44 Limited information exists on the nature and location of habitats of particular significance to fisheries management, however, given the above and the localised nature of the fishery, it is considered that the fishery is unlikely to be have any significant affected on such habitats. Accordingly, fishing at the level of either of the TAC options proposed in the IPP is considered to be consistent with the environmental principles of the Act.

45 In terms of other statutory considerations:

(a) There are no relevant controls in any regional policy statement, regional plan or proposed regional plan, including a regional coastal plan

(b) There is no relevant management strategy or management plan under the Conservation Act 1987

(c) There are no relevant fisheries or conservation services applying to this fishery that need to be taken into account.

46 The entire Coromandel scallop QMA, except that part south of the northern end of Waihi Beach, is within the Hauraki Gulf Marine Park.

47 Section 7 of the Hauraki Gulf Marine Park Act 2000 (HGMPA) recognises the national significance of the Hauraki Gulf and the importance of sustaining its life supporting capacity. Life supporting capacity is defined and includes being able to provide for the relationship of tangata whenua with the Gulf, and the social, recreational and economic well-being of people and communities, and includes the use of the Gulf's resources. The management approach used for the Coromandel scallop fishery and both TAC options proposed in this paper are consistent with section 7 of the HGMPA.

48 Section 8 of the HGMPA sets a series of management objectives for the Gulf. These include:

- The protection and where appropriate, the enhancement of; the life supporting capacity of the Gulf, it's natural and physical resources, and the relationship of tangata whenua with the Gulf and its resources
- The protection of the cultural and historic associations of people and communities with the resources of the Gulf
- The maintenance and where appropriate the enhancement of contributions of the Gulf's resources to the social, economic well-being, and the recreation and enjoyment of people and communities.

49 The purpose of the in-season TAC review process is to enable utilisation to better reflect annual changes in scallop abundance. Such an approach achieves the outcomes sought in the bullet points above, in particular, protecting and, where appropriate, enhancing the life supporting capacity of the Gulf, protecting cultural and historic associations, and enhancing social and economic well-being, recreation and enjoyment by enhancing utilisation opportunities. Accordingly, both TAC options included in the IPP are consistent with the management objectives set out in section 8 of the HGMPA.

50 In setting or varying a TAC the Minister must have regard to sections 5(a) and 5(b) of the Act. These sections relate to international obligations and to the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992. There is a wide range of international obligations relating to fishing (including sustainability and utilisation of fishstocks and maintaining biodiversity). The management options for the Coromandel scallop fishery are consistent with these international obligations. The proposed management options are consistent with the obligations under the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992.

Options

51 MFish proposed two TAC options in the IPP:

- **Option 1**: 154 tonnes meat weight and
- **Option 2**: 147 tonnes meat weight.

52 Option 1 was based on the TAC set for the 2009-10 fishing season which was established under a similar population biomass.

53 Option 2 was based on slightly lower level of catch and was the same as one of the alternative options proposed in 2009.

54 Three submitters commented on the TAC options. Te Ohu Kaimoana supported Option 1. Whangamata Seafoods stated that it supported Option 1 but did not support any increases in the non-commercial allowances. New Zealand Sports Fishing/Hokianga Accord/option4 proposed a more conservative TAC of 117 tonnes meat weight, with an alternative TAC of 137 tonnes meat weight if commercial fishing was prohibited from areas of low scallop density (Waiheke, Waihi, Papamoa and Motiti).

55 None of the submitters provided any additional information to support different scallop biomass or CAY estimates to that contained in the IPP.

56 The 2010 biomass report indicates that the TAC could be increased whilst ensuring sustainability. Both options are less than the CAY estimate, but Option 1 would exceed the more conservative CAY*(+indirect)*. As there is less scientific confidence in the CAY*(+indirect)* estimate, and additional biomass is available from beds that were not part of the survey, MFish advises that greater reliance should be placed on the higher CAY estimate. Taking this, and the other matters discussed in the previous section into account, MFish recommends the TAC be set at the level of 154 tonnes meat weight (Option 1).

