Ministry for Primary Industries
Manatū Ahu Matua

Review of Sustainability Controls for 1 October 2017

Proposals to Alter Total Allowable Catch, Allowances, Total Allowable Commercial Catch and Deemed Value Rates for Selected Fishstocks

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1 Submission Information

1. The Ministry for Primary Industries (MPI) welcomes written submissions on any or all of the proposals contained in the Discussion Document. All written submissions must be received by MPI no later than 5pm on Friday 7 July 2017.

   Submissions can be emailed to: FMsubmissions@mpi.govt.nz

   Alternatively, the postal address is:

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   Fisheries Management
   Ministry for Primary Industries
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   Wellington 6011

1.1 OFFICIAL INFORMATION ACT 1982

2. All submissions are subject to the Official Information Act and can be released (along with personal details of the submitter) under the Act. If you have specific reasons for wanting to have your submission or personal details 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.

PART A – STATUTORY CONSIDERATIONS

3. This section provides an overview of the Minister's legal obligations under the Fisheries Act 1996 (the **Act** or the **Fisheries Act**) when setting or varying TACs, TACCs and deemed values for New Zealand fish stocks.

4. Where relevant, stock-specific details relating to these obligations are set out in the section of the discussion paper relating to each stock.

1.1 SECTION 5(a) – INTERNATIONAL OBLIGATIONS

5. Section 5(a) says the Act is to be interpreted, and all persons exercising or performing functions, duties, or powers under it are required to act, in a manner consistent with New Zealand's international obligations relating to fishing. As a general principle, where there is a choice in the interpretation of the Act or the exercise of discretion, the decision maker must choose the option that is consistent with New Zealand's international obligations relating to fishing.

6. The two key pieces of international law relating to fishing, and to which New Zealand is a party, are the United Nations Convention on the Law of the Sea, 1982 (**UNCLOS**) and the United Nations Convention on Biological Diversity 1992 (the **CBD**). International obligations also derive from New Zealand being a signatory to a number of international conventions. Of particular relevance are regional fisheries management organisations, Convention on International Trade in Endangered Species of Wild Fauna and Flora (**CITES**) and the Convention on Migratory Species (**CMS**).

1.2 SECTION 5(b) – TREATY OF WAITANGI (FISHERIES CLAIMS) SETTLEMENT ACT 1992

7. Section 5(b) says the Act is to be interpreted, and all persons exercising or performing functions, duties, or powers under it are required to act, in a manner consistent with the provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 (the **Settlement Act**). This obligation furthers the agreements expressed in the Deed of Settlement referred to in the Preamble to the Settlement Act.

8. The development of customary regulations, Iwi Fisheries Forums, and providing for the input and participation of iwi in fisheries decisions, discussed elsewhere in this paper, are some of the ways in which the obligations in the Settlement Act are given effect to.

1.3 SECTION 8 – PURPOSE OF THE FISHERIES ACT 1996

9. Section 8 says the purpose of the Act is to provide for the utilisation of fisheries resources while ensuring sustainability.

10. "Ensuring sustainability" is defined as: "maintaining the potential of fisheries resources to meet the reasonably foreseeable needs of future generations; and avoiding, remedying, or mitigating any adverse effects of fishing on the aquatic environment".

"Utilisation" of fisheries resources is defined as "conserving, using, enhancing, and developing fisheries resources to enable people to provide for their social, economic, and cultural wellbeing."

11. The Supreme Court has stated that the purpose statement incorporates "the two competing social policies reflected in the Act" and that "both policies are to be accommodated as far as is practicable in the administration of fisheries under the quota management system....[I]n the attribution of due weight to each policy that given to utilisation must not be such as to jeopardise sustainability".[1]

1.4 SECTION 9 – ENVIRONMENTAL PRINCIPLES

12. Section 9 prescribes three environmental principles that the Minister must take into account when exercising powers in relation to the utilising of fisheries resources or ensuring sustainability.

Principle 1: Associated or dependent species should be maintained above a level that ensures their long-term viability.

13. The Act defines "associated and dependent species" as any non-harvested species taken or otherwise affected by the taking of a harvested species. "Harvested species" is defined to mean any fish, aquatic life or seaweed that may for the time being be taken with lawful authority. So this principle is focussed on species (such as protected species) for which a permission to target commercially cannot be given.

14. The term "long-term viability" (in relation to a biomass level of a stock or species) is defined in the Act as a low risk of collapse of the stock or species, and the stock or species has the potential to recover to a higher biomass level. This principle therefore requires the continuing existence of species by maintaining populations in a condition that ensures a particular level of reproductive success.

15. Where fishing is affecting the viability of associated and dependent species, appropriate measures such as method restrictions, area closures, and potentially adjustments to the TAC of the target stock should be considered.

Principle 2: Biological diversity of the aquatic environment should be maintained.

16. "Biological diversity" is defined in the Act as 'the variability among living organisms, including diversity within species, between species, and of ecosystems'. Determining the level of fishing or the impacts of fishing that can occur requires an assessment of the risk that fishing might cause catastrophic decline in species abundance or cause biodiversity to be reduced to an unacceptable level.

Principle 3: Habitat of particular significance for fisheries management should be protected.

17. Habitat is defined in the Oxford Dictionary of English to mean the natural home or environment of an animal, plant or species. In MPI's view, in the fisheries context, this means those waters and substrates necessary for fish to spawn, breed, feed or grow to

[1] Recreational Fishing Council Inc v Sanford Limited and Ors [2009] NZSC 54 at [39].

maturity. These should be protected and adverse effects on them avoided, remedied, or mitigated.

1.5 SECTION 10 – INFORMATION PRINCIPLES

18. Section 10 prescribes four information principles that the Minister must take into account when exercising powers in relation to the utilising of fisheries resources or ensuring sustainability:

    a) Decisions should be based on the best available information;
    b) Decision makers should take into account any uncertainty in the available information;
    c) Decision makers should be cautious when information is uncertain, unreliable, or inadequate; and
    d) The absence of, or any uncertainty in, any information should not be used as a reason for postponing or failing to take any measure to achieve the purpose of the Act.

19. Less than full information suggests caution in decision-making, not deferral of a decision completely. "The fact that a dispute exists as to the basic material upon which the decision must rest, does not mean that necessarily the most conservative approach must be adopted. The obligation is to consider the material and decide upon the weight which can be given it with such care as the situation requires."[2]

20. Both scientific and anecdotal information need to be considered and weighed accordingly when making management decisions. The weighting assigned to particular information is subject to the certainty, reliability, and adequacy of that information.

21. As a general principle, information outlined in the MPI Fishery Assessment Plenary Report is considered the best available information on stock status and should be given significant weighting. The information presented in the Plenary Report is subject to a robust process of scientific peer review and is assessed against the Research and Science Information Standard for New Zealand Fisheries.[3] Corroborated anecdotal information also has a useful role to play in the stock assessment process and in the management process.

1.6 SECTION 11 – SUSTAINABILITY MEASURES

22. Section 11(1) allows sustainability measures (such as a TAC) to be set or varied after the following factors are taken into account:
    (a) Any effects of fishing on the stock and the aquatic environment
    (b) Any existing controls that apply to the stock or area concerned
    (c) The natural variability of the stock concerned.

    These factors are discussed in the section of the decision document relating to each stock.

23. Section 11 (2) says that before any sustainability measure is set or varied the Minister must have regard to any provision of:

[2] *Greenpeace NZ Inc v Minister of Fisheries* (HC, Wellington CP 492/93, 27/11/95, Gallen J) p 32.
[3] A non-binding MPI Policy Document.

(a) Any regional policy statement, regional plan, or proposed regional plan under the Resource Management Act 1991.

(b) Any management strategy or management plan under the Conservation Act 1987 that apply to the coastal marine area and which the Minister considers to be relevant

(c) Sections 7 and 8 of the Hauraki Gulf Marine Park Act 2000

(ca) regulations made under the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012; and

(d) a planning document lodged with the Minister of Fisheries by a customary marine title group under section 91 of the Marine and Coastal Area (Takutai Moana) Act 2011

that apply to the coastal marine area and are considered to be relevant.

24. Section 11 (2A) requires the Minister to take into account:

(a) Any conservation services or fisheries services

(b) Any relevant fisheries plan approved under this Part-see discussion of section 11A below

(c) Any decisions not to require conservation services or fisheries services.

25. Services of particular relevance to the decisions in this paper relate to programmed research used to monitor stock abundance. To date national fisheries plans have been approved only for deepwater and highly migratory species.

1.7 SECTION 12 – CONSULTATION AND INPUT AND PARTICIPATION OF TANGATA WHENUA

26. Section 12(1) says that before setting or varying any sustainability measure under the Act the Minister is required to:

- consult with those classes of persons having an interest in the stock or the effects of fishing on the aquatic environment in the area concerned, including, but not limited to, Māori, environmental, commercial and recreational interests; and

- provide for the input and participation of tangata whenua having a non-commercial interest in the stock concerned or an interest in the effects of fishing on the aquatic environment in the area concerned; and have particular regard to kaitiakitanga.

27. The Act defines Kaitiakitanga to mean "the exercise of guardianship; and, in relation to any fisheries resources, includes the ethic of stewardship based on the nature of the resources, as exercised by the appropriate tangata whenua in accordance with tikanga Māori", where tikanga Māori refers to Māori customary values and practices.

28. Iwi Fisheries Forums and Forum Fisheries Plans are the main ways in which input and participation of tangata whenua is provided for. Information provided by Forums and iwi views on the management of fisheries resources and fish stocks set out in Iwi Fisheries Plans express how tangata whenua exercise kaitiakitanga in respect of the stocks and areas in this sustainability round.

29. Section 12 (2) says that as soon as practicable after setting or varying any sustainability measure, the Minister shall give the persons consulted under 12(1), the reasons in writing for his or her decisions.

1.8 SECTIONS 13 &14 - SETTING AND VARIATION OF THE TOTAL ALLOWABLE CATCH (TAC)

1.8.1 Section 13 – Total Allowable Catch

30. The TAC for most stocks in the Quota Management System (**QMS**) is set under section 13 of the Act.

31. Under s 13 the general premise is to set a TAC that maintains the biomass of a fishstock at or above a level that can produce the maximum sustainable yield (MSY). That biomass level is abbreviated as B_{MSY}.

32. MSY is defined, in relation to any fish stock, 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.

33. Section 13(2) of the Act requires a TAC to be set that maintains a stock at or above MSY or that moves or restores it to or above that level, having regard to the interdependence of stocks.

34. Section 13(2A) says that if the Minister considers that the current level of a stock or the level of a stock that can produce the MSY is not able to be estimated reliably using the best available information, he or she must:
    - not use this lack of information as a reason for postponing, or failing to set a TAC for the stock, and
    - have regard to the interdependence of stocks, the biological characteristics of the stock and any environmental conditions affecting the stock, and
    - set a TAC using the best available information that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, a level which can produce the MSY.

35. The Minister may set the TAC to achieve the objective in a way and rate which has regard to the interdependence of stocks and within a period appropriate to the stock.

36. In considering the way in which and rate at which a stock is moved towards or above a level that can produce maximum sustainable yield (s13(3)) the Minister may have regard to such social, cultural, and economic factors as he or she considers relevant. This provision applies to TACs set under s13(2) or s13(2A) (if applicable).

37. The obligation to have regard to the interdependence of stocks when setting a TAC requires consideration of the effects of fishing on associated stocks harvested with the target stock. Examples include other non-target fish species (bycatch) or benthic species that are incidentally impacted by trawl gear. The role of the target stock in the food chain should also be considered. In particular, interdependence involves a direct trophic

(i.e. one stock is likely to be directly affected through a predator or prey relationship by the abundance of another stock) relationship between stocks.

1.8.2 Section 14 – Alternative total allowable catch for stock specified in Schedule 3

38. Section 14 says that notwithstanding anything in section 13, if satisfied, in the case of any quota management stock listed in Schedule 3, that the purpose of this Act would be better achieved by setting or varying a TAC otherwise than in accordance with section 13(2) the Minister may at any time, set or vary a TAC for that stock that he or she considers appropriate to achieve the purpose of this Act. In other words section 14 allows a TAC to be set or varied for the limited number of stocks listed on Schedule 3 otherwise than by reference to B_{MSY}.

39. Schedule 3 stocks are ones where:

- it is not possible because of the biological characteristics of the stock to estimate B_{MSY};
- a national allocation for New Zealand has been determined as part of an international agreement;
- the stock is managed on a rotational or enhanced basis; or
- the stock comprises one or more highly migratory species.

40. Section 14(8) of the Act allows for stocks to be added to or deleted from Schedule 3.

1.9 SECTIONS 20 & 21 - SETTING AND VARIATION OF THE TOTAL ALLOWABLE COMMERCIAL CATCH (TACC)

41. After setting or varying the TAC, a separate decision arises in respect of allocating the TAC, i.e., deciding what portion of the TAC is to be available for commercial and other purposes.

42. Section 20 requires a TACC to be set for each QMS stock and allows it to be varied from time to time. A TACC can be set at zero. This would occur in situations where the TAC was set at zero for sustainability reasons (i.e. the fishery was closed).

43. Section 21 of the Act says that in setting or varying the TACC the Minister must have regard to the TAC and allow for:
    a) M□ori customary non-commercial fishing interests;
    b) Recreational interests; and
    c) All other mortality to that stock caused by fishing.

44. The Courts have in a number of cases considered what is involved in allowing for non-commercial interests. In Snapper 1[4] the Court of Appeal said that the recreational allowance is simply the best estimate of what recreational fishers will catch while being subject to the controls which the Minister decides to impose upon them e.g. bag limits

[4] New Zealand Fishing Industry Association (Inc) v Minister of Fisheries CA 82/97, 22 July 1997 ("Snapper 1").

and minimum lawful sizes. Having set the TAC the Minister in effect apportions it between the relevant interests.[5]

45. The Supreme Court in Kahawai[6] endorsed this approach and said that the words "allow for" require the Minister both to take into account the interests and make provision for them in the calculation of the TACC.[7] The Supreme Court went on to say that ss 20 and 21 prescribe a framework within which the Minister must operate when setting the TACC. The frame work requires apportionment of the TAC by the Minister among the various interests and other mortality. The sequential nature of the method of allocation provided for in s 21 does not indicate that non-commercial fishing interests are to be given any substantive priority over commercial interests. In particular the allowance for recreational interests is to be made keeping commercial interests in mind.[8]

46. The Supreme Court further said that in the end, within the limits provided for by the Act, the Minister makes a policy decision as to what allocations are appropriate for non-commercial interests and other mortality and what is to be the TACC. These decisions are interdependent. The Act does not confer priority for any interests over the other. It leaves that to the judgment of the Minister.[9]

47. Under the customary fishing regulations [Fisheries (South Island Customary Fishing) Regulations 1999 and the Fisheries (Kaimoana Customary Fishing) Regulations 1998], customary take is regulated through the authorisation system which requires that all customary fishing is to be undertaken in accordance with tikanga and the overall sustainability of the fishery. This framework was put in place to give effect to legal obligations in the Settlement Act. [10]

48. When allowing for Māori customary non-commercial interests, the Minister must take into account:

    a) Any m□taitai reserve in the relevant quota management area; and
    b) Any temporary area closure or temporary fishing method restriction or prohibition imposed in the area for the purposes of improving the availability or size of a species for customary fishing purposes or recognising a customary fishing practice in the area.

49. The intent is that the purposes of measures enacted to provide for customary fishing are not adversely affected or reasons for limited customary take are ignored when setting the customary allowance.

50. An allowance is to be made for all other mortality to a stock that results from fishing. This includes illegal catch, discards, and incidental mortality from fishing gear.

[5] Snapper 1, p 17.
[6] New Zealand Recreational Fishing Council Inc v Sanford Limited [2009] NZSC 54 ("Kahawai")
[7] Kahawai [55]
[8] Kahawai [61]
[9] Kahawai [65]
[10] Where the customary regulations don't apply customary fishing is regulated under regulations 50-52 of the Fisheries (Amateur Fishing) Regulations 2013 and a similar authorisation system applies.

1.10 HAURAKI GULF MARINE PARK ACT 2000

51. Section 11(2) of the Fisheries Act requires the Minister to have regard to sections 7 and 8 of the Hauraki Gulf Marine Park Act 2000 (HGMPA) when setting or varying a sustainability measure (such as a TAC).

52. Section 13 of the HGMPA says all persons exercising powers or carrying out functions for the Hauraki Gulf under various specified Acts, including the Fisheries Act, must, in addition to any other requirement specified in those Acts, have particular regard to sections 7 and 8 of the HGMPA. This would apply to the setting or varying of TACCs, and deemed values.

53. Section 7(1) of the HGMPA says the interrelationship between the Hauraki Gulf, its islands, and catchments and the ability of that interrelationship to sustain the life-supporting capacity of the environment of the Hauraki Gulf and its islands are matters of national significance.

54. Section 7(2) says the life-supporting capacity of the environment of the Gulf and its islands includes the capacity—
    (a) to provide for—
        (i) the historic, traditional, cultural, and spiritual relationship of the tangata whenua of the Gulf with the Gulf and its islands; and
        (ii) the social, economic, recreational, and cultural well-being of people and communities:
    (b) to use the resources of the Gulf by the people and communities of the Gulf and New Zealand for economic activities and recreation:
    (c) to maintain the soil, air, water, and ecosystems of the Gulf.

55. Section 8 says that to recognise the national significance of the Hauraki Gulf, its islands, and catchments, the objectives of management are:

    (a) the protection and, where appropriate, the enhancement of the life-supporting capacity of the environment of the Hauraki Gulf, its islands, and catchments:

    (b) the protection and, where appropriate, the enhancement of the natural, historic, and physical resources of the Hauraki Gulf, its islands, and catchments:

    (c) the protection and, where appropriate, the enhancement of those natural, historic, and physical resources (including kaimoana) of the Hauraki Gulf, its islands, and catchments with which tangata whenua have an historic, traditional, cultural, and spiritual relationship:

    (d) the protection of the cultural and historic associations of people and communities in and around the Hauraki Gulf with its natural, historic, and physical resources:

    (e) the maintenance and, where appropriate, the enhancement of the contribution of the natural, historic, and physical resources of the Hauraki Gulf, its islands, and catchments to the social and economic well-being of the people and communities of the Hauraki Gulf and New Zealand:

(f) the maintenance and, where appropriate, the enhancement of the natural, historic, and physical resources of the Hauraki Gulf, its islands, and catchments, which contribute to the recreation and enjoyment of the Hauraki Gulf for the people and communities of the Hauraki Gulf and New Zealand.

56. There is one stock in this sustainability round where the quota management area boundaries are within or partly within the boundaries of the Hauraki Gulf Marine Park, namely bluenose (BNS 1).

1.11 SECTION 75 – DEEMED VALUE RATES

57. Deemed values are charges commercial fishers must pay for every kilogram of QMS fish stocks landed in excess of their ACE holdings. The purpose of the deemed value framework is to encourage commercial fishers to balance their catch with ACE while not discouraging them from landing and accurately reporting catch.

58. Under section 75 the Minister must set annual and interim deemed value rates for all stocks managed under the QMS and he or she may vary such rates. Any deemed value rate set or varied takes effect from the first day of the next fishing year for the stock concerned. The annual deemed value rate must be greater than the interim deemed value rate.

59. When setting deemed value rates the Minister must not have regard to the personal circumstances of any individual or class of persons liable to pay deemed values or set separate deemed values in individual cases.

60. The Minister may set differential deemed value rates for specific stocks. These are an escalating scale of rates as the percentage by which catch exceeds ACE increases. The Minister may also set different deemed value rates for fish landed in the Chatham Islands, reflecting the unique marketing conditions of those landings.

61. When setting deemed value rates, the Minister is required under section 75(2)(a) to take into account the need to provide an incentive for every commercial fisher to acquire or maintain sufficient ACE each fishing year that is not less than the total catch of the stock taken by that commercial fisher.

62. Section 75(2)(b) specifies additional matters that the Minister may have regard to when setting deemed value rates for a stock. These are:

- the desirability of commercial fishers landing catch for which they do not have ACE;
- the market value of ACE for the stock;
- the market value of the stock;
- the economic benefits obtained by the most efficient commercial fisher, licensed fish receiver, retailer, or any other person from the taking, processing, or sale of fish, aquatic life or seaweed;
- the extent to which catch of that stock has exceeded or is likely to exceed the TACC for the stock in any year; and
- any other matters that the Minister consider relevant.

63. Under section 75A the Minister must, if practicable, consult with stakeholders and tangata whenua that have an interest in the stock before setting or varying any deemed value rates.

1.12 DEEMED VALUE GUIDELINES

64. In order to aid the application of the statutory criteria discussed above, a set of Deemed Value Guidelines has been developed. These Guidelines are attached as Appendix 1 and are summarised as follows:

- deemed value rates must generally be set between the ACE price and the port price;
- deemed value rates must generally exceed the ACE price by transaction costs;
- deemed value rates must avoid creating incentives to misreport;
- deemed value rates for constraining bycatch species may be higher than for target species;
- deemed value rates must generally be set at twice the landed or port price for high value single species fisheries and species subject to international catch limits;
- deemed value rates for Chatham Island landings may be lower;
- interim deemed value rates must generally be set at 90% of the annual deemed value rate; and
- differential deemed value rates must generally be set.

65. The Guidelines do not bind the Minister. They serve only as a guide and do not preclude the Minister from taking into account relevant information on a case by case basis.

2 Other Matters

2.1 HARVEST STRATEGY STANDARD (HSS)

66. The Harvest Strategy Standard (HSS) is a policy statement of best practice in relation to the setting of fishery and stock targets and limits for fishstocks in New Zealand's Quota Management System (QMS). It is intended to provide guidance on how fisheries law will be applied in practice, by establishing a consistent and transparent framework for decision-making to achieve the objective of providing for utilisation of New Zealand's QMS species while ensuring sustainability.

67. The HSS outlines the Ministry's approach to relevant sections of the Act and, as such, forms a core input to the Ministry's advice to the Minister on the management of fisheries, particularly the setting of TACs under sections 13 and 14.

68. The HSS is not however legally binding and the Minister is not obliged to choose options based upon it.

PART B – INSHORE STOCKS

Bluenose (BNS 1, 2, 3, 7 & 8)

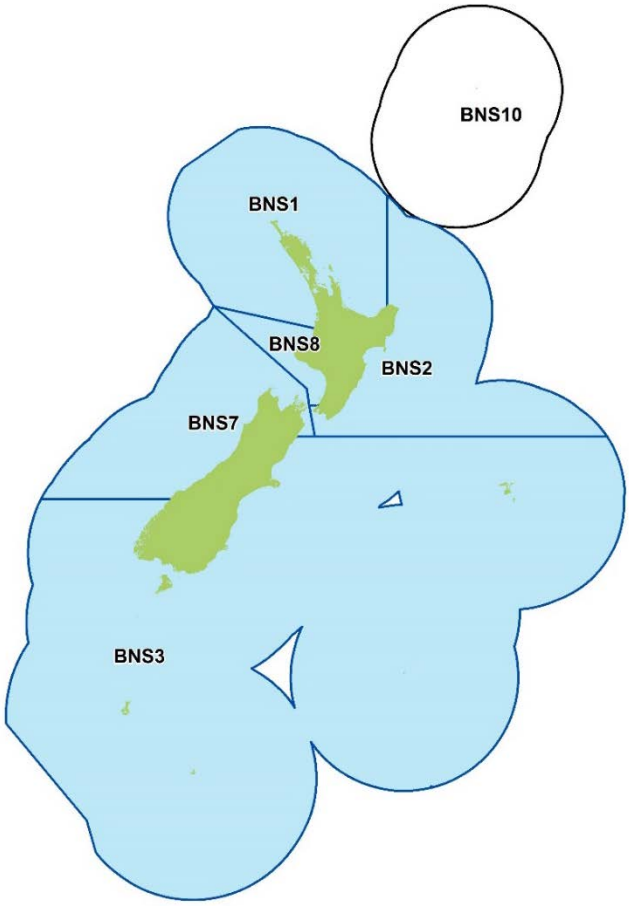

Figure 1: Quota management areas (QMAs) for the bluenose (BNS) fishery, with BNS 1, 2, 3, 7 and 8 highlighted in blue.

1. What is proposed?

69. MPI proposes to review the total allowable catch (TAC), allowances for Māori customary fishing, recreational fishing, all other mortality caused by fishing, and the total allowable commercial catch (TACC) for bluenose (*Hyperoglyphe antarctica;* matiri) in quota management areas (QMAs) BNS 1, 2, 3, 7 and 8 (see Figure 1). MPI proposes the following initial options and seeks information and views from tangata whenua and stakeholders (Tables 1 & 2):

Table 1: Proposed management settings in tonnes (t) for BNS 1, 2, 3, 7 & 8 combined from 1 October 2017

Option	Total Allowable Catch (t)	Total Allowable Commercial Catch (t)	TACC tonnage decrease and % change	Allowances		
				Customary **Māori (t)**	Recreational (t)	All other mortality caused by fishing (t)
Option 1 *(Status quo)*	990	900	-	9	63	18
Option 2	888 ↓	800 ↓	100 t ↓ (11%)	9	63	16 ↓
Option 3	704 ↓	620 ↓	280 t ↓ (31%)	9	63	12 ↓

70. The best available information suggests a single biological stock for bluenose in New Zealand waters, and bluenose is managed as such across the five main QMAs.[11] Table 2 sets out how the proposed reductions could be spread proportionally across the QMAs. The division of the TAC, TACCs and allowances is based on the established proportions of the total limits.

Table 2: Proposed TACs, TACCs and allowances in tonnes for BNS 1, 2, 3, 7 and 8 (by stock) from 1 October 2017

Stock(s)	Option	TAC (t)	TACC (t)	Recreational allowance (t)	**Māori** customary allowance (t)	All other mortality caused by fishing (t)
BNS 1	1	351	327	15	2	7
	2	314	291	15	2	6
	3	251	230	15	2	4
BNS 2	1	392	358	25	2	7
	2	349	316	25	2	6
	3	279	247	25	2	5
BNS 3	1	162	140	18	2	2
	2	147	125	18	2	2
	3	114	93	18	2	1
BNS 7	1	57	51	3	2	1
	2	52	46	3	2	1
	3	40	34	3	2	1
BNS 8	1	28	24	2	1	1
	2	26	22	2	1	1
	3	20	16	2	1	1

71. The interim deemed value rates for all bluenose stocks are currently set at 90% of the annual deemed value rates, outlined in Tables 3 and 4. Consistent with Principle 6 of the Deemed Value Guidelines,[12] and as provided for under s 75 (5) of the Fisheries Act 1996 (the Act), deemed value rates for BNS 3 landed to a licensed fish receiver in the Chatham Islands are set lower than for the same stock landed elsewhere, as outlined in Table 4. As the current interim and annual deemed value rates for bluenose stocks are consistent with the Guidelines, no changes to the deemed value rates are proposed.