Allocation of the TAC

57 If a TAC is increased pursuant to section 13(7) of the Act, you must apportion the increased TAC between the relevant sectors and interests set out under the provisions of s 21 of the Act. Section 21 requires you to allow for Maori customary non-commercial interests, recreational fishing interests, and for any other sources of fishing-related mortality.

58 The Act does not provide an explicit statutory mechanism to apportion available catch between sector groups either in terms of a quantitative measure or prioritisation of allocation. Accordingly, you have the discretion to make allowances for various sectors based on the best available information.

Maori Customary Non-Commercial Interests

59 Only one option was proposed in the IPP for the Maori customary non-commercial fishing allowance. This option increased the allowance from 7.5 tonnes to 10 tonnes meat weight. Although there are no reliable estimates of Maori customary non-commercial fishing, it is likely that customary catch will increase with increased abundance. Such an increase is consistent with the approach adopted for previous in-season increases for this fishery.

60 When allowing for Maori customary non-commercial interests, any mātaitai reserves or s186A temporary closures need to be taken into account. There is one mātaitai reserve within the Coromandel scallop fishery quota management area – Mount Maunganui and Part Tauranga Harbour Mātaitai Reserve. This area is relatively small and probably holds few scallops. There is one s186A temporary closure. This is at Umupuia Beach, Manukau City and applies to cockles only.

61 Most commercial stakeholders did not support an increase in the Maori customary fishing allowance. The Coromandel Scallop Fishermen's Association and the Seafood Industry Council suggest that the baseline allowance exceeds current customary take. Also the Seafood Industry Council does not support the "logic" that Maori customary catch increases with increasing abundance. Both submitters suggest that Maori customary catch is determined by permits, rather than abundance. These submitters plus Whangamata Seafoods sought that this allowance be retained at the baseline level.

62 Te Ohu Kaimoana supported increasing the allowance to 10 tonnes meat weight.

63 The New Zealand Recreational Fishing Council sought a combined non-commercial sector allowance of 20 tonnes meat weight. New Zealand Sports Fishing/Hokianga

Accord/option4 proposed that the baseline Maori customary allowance be increased to 15 tonnes and the in-season increase process be dispensed with.

64 There is limited uptake, and therefore reporting of customary take, under the Fisheries (Kaimoana) Regulations in relation to this area. Accordingly, MFish records of customary catch are unlikely to provide a good assessment of actual customary catch.

65 Contrary to the commercial submitters, MFish expects greater customary catch when scallops are more abundant. After considering the submissions, and acknowledging the uncertainties around Maori customary non-commercial take, MFish recommends that the Maori customary allowance be increased from 7.5 tonnes meat weight to 10 tonnes meat weight.

Recreational Interests

66 Only one option was proposed in the IPP for the recreational allowance. This was to increase the allowance from 7.5 tonnes to 10 tonnes meat weight. An increase to 10 tonnes meat weight is consistent with previous decisions for this fishery.

67 The submitters provide a mix of views on the allowance. Generally, the commercial stakeholders did not support an increase from the baseline recreational allowance. The Coromandel Scallop Fishermen's Association, Whangamata Seafoods and the Seafood Industry Council sought that the recreational allowance not be increased. They consider that there is insufficient information to support an increase, notably:

- The size of the recreational catch is poorly understood
- The biomass within the areas closed to commercial scallop fishing has not been quantified by a survey
- There was insufficient research to show that scallop biomass in these areas follows similar trends to that in the surveyed beds.

68 Te Ohu Kaimoana supports a recreational allowance of 10 tonnes meat weight.

69 Generally the recreational stakeholders supported an increase in the recreational allowance. The New Zealand Recreational Fishing Council stated that the non-commercial allowance - a combination of the recreational and the Maori customary non-commercial fishing allowance - should be 20 tonnes

70 Apart from commenting on the quantum of the allowance proposed, none of the submitters provide any new or additional information on the quantum of recreational catch. MFish acknowledges that there is uncertainty regarding the quantum of the recreational catch. On-going work that should lead to better estimates of recreational scallop catch is underway.