Table 3: Special Deemed Value Rates ($/kg) for BNS 1, 2, 3, 7 and 8

Stock	Interim Rate ($/kg)	Annual Differential Rates ($/kg) for excess catch (% of ACE)							
		100-105%	105-110%	110-120%	120-130%	130-140%	140-150%	150-160%	160%+
BNS 1	3.60	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00
BNS 2	3.60	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00
BNS 3	2.70	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00
BNS 7	2.70	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00
BNS 8	3.60	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00

[11] BNS 10 has a TACC of 10 tonnes.
[12] Available at www.mpi.govt.nz/document-vault/3663

Table 4: Special Deemed Value Rates ($/kg) for BNS 3 (Chatham Islands)[13]

Stock	Interim Rate ($/kg)	Annual Differential Rates ($/kg) for excess catch (% of ACE)						
		100-120%	120-130%	130-140%	140-150%	150-160%	160-220%	220%+
BNS 3	0.95	1.05	3.00	4.00	5.00	6.00	7.00	10.00

2. Why the need for change?

72. The best available information suggests that there is a sustainability risk associated with current catch levels for bluenose. The 2016 assessment indicated that the combined bluenose stock is below the target biomass, and the latest CPUE data for 2015/16 suggests that biomass continued to decline for the fourth consecutive year. This evidence suggests a catch reduction is needed to ensure the stock rebuilds to the target biomass within the timeframe.

73. Bluenose is a long-lived, low-productivity stock which means it is less responsive to management changes than some other species. Significant concerns arose in 2011 when a stock assessment indicated that the combined biomass for the five bluenose QMAs was between 14 and 27% of the virgin (unfished) biomass (B_0). In 2011, the Minister agreed to a three-year reduction plan aimed at rebuilding bluenose stocks to 40% of B_0 by 2031-2037 ('rebuild plan'). This rebuilding plan was based on the Harvest Strategy Standard (HSS) policy guidelines[14] and is consistent with the minimum target biomass levels and rebuild times which reflect international best practice in sustainable fisheries management.[15] MPI sees no reason to deviate from the target and timeframe of the rebuild plan which the Minister agreed in 2011.

74. The first two planned reductions of the rebuild plan happened in 2011 and 2012. On the basis of positive signs from the fishery, the final phase of catch reductions in 2013 was deferred to allow for further investigation of new information.

75. After three subsequent years of declining CPUE, and an updated stock assessment in 2016, new management action was deemed necessary to help ensure the stock would meet the rebuild target. A reduction of 200 tonnes to the TACC was implemented for the 2016/17 fishing year. This was characterised as an interim measure with a view to agreeing on a Management Procedure to guide bluenose management into the future. As a Management Procedure has not been agreed upon, further management action is suggested to help ensure the stock reaches the agreed target within the timeframe.

3. Why are these options proposed?

3.1 SETTING AND VARYING THE TAC

76. In cases such as bluenose, where the biomass level that can produce the maximum sustainable yield (B_{MSY}) is not known, s 13(2A) of the Act provides for the Minister to use the best available information to set a TAC that is not inconsistent with the

[13] Deemed Values only apply to Chatham Island resident fishermen landing wetfish species into Licensed Fish Receivers (LFRs) located on Chatham Islands

[14] http://fs.fish.govt.nz/Page.aspx?pk=104

[15] Note that target and timeframe were a ministerial decision based on policy, and as such are not legally binding.

objective of maintaining the stock at or above, or moving the stock towards or above, the B_{MSY} level.

77. A target for bluenose has been determined: 40% B_0 as a proxy for B_{MSY}. The biomass estimated from the most recent assessment (2016) shows that current biomass is likely below the target at between 17 and 27% B_0. The options presented are therefore not inconsistent with s 13 requirements.

78. Section 13 (2A) also requires the Minister to consider the interdependence of stocks and environmental conditions in setting or varying a TAC. The significant decline in bluenose biomass may be having an impact on predator species like broadbill swordfish, subject to the availability of alternative food sources. A decline in abundance may also affect other complex interactions within the ecosystem. For example, bluenose is likely to be an important predator, feeding on tunicates, fish, squid and crustaceans. A change in predation pressure may alter competitive interactions between these species. MPI cannot quantify the scale of the impact of low abundance of bluenose on species interactions, but rebuilding bluenose stocks should improve any existing imbalance. Some bluenose is taken in conjunction with alfonsino in target midwater trawl fisheries directed at the latter species and in target bluenose bottom trawl fisheries. These fisheries are frequently associated with undersea features. MPI has no evidence to suggest bluenose fisheries have a negative impact on benthic habitats.

79. Section 13 (3) requires the Minister to consider social, cultural and economic factors that may be relevant the way and rate a stock is moved towards or above B_{MSY}. There are no proposals to change Māori customary or recreational allowances. The impact on the commercial fishery is briefly covered in *Section 3.4 – Evaluation of Options*.

80. According to bluenose longline fishermen, predation of hooked BNS by orca has increased recently. Future analysis of observer data will inform this potential issue.

81. To help guide TAC/TACC setting, scenarios were modelled to show stock status projections at different catch limits (Figures 2, 3 and 4). Six different model runs were done for each TACC to address uncertainty in natural mortality rates[16] (M=0.06, 0.08, 0.10) and stock recruitment steepness[17] (h=0.75 and 0.9). There is inherent uncertainty in catch histories and to reflect this, low, medium and high levels of historic catch were used in the model runs. The runs shown in Figures 2, 3, and 4 used the medium catch histories. No combination of parameters is considered more plausible than the others.

82. Maintaining the current catch limits (Option 1, *status quo*) is not expected to meet the rebuilding target within the agreed timeframe (Figure 2). It should be noted that effects of the catch reduction in the 2016/17 fishing year cannot yet be determined as the latest CPUE data is for the 2015/16 fishing year. In light of this, the Minister may choose to maintain the current catch levels for the upcoming year to see what effect the 2016 reduction may have had, with a view to a new stock assessment in the near future. This option could see biomass continue to decline.

83. Option 2 proposes a TAC of 888 t and represents an intermediate option between the *status quo* and Option 3 (see Figure 3).[18] Option 2 is unlikely to meet the rebuilding

[16] Natural mortality is the rate that fish are lost from a stock due to non-fishing causes, such as predation and old-age.
[17] Stock recruitment steepness determines the relationship between the biomass of mature fish and the strength of the recruitment they can produce.
[18] Option 2 is based on the 2016 stock assessment where one model run, under the most optimistic scenarios produced the biomass target within the timeframe.

target and timeframe but could help ensure that the biomass trends in the right direction, and has some benefits in comparison to Option 3 (see *Section 3.4 – Evaluation of Options*).

84. Option 3 proposes a TAC of 704 t. Projections based on the 2016 stock assessment suggest that this TAC is most likely to achieve the target biomass within the timeframe (Figure 4). Option 3 therefore gives the most certainty that the stock will achieve the agreed target, without the need for further management intervention. However, Option 3 will have a significant impact on the commercial fishery and possibly affect the ability to effectively monitor the fishery (see *Section 3.4 – Evaluation of Options*).

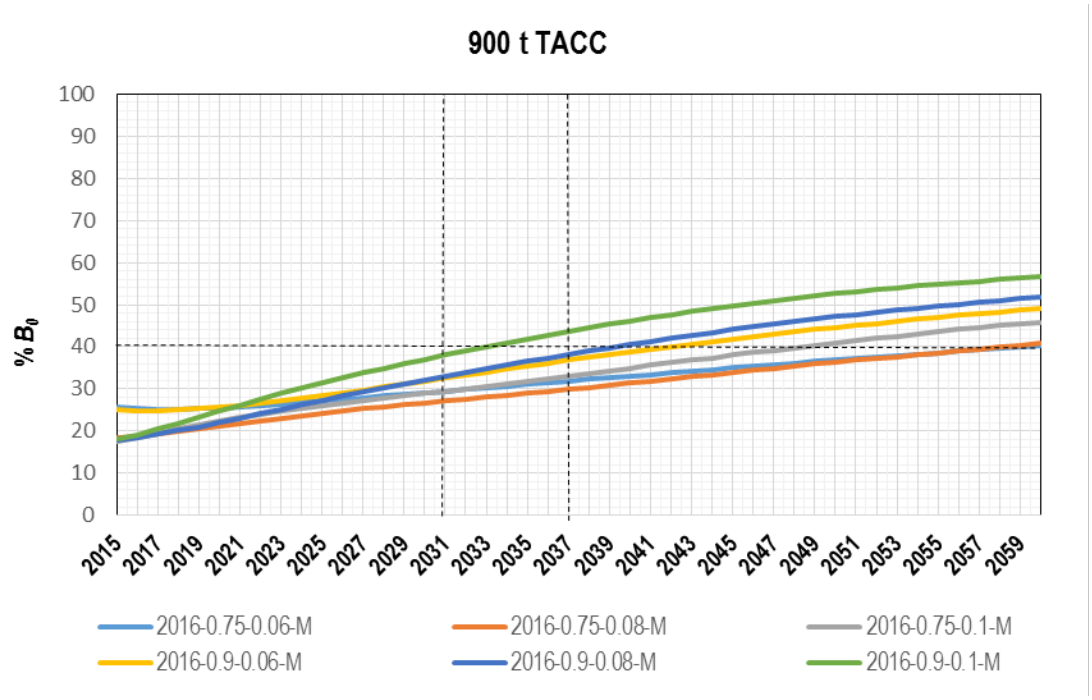

Figure 2: Stock status (% B_0) trajectories for 900 t TACC (Option 1), under each of 6 combinations of stock-recruitment steepness (0.75-0.9) and natural mortality (0.06-0.1), using mid-level catch histories. Target biomass is indicated by the horizontal dashed line. Target time frame falls within the two vertical dashed lines.

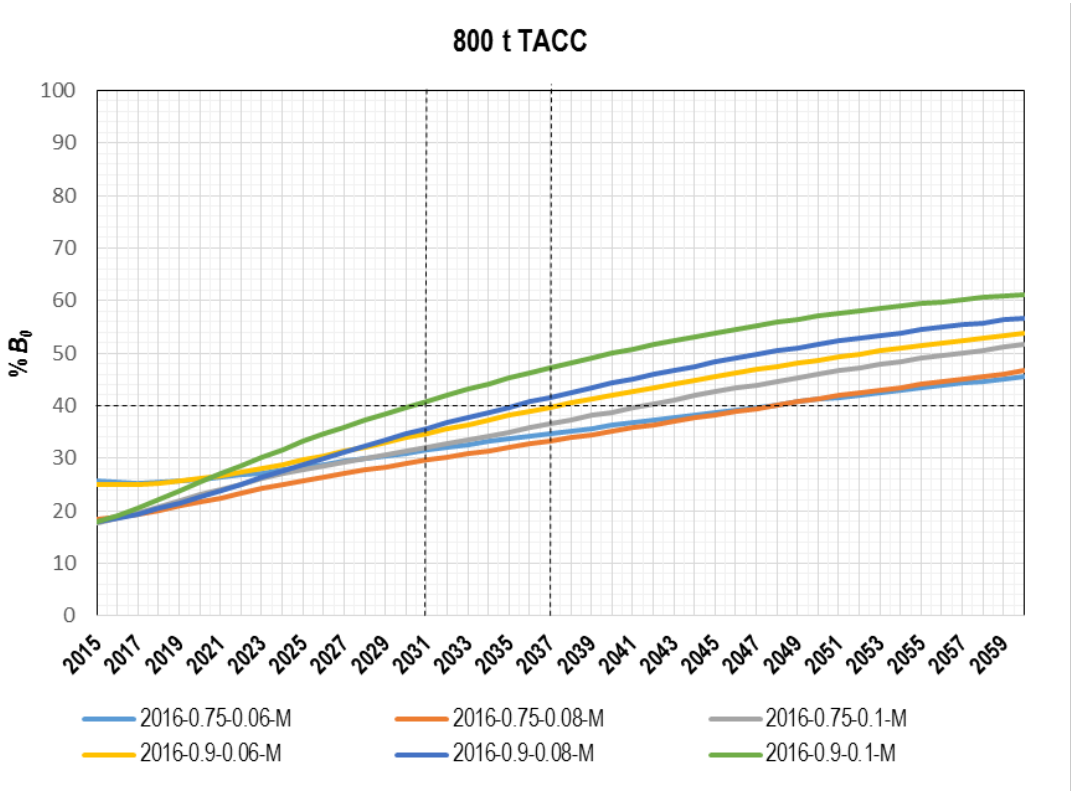

Figure 3: Stock status (% B_0) trajectories for 800 t TACC (Option 2), under each of 6 combinations of stock-recruitment steepness 0.75-0.9) and natural mortality (0.06-0.1), using mid-level catch histories. Target biomass is indicated by the horizontal dashed line. Target time frame falls within the two vertical dashed lines.