71 Recreational fishers are constrained by a daily bag limit, but overall recreational catch is not constrained unlike commercial catch. In years of higher abundance, recreational fishers are more likely to achieve their daily bag limit, and may choose to fish more frequently than in years when scallop abundance is less. These two factors combine to suggest it is reasonable to increase the allowance for recreational catch.

72 After considering the submissions, and acknowledging the uncertainties surrounding the recreational catch, MFish considers recreational catch for the 2010-11 season may exceed the baseline allowance of 7.5 tonnes. The available biomass is close to the historical average, and higher than when the baselines were estimated. The recreational allowance proposed in the IPP was a small increase from the baseline and is consistent with the uncertainties surrounding recreational catch and biomass in the areas closed to commercial scallop fishing. A recreational allowance of 10 tonnes meat weight would better reflect the likely recreational take from the current scallop biomass.

Commercial Annual Catch Entitlement

73 Section 68 of the Act requires that, when an in-season TAC increase is made, you may create an additional amount of ACE to reflect the amount by which you would have increased the TACC.

74 The IPP contained two ACE options relating to the different TAC options:

- Option 1: 100 tonnes meat weight where the TAC is set at 154 tonnes meat weight
- Option 2: 95 tonnes meat weight where the TAC is set at 148 tonnes meat weight.

75 In 2009, from a similar sized biomass estimate you provided ACE of 100 tonnes.

76 An increase in the commercial catch from 22 tonnes meat weight to 100 tonnes meat weight, at the 2010-11 port price of $15.75 per meat weight kilogram, realises a gross return from the fishery of $1,228,500. An increase to 95 tonnes meat weight would realise a return of $1,149,750. This is an increase of $882,000 or $803,250, respectively, above the baseline. The scallops caught in the fishery are processed locally, and will provide additional economic, social and cultural benefits to the region. Whangamata Seafoods reports that the processing plant employs 32 people to process scallops from the fishery.

Proposed TACCs (tonnes meat weight) and corresponding change in annual economic return ($) for the Coromandel scallop fishery

Option 1		Option 2	
Proposed TACC/ACE	**Potential Additional revenue**	**Proposed TACC/ACE**	**Potential Additional revenue**
100	$882,000	95	$803,250

77 All of the commercial stakeholders (Coromandel Scallop Fishermen's Association, Ngai Te Rangi Fishing AHC Ltd, the Seafood Industry Council, Te Ohu Kaimoana, Whangamata Seafoods) supported the commercial ACE being increased to 100 tonnes meat weight. The Coromandel Scallop Fishermen's Association and the Seafood Industry Council noted that the current biomass is similar to that of last season when the commercial allowance was increased to 100 tonnes meat weight. The Seafood Industry Council states that a TACC of 100 tonnes meat weight is cautious as it is

based on a actual biomass derived from a survey. The Seafood Industry Council notes that as the "other sources of fishing-related mortality" is already accounted for in calculating the CAY, and that a TACC of 100 tonnes meat weight is less than the CAY*(+indirect)*) estimate, being the lower of the two yield estimates.

78 The recreational stakeholders sought a lower TACC. The New Zealand Recreational Fishing Council noted that although the TACC was set at 100 tonnes meat weight for the 2009-10 fishing season, the commercial fishers caught only 33 tonnes meat weight. The Council considered the TACC should be set at 22 tonnes, but with a later mid season increase to 65 tonnes.MFish notes there is no opportunity to undertake a mid season survey and review as proposed by the Council as any increase would become available too late in the season to be fished. The season is relatively short and it is appropriate to provide the commercial stakeholders with as much certainty as possible as early as possible within the season. The CAY estimates are theoretical yield estimates from all the commercial beds. Actual catch is determined by a variety of factors, markets, economics, weather etc. The Coromandel Scallop Fishermen's Association has a number of self-imposed catch controls that restrict when and where members can fish and may preclude the TACC being caught..

79 The Mount Maunganui Sports Fishing Club did not state a preferred TACC figure but stated that it did not support the TACC increase proposed in the IPP.