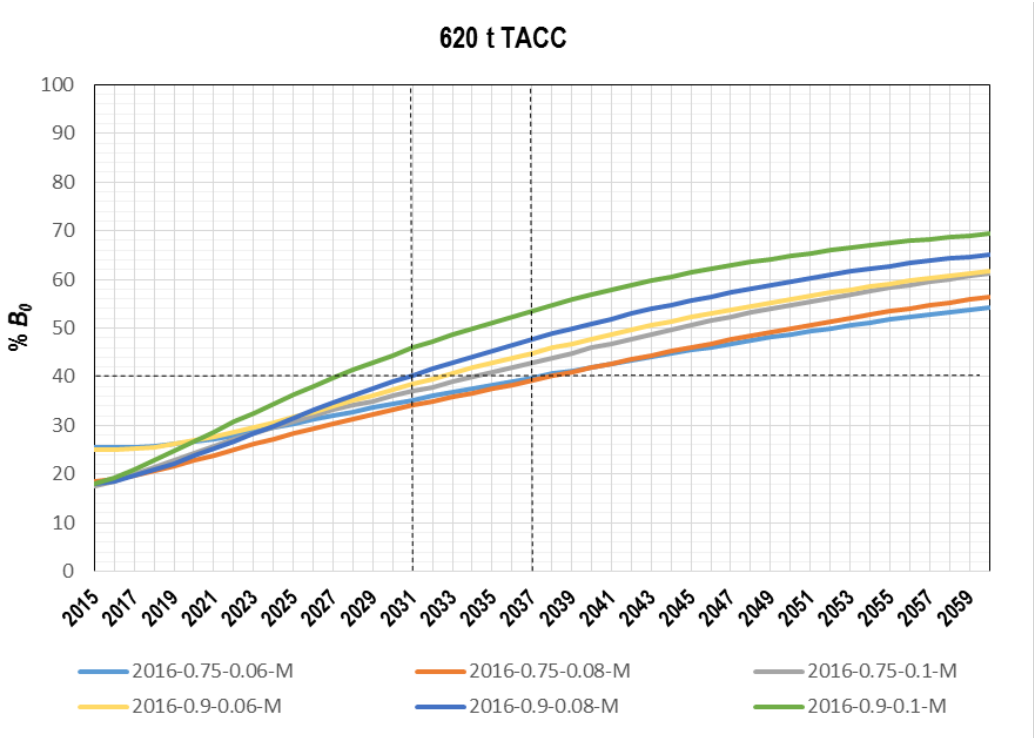

Figure 4: Stock status (% B_0) trajectories for 620 t TACC (Option 3), under each of 6 combinations of stock-recruitment steepness (0.75-0.9) and natural mortality (0.06-0.1), using mid-level catch histories. Target biomass is indicated by the horizontal dashed line. Target time frame falls within the two vertical dashed lines.

3.2 SETTING ALLOWANCES AND THE TACC

85. Having set the TAC, the Minister must set the TACC and in setting or varying the TACC must make allowances for Māori customary non-commercial fishing interests, recreational fishing interests, and all other mortality to the stock caused by fishing (s 20 & 21).

3.2.1 Māori customary fishing

86. Bluenose is a kaimoana species for tangata whenua. Information currently held by MPI on Māori customary catch of bluenose indicates that tangata whenua use of customary Māori harvesting rights for taking bluenose is minimal. MPI is working to improve the reporting of information on customary harvest, but at this time there is no new information to suggest customary allowances should be changed.

3.2.2 Recreational fishing

87. Bluenose is an important species for recreational fishers. The best available information on current recreational catch is provided from the 2011/12 National Panel Survey (NPS) which estimated the total recreational catch in the 5 bluenose QMAs was 34.8 t.[19] The current allowance of 63 t sufficiently provides for this. The recreational daily bag limit for bluenose was set at 5 per person from May 2012. The effective limit previously was 20 per person. Given this reduction since the NPS, MPI considers it is unlikely that the current allowance is being exceeded. A new NPS is due to begin this year which will provide updated estimates of recreational bluenose catches. MPI considers that at this time there is no new information to suggest recreational allowances should be changed.

3.2.3 All other mortality to the stock caused by fishing

88. There are various potential other sources of mortality caused by fishing, but MPI is not able to quantify these precisely. The allowance for other mortality caused by fishing is currently set at 18 t, approximately 2% of the TACC. MPI considers that this is an appropriate allowance for a fishery which is mostly caught by longline. For Options 2 and 3 the allowance is varied accordingly, at 16 t and 12 t respectively.

3.2.4 Commercial fishing

89. The commercial fishing sector harvests the greatest amount of bluenose, followed by substantially smaller amounts taken by recreational and customary fishers. With the commercial fishery being substantially larger than other sectors, and with no information to suggest that other allowances need to be changed, any catch reductions will come from the TACC (the commercial fishery). In the commercial fishery, the TACC has mostly been fully caught in recent years, apart from BNS 8 where

[19] The estimates for bluenose are based on a relatively small number of events and fishers, and as a result are subject to a relatively high uncertainty. They also do not include amateur catch taken on charter vessels or by commercial fishers under s111 approvals.

approximately 25% of the TACC was caught last year (see Figure 5). In previous years, any TACC reduction has been spread proportionally across QMAs. However, reductions could be less in QMAs with smaller fisheries. This could help ensure the continuation of those fisheries, provided risks to sustainability could be managed.

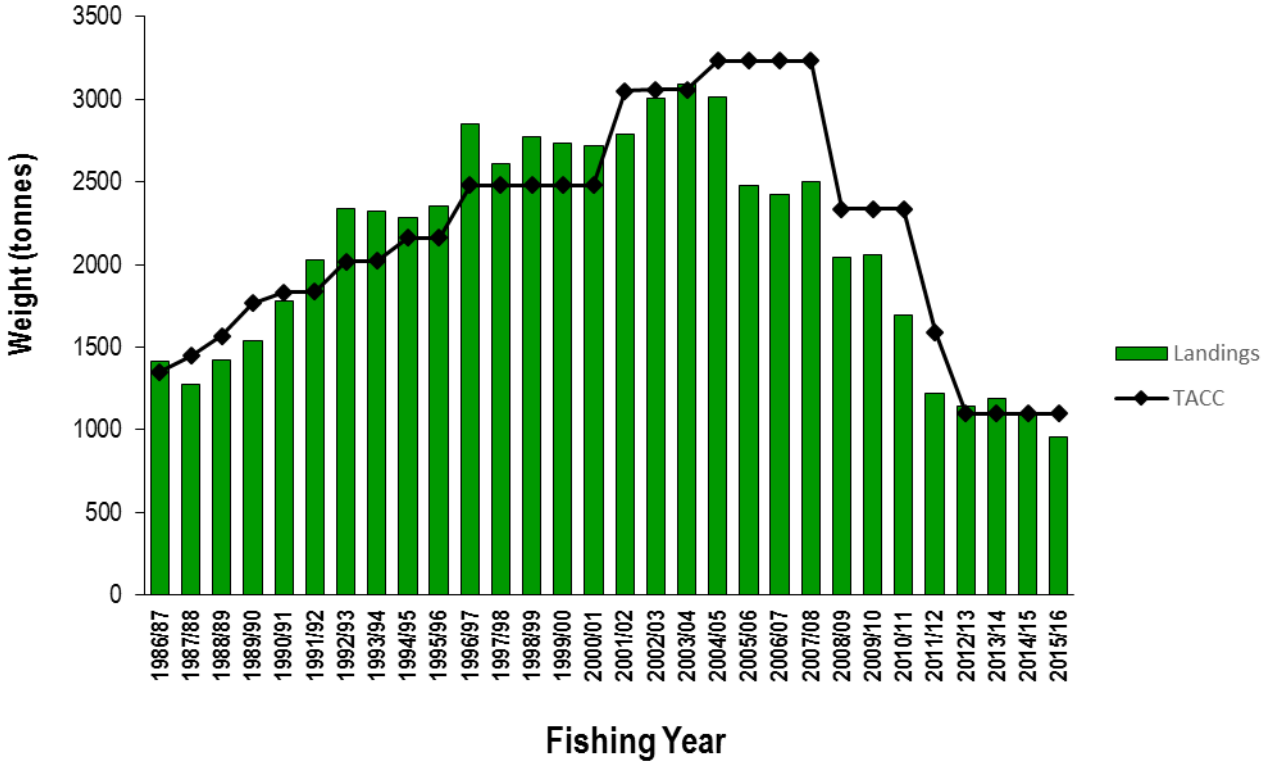

Figure 5: Annual catches vs TACC for BNS 1 2, 3, 7 and 8 between 1986/7 and 2015/16.

3.3 DEEMED VALUE RATES

90. There are no proposed changes to the deemed value rates for BNS 1, 2, 3, 7 and 8 for the 2017/18 fishing year (see Tables 3 and 4 above).

3.4 EVALUATION OF OPTIONS

91. All three options have risks and benefits associated with them. The expected effect on revenue of the proposed options is outlined in Table 5.

Table 5: Predicted changes to commercial revenue of the proposed options, based on the average port price of $6.27/kg across BNS 1, 2, 3, 7 and 8 in 2016/17

	TACC	Change from status quo (t)	Predicted revenue change ($ p.a.)
Option 1 *(Status quo)*	900		
Option 2	800	100 ↓ (11%)	627,000 ↓
Option 3	620	280 ↓ (31%)	1,755,600 ↓

3.4.1 Option **1**

92. Option 1 (*status quo*) presents the greatest sustainability risk to the stock and is unlikely to meet the rebuilding target and timeframe. This option would be an interim measure to allow for a new assessment to reveal the effect of the 2016 reduction, however, information to support an improved assessment is unlikely to be available in the near future. Option 1 would have no short-term negative economic effects on the industry, but could have impacts on non-commercial fishers if biomass declines further.

3.4.2 Option 2

93. Option 2 is unlikely to meet the rebuilding target but could act as an interim measure as part of a phased reduction, which should move the stock in the right direction, but further reductions are likely to be needed the following year. However, similar to Option 1, a new stock assessment and biomass projections would be needed as soon as sufficient new data becomes available. Option 2 will have an impact on the commercial fishery (see Table 3) and could result in some fishing operations becoming uneconomical.

3.4.3 Option 3

94. Option 3 has the highest certainty of rebuilding the stock to the target within the timeframe. A 280 tonne (31%) decrease in the TACC will have a substantial impact on the commercial fishery (see Table 3). However, given the low-productivity nature of bluenose and the fact that stocks have been below the target for a number of years, MPI considers that there is strong justification for this option. Option 3 would ensure more confidence that the stock is rebuilding to meet the target and timeframe, and would mean another management review in the short term is unlikely to be necessary. Bluenose stocks reaching target abundance will benefit all sectors.

95. MPI notes that bluenose is monitored primarily using CPUE data from the commercial fishery. Commercial fishers have raised concerns that a substantial TACC and associated fishing effort reduction may impact the ability to monitor the fishery. The exact effects of any catch reductions on monitoring the fishery are unknown and MPI believes that reversing the decline in the stock and mitigating risks to sustainability are of primary importance. MPI also notes that if reductions do have any effects on monitoring the stock, Option 2 will have a lesser impact compared to Option 3.

4. Other Relevant Matters

96. The proposals are not expected to significantly change the environmental impacts and interactions of the bluenose fishery (s 9). The proposals are also considered to adequately address the requirements of s 11 (Sustainability Measures). As BNS 1 incorporates the Hauraki Gulf Marine Park, s 7 and 8 of the Hauraki Gulf Marine Park Act (HGMPA) 2000 are applicable to any management decisions. MPI notes that there is limited bluenose catch within the Hauraki Gulf Marine Park and that the proposed TAC options are consistent with these sections of the HGMPA.

5. Further Information

97. Should you require further information, please see:

Fisheries Act (1996)

http://www.legislation.govt.nz/act/public/1996/0088/latest/DLM394192.html

MPI Plenary document:

Ministry for Primary Industries (2016). Fisheries Assessment Plenary, May 2016: stock assessments and stock status. Compiled by the Fisheries Science Group, Ministry for Primary Industries, Wellington, New Zealand, 1556 p. Volume 1, Chapter BLUENOSE (BNS), pg 95. https://fs.fish.govt.nz/Page.aspx?pk=113&dk=24071

MPI's recreational fisheries species pages:

http://fs.fish.govt.nz/Page.aspx?pk=7&tk=100&sc=BNS

Previous reviews of the stock:

Sustainability Round Review- October 2016
https://www.mpi.govt.nz/news-and-resources/consultations/review-of-fisheries-sustainability-measures-for-1-october-2016/

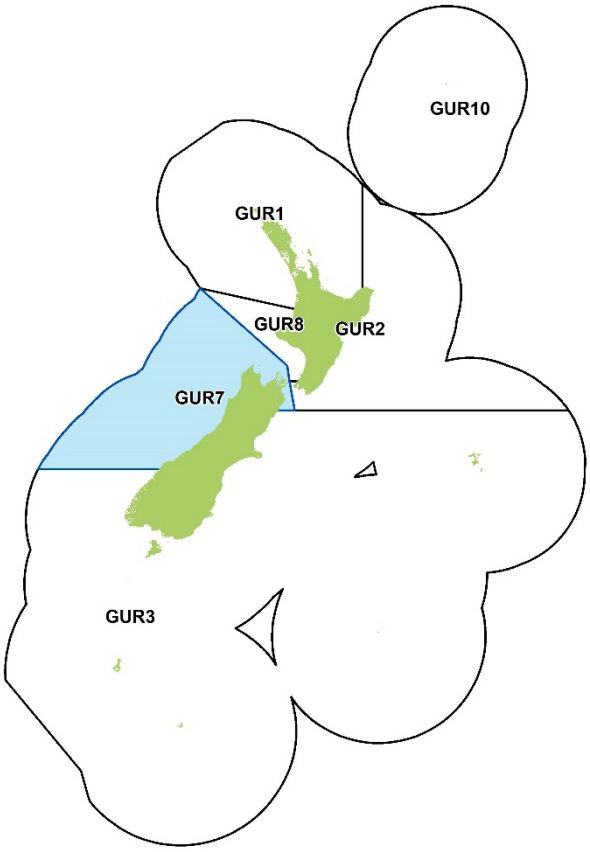

Figure 1: Quota management areas (QMAs) for red gurnard, with GUR 7 highlighted in blue.

1. What is proposed?

98. MPI proposes to review the total allowable catch (TAC), allowances for Māori customary fishing, recreational fishing, and all other mortality caused by fishing, and the total allowable commercial catch (TACC) for red gurnard (*Chelidonichthys kumu*; kumukumu) in GUR 7 (see Figure 1). MPI proposes the following initial options and seeks information and views from tangata whenua and stakeholders (Table 1):

Table 1: Proposed management settings in tonnes (t) for GUR 7 from 1 October 2017

Option	Total Allowable Catch (t)	Total Allowable Commercial Catch (t)	TACC tonnage increase and % change	Allowances		
				Customary **Māori (t)**	Recreational (t)	All other mortality caused by fishing (t)
Option 1 *(Status quo)*	919	845	-	10	22	42
Option 2	984 ↑	905 ↑	60 t ↑ (7%)	11 ↑	24 ↑	44 ↑
Option 3	1062 ↑	975 ↑	127 t ↑ (15%)	12 ↑	25 ↑	50 ↑

99. Any increase in the TACC for GUR 7 will not likely lead to a significant increase in targeted fishing effort, but will likely mitigate the occurrence of possible deemed value payments incurred for this stock, and provide for increased bycatch. The interim deemed value rate of GUR 7 is currently set at 90% of the annual deemed value rate and

as the current interim and annual deemed value rates are consistent with the Deemed Value Guidelines,[20] no changes are proposed to the deemed value rates for GUR 7, as outlined in Table 2.

Table 2: Standard Deemed Value Rates ($/kg) for GUR 7

	Interim Rate ($/kg)	Annual Differential Rates ($/kg) for excess catch (% of ACE)					
		100-120%	120-140%	140-160%	160-180%	180-200%	200%+
Status quo	1.53	1.70	2.04	2.38	2.72	3.06	3.40

2. Why the need for change?

100. The best available information suggests that the red gurnard biomass in GUR 7 is currently well above the target biomass and likely to remain so with strong recruitment. Therefore, there is an opportunity to increase utilisation (increase the TAC) while ensuring sustainability of red gurnard within GUR 7.

101. The best available information includes the average relative biomass estimated from the West Coast South Island (WCSI) research trawl survey series,[21] which is used as the management target for the stock, and considered to be a proxy for B_{MSY}, the level of biomass that can produce the maximum sustainable yield.[22] The Harvest Strategy Standard defaults are used for the stock, where the soft limit is 50% of the target biomass, and the hard limit is 25% of the target biomass.[23]

102. Red gurnard have a fast growth rate and relatively short lifespan, and fluctuations in recruitment tend to result in large fluctuations in stock biomass. Responding to these changes in abundance is required to optimise utilisation of the fishery. In consecutive years of good recruitment (a recruitment pulse), strong year classes are created which can then support increased utilisation. However, management must also respond to reductions in stock biomass during periods of low recruitment by reducing catch limits to ensure the sustainability of the fishery.

103. The catch limits for red gurnard in GUR 7 were last reviewed in 2014/15 when, based on the evidence of an increasing index of abundance from the 2015 West Coast South Island (WCSI) trawl survey, the TAC was increased from 855 to 919 tonnes and the TACC was increased from 785 to 845 tonnes. Settings for the customary non-commercial allowance (10 tonnes) remained unchanged, the recreational allowance was increased from 20 to 22 tonnes, and the allowance for other sources of mortality was increased from 40 to 42 tonnes. The biomass of red gurnard in GUR 7 appears to have steadily increased since this review, and a greater opportunity for sustainable utilisation now exists.

104. Updated information in 2017 shows that the WCSI trawl survey relative biomass is well above the target level (see Figure 2).

[20] Available at www.mpi.govt.nz/document-vault/3663
[21] The WCSI trawl survey biomass data series has been accepted by the Fisheries Assessment Working Group as a reliable index of relative abundance for GUR 7.
[22] The reference period for the GUR 7 WCSI trawl series is the average estimated biomass from 1992 to 2013.
[23] The Harvest Strategy Standard is a policy statement of best practice in relation to the setting of targets and limits for New Zealand fishstocks managed under the quota management system (QMS). For more information, see the *Further Information* section below.

105. The 2017 WCSI Relative Index (trawl survey biomass) for GUR 7 (Figure 2, blue squares, left axis) is three times the target reference point of 435 tonnes. This corroborates the 2015 trawl survey biomass, which was the highest ever recorded in the series for both WCSI and Tasman/Golden Bays.

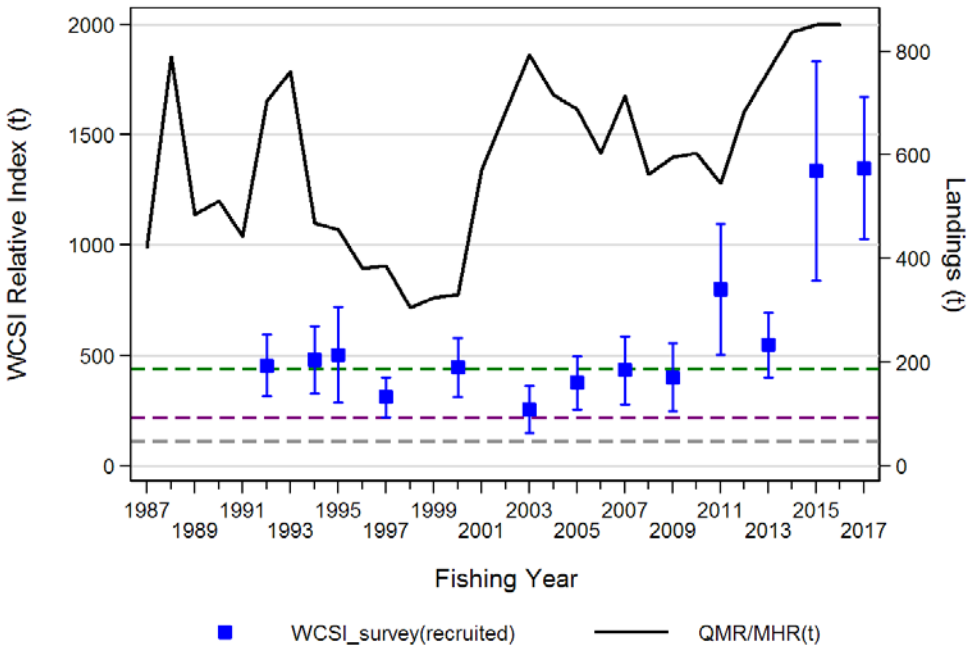

Figure 2: Comparison of the GUR WCSI trawl survey indices with the QMR/MHR landings for GUR 7. The agreed B_{MSY} proxy (geometric average: 1992–2013 WCSI survey biomass estimates=436 t) is shown as a dashed green line; the calculated Soft Limit (50% B_{MSY} proxy) is shown as a dashed purple line; the calculated Hard Limit (25% B_{MSY} proxy) is shown as a dashed grey line.

106. The WCSI (mixed species and flatfish target) catch per unit effort (CPUE) of GUR 7 has increased considerably since 2009/10, staying stable since 2013/14. CPUE is currently 60% higher than the reference level, indicating current abundance is high and corroborating the WCSI trawl survey biomass estimates.

3. Why are these options proposed?

3.1 SETTING AND VARYING THE TAC

107. In cases such as GUR 7, where the level of biomass that can produce the maximum sustainable yield (B_{MSY}) is not known, s 13(2A) of the Act provides for the Minister to use the best available information[24] to set a TAC that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, the B_{MSY} level.

[24] Defined for GUR 7 in paragraph 4.

108. The best available information is that the biomass levels of red gurnard in GUR 7 is currently well above the management target and likely to remain so in the short term as a result of good recruitment predicted by the 2017 WCSI survey. Consequently, there is an opportunity to increase utilisation (increase the TAC) while ensuring sustainability in a manner that is not inconsistent with the objectives of s 13.

109. Two different options are proposed to allow for consideration of the uncertainty in the available information and the management of sustainability risk. This requires that caution be applied in decisions (see the information principles under s 10 of the Act).

110. Option 2 (a 7% increase to the TAC of 65 tonnes) would provide for a modest increase in catch and a low risk to sustainability. Option 3 (a 15% increase to the TAC of 143 tonnes) provides for a higher level of catch, with a comparatively greater (but still low) risk to sustainability. Both options are likely to move the stock biomass towards the target level, but at different rates.

111. In either case, ongoing monitoring of the stock using trawl surveys (the next is in 2019) will enable responsive management and appropriate adjustments to address risk and possible opportunity.

3.2 SETTING ALLOWANCES AND THE TACC

112. Having set the TAC, the Minister must set the TACC and in setting or varying the TACC must make allowances for Māori customary non-commercial fishing interests, recreational fishing interests, and all other mortality to the stock caused by fishing (s 20 & 21).

113. The current TACC has been fully caught in the most recent years. The proposed increases to allowances are intended to better allow for the utilisation opportunity presented by the relatively high abundance of red gurnard in GUR 7. The commercial sector is the most constrained by the current settings. Recreational and customary harvests are relatively low compared to the commercial catch, but may be increasing given the increased biomass of the stock.

3.2.1 **Māori customary fishing**

114. Red gurnard (kumukumu) is an important species for customary fishers, as it is widely distributed in shallow, easily accessible coastal waters. Kumukumu is identified by the Te Waka a Māui me Ōna Toka Iwi Forum as a tāonga species in the Te Waipounamu Iwi Fisheries Plan. This plan contains objectives to support and provide for the interests of South Island iwi. Consistent with the objectives of this plan, MPI is supporting and providing for the interests of South Island iwi by providing allowances that adequately allow for the utilisation of customary resources.

115. The current level of Māori customary catch of red gurnard is uncertain. There is no recorded customary catch of red gurnard in GUR 7. This may reflect that tangata whenua in the Marlborough Sounds and Tasman/Golden Bay area are still operating under regulation 50 of the Fisheries (Amateur Fishing) Regulations 2013 (the Amateur Regulations), which do not require that customary permits or catches be reported. Alternatively it may reflect that tangata whenua are using recreational fishing

regulations for their harvest and consider that these regulations sufficiently allow for current customary harvest levels.

116. MPI proposes to apply the percentage increase to the TAC (a 7% increase for Option 2, and a 15% increase for Option 3) proportionally to the allowance for customary non-commercial fishing, to reflect the likely increased availability of red gurnard given recent increases in abundance. For Option 2 this results in a one-tonne increase to 11 tonnes. For Option 3 this results in a two-tonne increase to 12 tonnes. MPI considers that the proposed allowances will allow for customary take considering red gurnard are likely becoming increasingly available in the current recruitment pulse.

3.2.2 Recreational fishing

117. Red gurnard is an important recreational species across New Zealand. Recreational catches of gurnard are relatively low in GUR 7 compared to commercial gurnard catches.

118. The National Panel Survey of Marine Recreational Fishers 2011/12[25] provides the best available information on recreational harvest in GUR 7. This survey estimated 12 tonnes of red gurnard were caught in GUR 7 in the 2011/12 fishing year. MPI acknowledges that recreational harvest can fluctuate hugely from year to year due to weather and economic factors. While this estimate is subject to uncertainty due to the relatively small numbers of events and fishers it was derived from, it is well within the current recreational allowance of 22 tonnes.

119. MPI proposes to apply the percentage increase to the TAC (a 7% increase for Option 2, and a 15% increase for Option 3) proportionally to the allowance for recreational fishing, to reflect that red gurnard are likely becoming increasingly available in the current recruitment pulse. For Option 2 this results in a two-tonne increase to 24 tonnes, and for Option 3 this results in a three-tonne increase to 25 tonnes. MPI considers that the proposed allowance will allow for recreational take considering the likely increased availability of red gurnard given recent increases in abundance.

120. A repeat of the 2011/12 National Panel Survey of Marine Recreational Fishers will occur for 2017/18, and updated estimates of recreational catch in GUR 7 will be used to inform future management.

3.2.3 All other mortality to the stock caused by fishing

121. An allowance for all other mortality caused by fishing of 5% of the TACC is proposed for all options. For Option 1 (retaining the *status quo*) the allowance remains unchanged at 42 tonnes. For Option 2 (increasing the TACC by 60 tonnes, a 7% increase), a two-tonne increase to 44 tonnes is proposed, and for Option 3 (increasing the TACC by 127 tonnes, a 15% increase) an eight-tonne increase to 50 tonnes is proposed. While there is no information available to quantify all other mortality caused by fishing, the available evidence suggests that an allowance of 5% of the TACC is appropriate given the

[25] Wynne-Jones J, Gray A, Hill L, Heinmann A (2014) National Panel Survey of Marine Recreational Fishers 2011-2012: Harvest Estimates. New Zealand Fisheries Assessment Report 2014/67. 139p

biological characteristics of the stock and mortality caused by trawling and non-commercial methods.

3.2.4 Commercial fishing

122. Currently the commercial fishery appears to be constrained by the existing TACC. Annual catches and the TACC for GUR 7 since 2001/02 are shown in Figure 3 below. GUR 7 catch has regularly exceeded the TACC since it was increased for 2012/13, incurring maximum deemed value costs of over $111,000 in 2014/15 when the TACC was overcaught by 8.6%. The TACC was last increased for 2015, and in 2015/16 the TACC was only just overcaught (100.36% of TACC was caught).

123. The two options proposed for GUR 7 TACC (Table 1), a 7% increase (Option 1) and a 15% increase (Option 2), are intended to provide an opportunity for increased sustainable utilisation of red gurnard in GUR 7. The options are higher than the TACC, or levels of landings, in GUR 7 over the past 15 years (Figure 3). This increase is proposed because of the strong signal from the WCSI trawl survey that the fishery is experiencing a pulse of increased abundance. MPI anticipates that the increase in TACC will cover the increased bycatch of gurnard as a result of its increased availability and abundance in GUR 7, rather than to provide for additional fishing effort.