80 New Zealand Sports Fishing/Hokianga Accord/option4 proposed a conservative TACC of 65 tonnes meat weight, or a TACC of 80 tonnes meat weight that reflects their request for a more conservative TAC. These submitters suggest an alternative TACC of 80 tonnes meat weight if commercial scallop fishing is prohibited from areas of low scallop density – the beds at Waiheke, Waihi, Papamoa and Motiti. These submitters plus the Mount Maunganui Sport Fishing Club maintain that recreational fishers are unable to obtain daily bag limits in such areas.

81 As set out above, MFish considers that the best available information indicates relative abundance that would support increased utilisation, whilst ensuring sustainability of this fishery. The alternative TACC proposed by the recreational fishers follows from their request for a more conservative TACC and a greater allowance for recreational fishers. MFish analysis of these submissions is set out in paragraphs 54 to 56 above.

82 Consistent with the recommendations to increase the TAC to 154 tonnes meat weight, MFish recommends creation of additional ACE to result in an ACE of 100 tonnes meat weight.

Other Sources of Fishing-related Mortality Allowance

83 The level of incidental mortality expected in the commercial scallop dredge fishery has been estimated to be 34 % of the TACC when fishing close to the CAY estimates. Under the proposed ACE options the 'other sources of fishing-related mortality' would be as follows:

- Option 1: 34 tonnes meat weight based on ACE of 100 tonnes
- Option 2: 32 tonnes meat weight based on ACE of 95 tonnes.

84 The allowance for other-fishing related mortality for the Coromandel scallop fishery is significant. This reflects the incidental mortality of scallops killed but not caught by commercial dredges. Commercial dredges also reduce habitat heterogeneity and increases juvenile scallop mortality.

85 The Coromandel Scallop Fishermen's Association and Whangamata Seafoods suggest that the allowance is too high, is based on an "experiment" and is not reflective of actual non-catch mortalities. The Association plus the Seafood Industry Council commented that as the proposed TACC is less than the CAY estimate, this allowance should be less than 34% of the TACC. In addition the Seafood Industry Council noted that the CAY estimate had already taken these mortalities into account and therefore it did not need to be added.

86 Te Ohu Kaimoana supported Option 1, an allowance at 34 tonnes meat weight.

87 You are required to allow for fishing-related mortality when allocating a TAC. The best available information is that fishing close to the level of the CAY will result in estimated mortalities of 34%. Given the commercial allowance is to be set at 100 tonnes meat weight MFish recommends the other sources of fishing mortality should be set at 34 tonnes meat weight.

Other Issues Raised in Submissions

88 The Coromandel Scallop Fishermen's Association made reference to their desire to move away from the in-season TAC increase process to using a catch per unit effort (LimitCPUE) management approach. The Shellfish Working Group has reviewed the LimitCPUE approach and concluded that it appears to be a useful approach for managing the Coromandel scallop fishery, but that its reliability is contingent on a number of factors remaining constant, and that it could be introduced during the development of a fishery plan. MFish is working with the Association on the proposal. Implementation will be determined by MFish resourcing and prioritisation processes.

89 The proposal by New Zealand Sports Fishing/Hokianga Accord/option4 to increase the baseline recreational and Maori customary allowances is outside the scope of this in-season review.

90 The Mount Maunganui Sports Fishing Club and New Zealand Sports Fishing/Hokianga Accord/option 4 sought that commercial fishing be prohibited from areas of low scallop biomass; the beds at Papamoa and Motiti, Waihi and Waikeke Island. This appears to be driven by reports from recreational fishers that they are struggling to achieve their maximum daily bag limit and concerns over competition with commercial fishers. This is outside the scope of this in-season review, however, MFish understands that these beds have not been fished by commercial fishers in recent years. Scientific advice is that scallop abundance is largely driven by environmental conditions.

91 The Coromandel Scallop Fishermen's Association has a number of "rules" that seek to restrict commercial fishing from areas of low legal size scallop biomass and where meat weight to green weight ratios are low. The proposed LimitCPUE approach

builds on these "rules" and may go some way to achieving the outcomes sought by these submitters.

92 The Mount Maunganui Sports Fishing Club commented that the quota management area for Coromandel scallop fishery was too large and sought it be reduced. New Zealand Sports Fishing/Hokianga Accord/option 4 commented on the recreational daily bag limit. Both these matters are outside the scope of the in-season review.