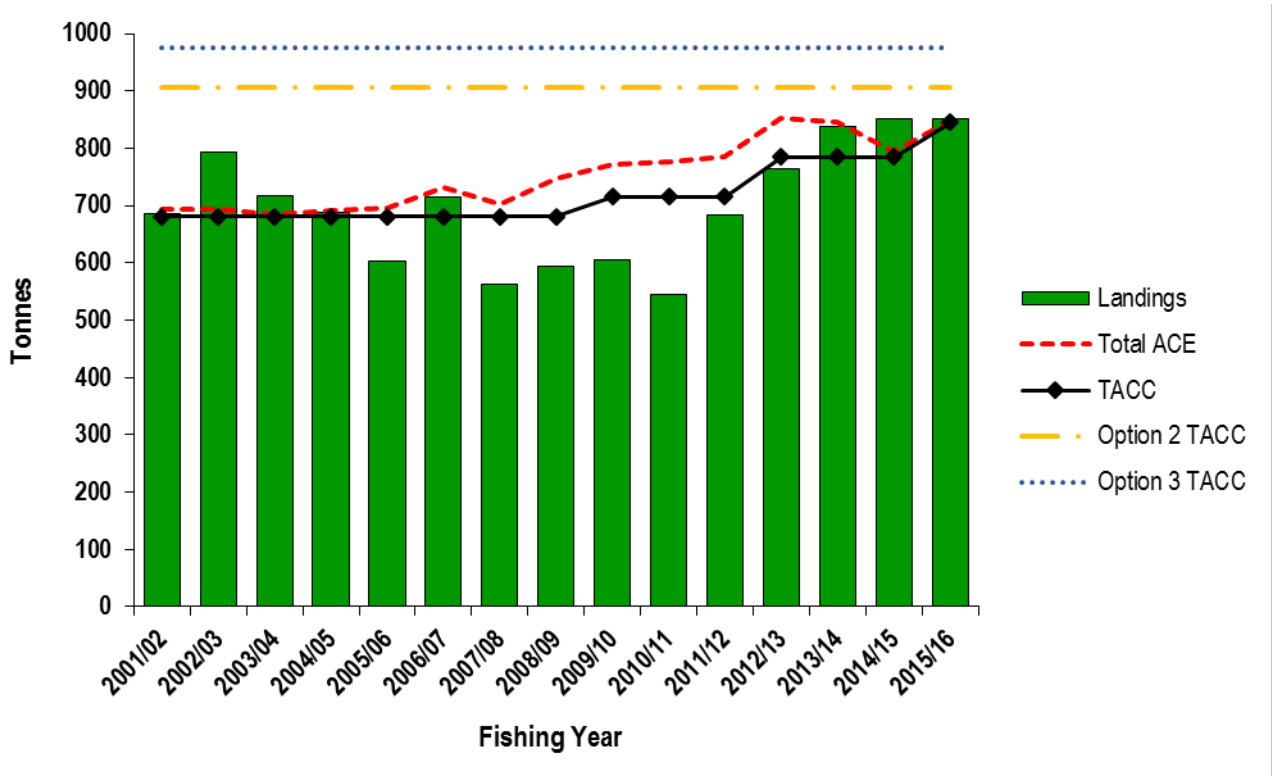

Figure 3: Annual catches vs TACC and available ACE for GUR 7 between 2001/02 and 2015/16, including TACC levels proposed for Options 2 and 3.

3.3 DEEMED VALUE RATES

124. There are no proposed changes to the deemed value rates for GUR 7 for the 2017/18 fishing year (see Table 2 above).

3.4 EVALUATION OF OPTIONS

125. The increases to catch limits and allowances proposed in Option 2 and Option 3 are all considered to be sustainable, and supported by the best available information which suggests that red gurnard abundance in GUR 7 is at an all-time high. The current recruitment pulse is expected to stay in the fishery for the next 5-7 years, and it is expected that GUR 7 biomass will vary over time as recruitment fluctuates. MPI will continue to monitor the state of the GUR 7 fishery via the biennial WCSI inshore trawl survey, and may consider reviewing the TAC when this information is updated.

126. MPI welcomes information and views of tangata whenua and stakeholders regarding these proposed options, including any other information to support alternate options.

Table 3: Predicted changes to commercial revenue of the proposed options, based on port price of $1.73/kg for GUR 7 in 2016/17

	TACC	Change from status quo (t)	Predicted revenue change ($ p.a.)
Option 1 *(Status quo)*	845		
Option 2	905	60 ↑ (7%)	103,800 ↑
Option 3	975	127 ↑ (15%)	219,700 ↑

127. Increasing the TACC and allowances will allow fishers to take advantage of increased abundance of red gurnard. An additional benefit for commercial fishers is that an increased TACC would reduce the amount spent on deemed values, provided they constrain their catch within the commercial catch limit. Retaining the current TAC and TACC (Option 1, *status quo*) might result in opportunity loss through unnecessarily restrained catch.

128. In 2015, 11% of gurnard caught by commercial operators was exported. This is a similar level to previous years. Gurnard is an important fish on the domestic market and increasing the TACC will increase the availability of this fish for New Zealand consumers.

129. Available information suggests recreational and customary Māori take is well within current allowances. However, non-commercial take may be increasing considering the current recruitment pulse and increased stock abundance in the fishery.

3.4.1 Option 1 *(Status quo)*

130. Option 1 proposes no change to the *status quo*.

3.4.2 Option 2

131. A 60 tonne (7%) increase in the TACC (Option 2) is likely to be a modest response to the increased GUR 7 biomass. The expected effect on revenue of Option 2 is shown in Table 3.

132. Under Option 2, MPI is proposing to proportionally increase the non-commercial allowances by 7% (increasing the Māori customary allowance by one tonne to 11 tonnes, and increasing the recreational allowance by two tonnes to 24 tonnes). The increase allows for a likely increase in the availability and catch of gurnard given the increase in abundance.

3.4.3 Option 3

133. A 127 tonne (15%) increase in the TACC (Option 3) places greater weight on the information showing increased abundance and further opportunities for sustainable utilisation. The expected effect on revenue of Option 2 is shown in Table 3.

134. Under Option 3, MPI proposes increasing the non-commercial allowances by 15% (increasing the Māori customary allowance by two tonnes to 12 tonnes, and increasing the recreational allowance by three tonnes to 25 tonnes). These increases allow for a likely greater harvest of gurnard given the increase in stock abundance and availability.

4. Other Relevant Matters

4.1 ENVIRONMENTAL PRINCIPLES AND SUSTAINABILITY MEASURES

134. The proposals are not expected to significantly change the environmental impacts and interactions of the GUR 7 fishery (s 9 of the Act). The proposals will provide for likely additional catch resulting from greater abundance of gurnard in GUR 7, and additional targeted fishing effort is not expected. Therefore any additional impacts on bycatch species, protected species, and the benthic environment are unlikely. The proposals are also considered to adequately address the requirements of s 11 of the Act.

4.2 INPUT AND PARTICIPATION OF TANGATA WHENUA

135. The proposal to consult on GUR 7 was presented to both Iwi Fisheries Forums relating to South Island iwi, the Te Waka a Māui me Ōna Toka Iwi Forum and the Te Tau Ihu Iwi Forum. These two forums represent the nine iwi of the South Island, each holding mana moana and significant interests (both commercial and non-commercial) in South Island fisheries. The Te Tau Ihu Iwi Forum represents the eight iwi at the top of the South Island, and the Te Waka a Māui me Ōna Toka Iwi Forum represents those eight iwi plus Ngai Tahu. Their input has been incorporated into this proposal.

4.3 RECREATIONAL CONTROLS

136. The main methods used to manage recreational harvest of red gurnard are minimum legal size limits (MLS), method restrictions, and daily bag limits. Fishers can take up to 20 red gurnard as part of their combined daily bag limit, and the MLS in 25cm. There is no information to suggest a change to recreational controls would be needed and no changes to the recreational daily bag limit are proposed.

5. Further Information

137. Should you require further information, please see:

Fisheries Act (1996):

http://www.legislation.govt.nz/act/public/1996/0088/latest/DLM394192.html

MPI Plenary document:

Ministry for Primary Industries (2016). Fisheries Assessment Plenary, May 2016: stock assessments and stock status. Compiled by the Fisheries Science Group, Ministry for Primary Industries, Wellington, New Zealand, 1556 p. Volume 3, Chapter RED GURNARD (GUR). pg. 1016
(http://fs.fish.govt.nz/Page.aspx?pk=113&dk=24140)

MPI's recreational fisheries species page:

http://fs.fish.govt.nz/Page.aspx?pk=8&tk=31&stock=GUR7

Previous review of the stock:

GUR 7 October Sustainability Round Review 2015: https://www.mpi.govt.nz/document-vault/9608

Harvest Strategy Standard:

Harvest Strategy Standard for New Zealand Fisheries. (2008). Compiled by the Ministry of Fisheries, Wellington, New Zealand, 27 p.
(http://fs.fish.govt.nz/Page.aspx?pk=104)

Draft National Fisheries Plan for Inshore Finfish:

Draft National Fisheries Plan for Inshore Finfish. (2011). Compiled by the Ministry of Fisheries, Wellington, New Zealand, 61 p.
(https://fs.fish.govt.nz/Page.aspx?pk=152)

Paua (PAU 3 and PAU 7)

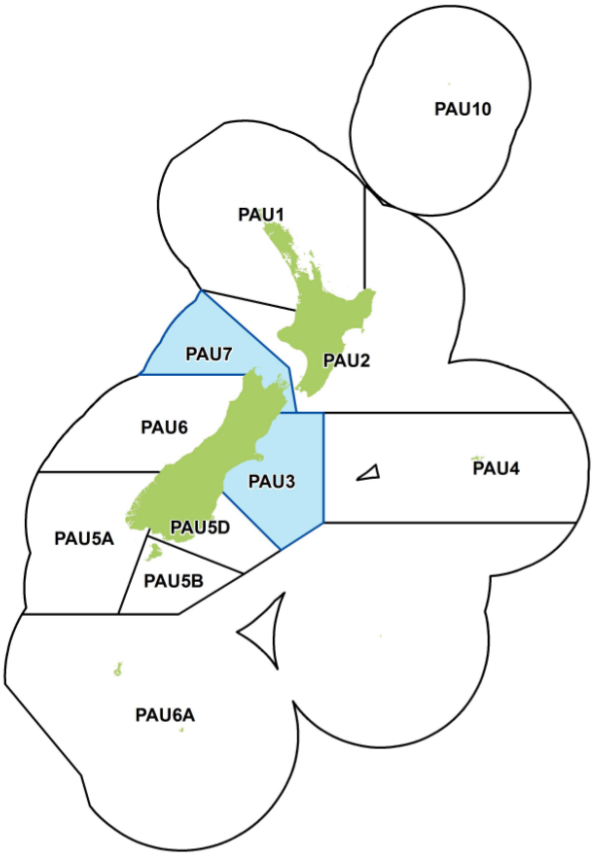

Figure 1: Quota management areas (QMAs) for paua stocks, with the PAU 3 and PAU 7 stocks highlighted in blue.

1. What is proposed?

138. The paua (*Haliotis iris, Haliotis australis*) fisheries in PAU 3 and PAU 7 were adversely affected by earthquakes on 14 November 2016 (the Kaikōura earthquakes). A closure of some parts of PAU 3 and PAU 7 is in place until November 2017, and it is likely that further closures may be needed to safeguard remaining paua in the areas affected by the earthquakes.

139. It is proposed that TACs, TACCs and allowances for PAU 3 and PAU 7 be reviewed to take this into account. This paper covers proposals for both of these stocks in a single paper because of the similarity of the issues facing them following the earthquakes.

140. MPI proposes to set a Total Allowable Catch (TAC) for PAU 3 for the first time, and to set allowances for Māori customary, recreational, and all other mortality caused by fishing for PAU 3 (Figure 1). MPI also proposes to decrease the Total Allowable Commercial Catch (TACC) for PAU 3.

141. MPI proposes to decrease the TAC and TACC, including a decrease to the recreational allowance, for PAU 7 (Figure 1). No changes are proposed to the non-commercial allowances for Māori customary and all other mortality caused by fishing for PAU 7.

142. The options proposed by MPI are outlined in Table 1. MPI seeks information and views from tangata whenua and stakeholders regarding these options:

Table 1: Proposed management settings in tonnes (t) for PAU 3 and PAU 7 from 1 October 2017

Stock	Option	Total Allowable Catch (t)	Total Allowable Commercial Catch (t)	TACC tonnage decrease and % change	Allowances		
					Customary **Māori (t)**	Recreational (t)	All other mortality caused by fishing (t)
PAU 3	Current settings	-	91.615	-	-	-	-
	Option 1	79.3	45.8 ↓	45.8 t ↓ (50%)	15	8.5	10
	Option 2	57.6	27.5 ↓	64.1 t ↓ (70%)	15	5.1	10
PAU 7	Option 1 *(Status quo)*	133.6	93.6	-	15	15	10
	Option 2	121.8 ↓	84.2 ↓	9.4 t ↓ (10%)	15	12.6 ↓	10
	Option 3	116.5 ↓	79.6 ↓	14 t ↓ (15%)	15	11.9 ↓	10

143. The current interim deemed value rates for PAU 3 and PAU 7 are set at approximately 75% of their respective annual deemed value rates. As the current interim and annual deemed value rates are consistent with the Guidelines,[26] and for consistency with the deemed value rates for other paua stocks, no changes are proposed to the deemed value rates for PAU 3 or PAU 7 (Table 2).

Table 2: Standard Deemed Value Rates ($/kg) for PAU 3 and PAU 7

Stock	Interim Rate ($/kg)	Annual Differential Rates ($/kg) for excess catch (% of ACE)					
		100-120%	120-140%	140-160%	160-180%	180-200%	200%+
PAU 3	50.00	66.00	79.20	92.40	105.60	118.80	132.00
PAU 7	50.00	66.00	79.20	92.40	105.60	118.80	132.00

2. Why the need for change?

144. The Kaikōura earthquakes caused substantial sections of the coast near Kaikōura and Cape Campbell to be uplifted above the mean high-water mark. As a result, there was major mortality of paua, other shellfish, and seaweed, and the habitat for paua was substantially altered or destroyed in many areas.

145. Following the earthquakes, the Minister for Primary Industries (the Minister) announced an emergency fisheries closure of the coastline in the earthquake-affected area between Marfells Beach and Conway River, to four nautical miles offshore (Figure 2). This closure applies to all shellfish (excluding rock lobster and scampi) and seaweed, and it is due to expire on 20 November 2017. MPI is also consulting[27] on a proposal to replace the emergency closure with a new closure as a sustainability measure under s 11 of the Fisheries Act 1996 (the Act).

[26] Deemed Value Guidelines, 4 July 2012. Accessible at: www.mpi.govt.nz/document-vault/3663
[27] Consultation documents are posted online when consultation is open: http://www.mpi.govt.nz/news-and-resources/consultations/?opened=1&cat=8

146. The scale of habitat loss continues to raise concerns about potentially significant loss of abundance and future productivity of the paua fishery. The earthquake-affected area spans two paua quota management stocks (Figure 3):

- **PAU 3** (which extends from Clarence Point south to the Waitaki River); and
- **PAU 7** (which extends from Clarence Point north and west to Kahurangi Point on the west coast of the South Island).

147. With some of the most productive paua populations of these quota management areas (QMAs) now closed to commercial and non-commercial fishers, the area and number of paua beds accessible to fishing has been considerably reduced. As a consequence, there is potential for fishing effort to be displaced from the closed area into the adjacent open areas of PAU 3 and PAU 7. MPI recognises the sustainability concerns for the open areas in each QMA if this potential effort displacement occurs.

148. The status of the stocks in PAU 3 and PAU 7 are assessed through a formal stock assessment modelling process. The management approach for these fisheries is that catch limits may be reviewed when stock assessment projections indicate the stock abundance will decline and/or remain below the target abundance level under current catch with greater than 50% probability, though other factors may initiate a review also.

149. The latest stock assessment for PAU 3 was undertaken in 2014. The 2014 assessment estimated the biomass was likely above the target of 40% B_0 (40% of the unfished biomass) but with a fairly high degree of uncertainty and trending downwards. A new stock assessment was due to begin in the latter half of 2017, but has been delayed following the earthquakes. The appropriateness of undertaking a new stock assessment will be determined in 2018. In the interim, research is being undertaken to estimate current abundance of paua in the closed area (Figure 2) and to monitor any changes in this abundance.

150. The latest stock assessment for PAU 7 was undertaken in 2016. The 2016 assessment estimated the biomass to be 18% of the unfished biomass, which is below the soft limit of 20% B_0 (20% of the unfished biomass). The TACC was reduced by 50% on 1 October 2016 as part of a rebuilding plan for the fishery.

151. New information from earthquake-related research for paua in the affected areas will not be available until mid-2018. The fishing year begins on 1 October, and therefore on 1 October 2017 new Annual Catch Entitlement (ACE) will be generated from the existing quota shares. MPI considers it necessary to review the TACCs for these fisheries before 1 October 2017 to ensure sustainability of the PAU 3 and PAU 7 stocks.

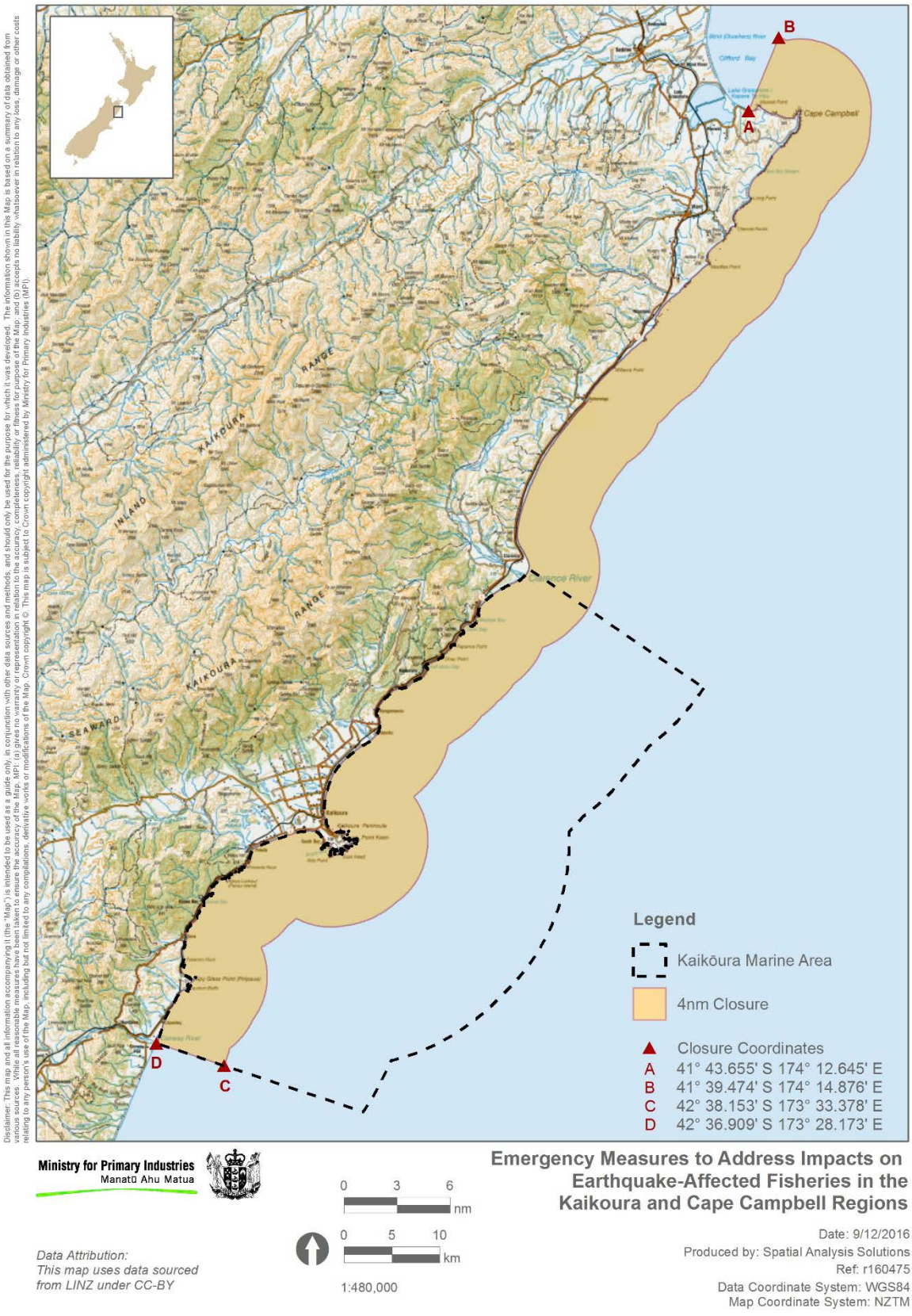

Figure 2: Map of the earthquake-affected area closed under s 16 of the Fisheries Act 1996.

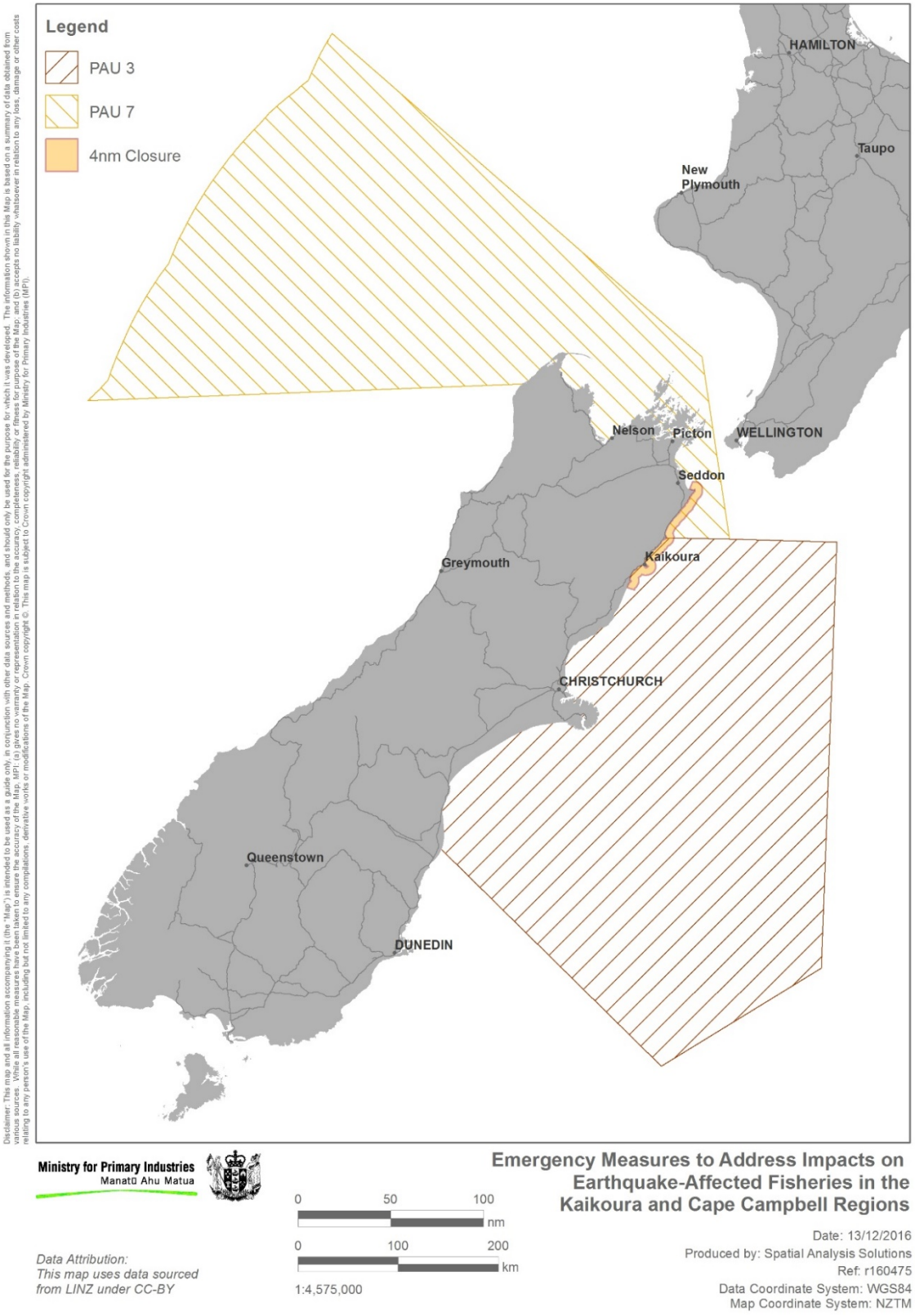

Figure 3: Locations of the PAU 3 and PAU 7 fisheries in relation to the emergency closure area.

3. Why are these options proposed?

3.1 SETTING THE TAC

152. The TAC for PAU 3 and PAU 7 can be set or varied under section 13 of the Fisheries Act 1996 (the Act). Section 13(2) of the Act specifies requirements for setting a TAC where a reliable estimate of the current biomass of the stock and the level of biomass that can produce the maximum sustainable yield (B_{MSY}) is known. In cases such as PAU 3 and PAU 7, where there is uncertainty around estimates of B_{MSY}, section 13(2A) of the Act provides for the Minister to use the best available information to set a TAC that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, the B_{MSY} level.

153. The target biomass for PAU 3 and PAU 7 is 40% B_0 (40% of the unfished biomass, B_0) as a proxy for B_{MSY}. Additionally, a soft limit of 20% B_0 and a hard limit of 10% B_0 have been agreed upon for the fishery in accordance with the Harvest Strategy Standard for New Zealand Fisheries[28]. For both stocks, the best available information on stock status comes from the most recent stock assessments in conjunction with what we know about the areas that have been affected by the earthquake, including previous commercial catch information from the earthquake affected area.

PAU 3

154. The best available information suggests that, as at 30 September 2013, the PAU 3 stock was above the target level of 40% unfished biomass, but trending downwards.

155. Fine-scale reporting information indicates that between approximately 50% and 70% of the commercial catch has been taken over the past 15 years from the earthquake-affected area that is now closed to fishing in PAU 3 (Figure 2). There is no equivalent information on customary or recreational harvest that enables a similar assessment to be done. However, the commercial areas also support important customary and recreational fisheries that are likely to have been similarly impacted.

156. No TAC has been previously set for PAU 3. Given this and the significant proportion of paua habitat affected by the earthquakes, MPI considers the status quo is not an appropriate TAC option for consideration. Two different options for setting the TAC are proposed that take into account the uncertainty in the available information and the requirement to manage sustainability risk.

157. The two TAC options are based (approximately) on the maximum (Option 1) and minimum (Option 2) commercial catch that has been harvested from the area of PAU 3 that has remained open following the earthquakes. This approach results in two options that cover a full range of potential impact.

158. Option 1 proposes that the PAU 3 TAC is set at 79.3 tonnes. This is the less cautious of the two options, and assumes that the open area of PAU 3 can sustain a level of catch that equates to 50% of the current TACC. Over the past 15 years, this is the maximum

[28] Harvest Strategy Standard for New Zealand Fisheries – Refer Section 5 for link.

level of commercial catch that has been harvested from the area of PAU 3 that has remained open following the Kaikōura earthquakes.

159. Option 2 proposes a PAU 3 TAC of 57.6 tonnes. This is the more cautious of the two options, and assumes that the open area of PAU 3 can only sustain a level of catch that equates to 30% of the TACC. Over the past 15 years, this is the minimum level of commercial catch that has been harvested from the area of PAU 3 that has remained open following the Kaikōura earthquakes.

160. Under both options, monitoring of the stock status by way of fishery independent abundance surveys and stock assessment modelling, will continue. This will provide the basis for an ongoing responsive management approach with appropriate adjustments to ensure sustainable utilisation of the fishery.

PAU 7

161. The best available information suggests the PAU 7 stock is below the soft limit (estimated to have been at 18% of the unfished biomass in 2016). As part of a rebuilding plan for the fishery, on 1 October 2016 the TAC was reduced, including a 50% reduction of the TACC.

162. Fine-scale reporting information indicates that between 4% and 12% of the commercial catch has been taken over the past 15 years from the earthquake-affected area that is now closed to fishing in PAU 7 (Figure 2). Two different options for setting the TAC are proposed.

163. Option 1 (*status quo*) proposes no changes to the TAC, TACC or non-commercial allowances for PAU 7. MPI notes that the *status quo* may not be appropriate post-earthquake due to concerns regarding the effect current catch limits would have on the sustainability of the earthquake-affected stock if fully caught. Therefore, decreases to the catch limits (Options 2 and 3) are proposed to address sustainability concerns relating to the fishery.

164. Option 2 proposes that the PAU 7 TAC is set at 121.8 tonnes. This is the less cautious of the two options, and assumes that the open area of PAU 7 can sustain a level of catch that equates to 90% of the current TACC.

165. Option 3 proposes a PAU 7 TAC of 116.5 tonnes. This is the more cautious of the two options, and assumes that the open area of PAU 7 can only sustain a level of catch that equates to 85% of the TACC.

166. MPI considers that both Options 2 and 3 are likely to move the stock biomass towards the target level, but at different rates. In either case, monitoring of the stock status, by way of fishery independent abundance surveys and/or stock assessment modelling, will be ongoing. This will enable responsive management and appropriate adjustments as required to management controls to ensure the sustainability of the fishery. This includes consideration of additional measures to ensure a rebuild of this important shared fishery.

3.2 SETTING ALLOWANCES AND THE TACC

In setting or varying the TACC, the Minister shall have regard to the TAC and make allowances for Māori customary non-commercial fishing interests, recreational fishing interests, and all other mortality to the stock caused by fishing (as provided in s 20 & 21 of the Act).

PAU 3

167. A TAC and allowances have not been previously set for PAU 3. The options proposed are set out in Table 1.

3.2.1 Māori customary fishing

168. Under the Fisheries (South Island Customary Fishing) Regulations 1999, it is mandatory for customary fishers to report actual catch (Regulation 35) to the authorising tangata tiaki/kaitiaki, who reports back to MPI on a three-monthly basis (Regulation 15).

169. Estimates of Māori customary take for PAU 3, based on tangata tiaki authorisations, have fluctuated from 7 – 13 tonnes in recent years. MPI does not hold fine-scale customary catch information showing where within PAU 3 customary catch is taken.

170. Taking into account the uncertainty in the information, MPI proposes a 15 tonne allowance to provide for current customary harvest amounts under both options. MPI welcomes information from tangata whenua and iwi to support the rationale for the proposed or an alternative allowance.

3.2.2 Recreational fishing

171. The best available information for recreational take comes from the National Panel Survey[29]. The most recent National Panel Survey (2011/12) estimated recreational take at approximately 17 tonnes (CV 0.31). It is assumed by the MPI Science Working Group that 17 tonnes is likely to be an underestimate of recreational take because shore-based gathering/diving was not well captured by the National Panel Survey methodology.

172. MPI proposes two different recreational allowance options for PAU 3. Under Option 1, an allowance of 8.5 tonnes is proposed. This is calculated by taking the 17 tonne estimate from the 2011/12 survey and reducing it by 50%. This assumes that 50% of the recreational take can no longer be taken due to the closed area in PAU 3 as a result of the Kaikōura earthquakes.

173. Under Option 2, an allowance of 5.1 tonnes is proposed based on the assumption that 70% of the recreational take can no longer be taken due to the closed area in PAU 3. This approach is consistent with the assumptions made for commercial catch.

[29] Gray, A., Heinemann, A., Hill, L., Wynne-Jones, J. 2014. National Panel Survey of Marine Recreational Fishers 2011-12: Harvest Estimates. Accessible at: http://fs.fish.govt.nz/Page.aspx?pk=113&dk=23718

3.2.3 All other mortality caused by fishing

174. All other mortality to the PAU 3 stock caused by fishing includes illegal take and incidental mortality within fisheries.

175. The MPI Science Working Group responsible for paua assumed illegal take to be approximately 15 tonnes in PAU 3 for the 2014 stock assessment. This estimate is highly uncertain. Research suggests that incidental mortality associated with commercial fishing is approximately equal to 0.3% of landed catch. There is also some associated mortality in the recreational fishery, which is likely to occur at a higher rate than the estimate for the commercial fishery.

176. Under both Options 1 and 2, MPI proposes setting the allowance for all other mortality to PAU 3 caused by fishing at 10 tonnes. This takes into account the uncertainty in information and the lack of accessibility to large areas of the fishery due to the road closures, thereby reducing opportunities for illegal take.

3.2.4 Commercial fishing

177. The TACC in PAU 3 was fully caught each year before the earthquakes in November 2016 (Figure 4).

178. MPI proposes two options for setting the TACC:

- **Option 1** – a 50% reduction to 45.8 tonnes; or,
- **Option 2** – a 70% reduction to 27.5 tonnes.

179. Reducing the TACC to reflect the level of take that is now inaccessible to fishers would reduce the harvesting pressure and sustainability risks to areas of PAU 3 that remain open.

180. Since 2001, there the Paua Management Company in QMA3 (PauaMAC3) has developed industry agreements to spread fishing effort out across the fine-scale paua statistical reporting areas. These longstanding voluntary catch spreading efforts followed concerns within the commercial fishing sector that the northern part of the fishery was under too much fishing pressure. The intent with the catch spreading and the fine-scale management areas is to spread commercial take 50/50 between the northern and southern parts of the PAU 3 (now the closed and open parts of PAU 3). However, levels of take over the years have fluctuated between these areas due to external factors such as poor weather. Fine-scale commercial catch information suggests between 50% and 70% of the catch was, over the past 15 years, taken in the now closed area.

181. The two options are based (approximately) on the maximum (Option 1) and minimum (Option 2) commercial catch that has been harvested from the area of PAU 3 that has remained open following the earthquakes. This approach results in two options that cover a full range of potential impact. However, MPI recognises that intermediate options, for example based on average catch from the remaining open area over various periods, may also be valid, and welcomes tangata whenua and stakeholder submissions on such options.

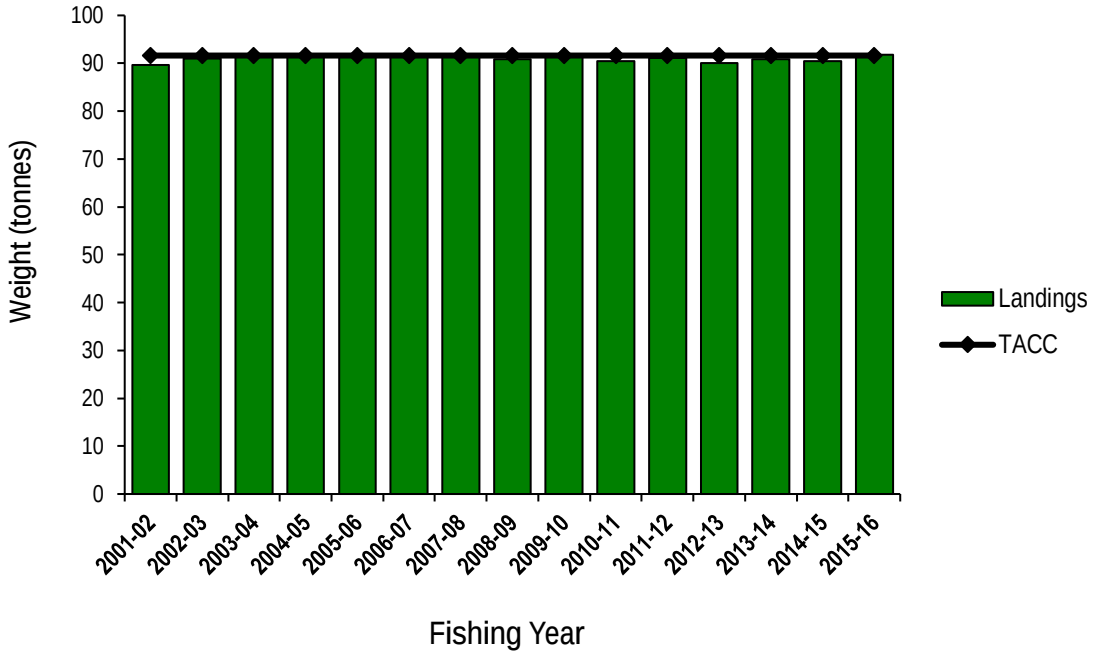

Figure 4: Annual catches vs TACC for PAU 3 from 2000/01 to 2015/16.

PAU 7

182. The current TAC and allowances for PAU 3 and the proposed options are set out in Table 1.

3.2.5 Māori customary fishing

183. The majority of the PAU 7 fishery falls within an area where the Fisheries (Amateur Fishing) Regulations 2013 (the amateur regulations) apply, and where customary take is only required to be reported back to the permit authoriser if it is specified on the permit. Customary harvest information is available from where Tangata tiaki/kaitiaki have been appointed in an area on the west coast known as Te Tai Tapu o Mohua where the two mātaitai reserves exist.

184. Records suggest that up to 5862 paua (approximately 2.3 tonnes) have been authorised to be collected in one year, over the past ten years. MPI does not hold fine-scale customary catch information showing where within PAU 7 customary catch has been taken.

185. The current allowance for customary take (15 tonnes) is considered sufficient to allow for current customary harvest. MPI proposes no change to the allowance for customary fishing.

3.2.6 Recreational fishing

186. The best available information for recreational take comes from the 2011/12 National Panel Survey. The survey estimated recreational take at approximately 14 tonnes (CV 0.34) in the 2011/12 fishing year. It is assumed by the MPI Science Working Group that

14 tonnes is likely to be an underestimate of recreational take because shore-based gathering/diving was not well captured.

187. MPI proposes three different recreational allowance options for PAU 7.

188. Under Option 1 (*status quo*), no changes are proposed to the recreational allowance for PAU 7 and it is maintained at 15 tonnes. MPI notes that the *status quo* may not be appropriate post-earthquake due to concerns regarding the effect current catch limits would have on the sustainability of the earthquake-affected stock if fully caught. Therefore, decreases to the allowances (Options 2 and 3) are proposed to address sustainability concerns relating to the fishery.

189. Under Option 2 an allowance of 12.6 tonnes is proposed. This is calculated by taking the 14 tonne estimate from the 2011/12 survey and reducing it by 10%. This assumes that 10% of the recreational take can no longer be taken from the closed area after the earthquakes.

190. Under Option 3 an allowance of 11.9 tonnes is proposed based on the assumption that 15% of the recreational take can no longer be taken from the closed area. This approach is consistent with the assumptions made for commercial catch.

3.2.7 All other mortality caused by fishing

191. The MPI Science Working Group responsible for paua assumed illegal take to be approximately 7.5 tonnes in PAU 7 for the purposes of the last stock assessment. There is uncertainty in this estimate. Research suggests that incidental mortality associated with commercial fishing is approximately equal to 0.3% of landed catch. There is also some associated mortality in the recreational fishery, which is likely to occur at a higher rate than the estimate for the commercial fishery.

192. MPI proposes no change to the current 10 tonnes allowance for all other mortality to the stock caused by fishing.

3.2.8 Commercial fishing

193. The TACC for PAU 7 has not been fully caught in recent years (Figure 5). This relates to voluntary ACE shelving initiatives by industry to support a rebuild of paua abundance and enhance economic performance. The reasons for the lack of rebuild despite industry's efforts are likely to be due to a number of factors (both environmental and anthropogenic), some of which cannot be controlled, as well as fishing-related factors.

194. The TACC was formally reduced by 93.62 tonnes (50%) in 2016 to stimulate a rebuild of the PAU 7 fishery.

195. MPI proposes three options for the TACC:

- **Option 1** (*status quo*) – no change, remains at 93.6 tonnes;
- **Option 2** – a 10% reduction to 84.2 tonnes; or
- **Option 3** – a 15% reduction to 79.6 tonnes.

196. Reducing the TACC reflects the level of take that is now inaccessible to fishers. It also assists with reducing the harvesting pressure and the sustainability risks to areas of PAU 7 that remain open.

197. The two options that propose a decrease are based (approximately) on the maximum (Option 2) and minimum (Option 3) commercial catch that has been harvested from the area of PAU 7 that has remained open following the earthquakes. This approach results in two options that cover a full range of potential impact. However, MPI recognises that intermediate options, for example based on average catch from the remaining open area over various periods, may also be valid, and welcomes tangata whenua and stakeholder submissions on such options.

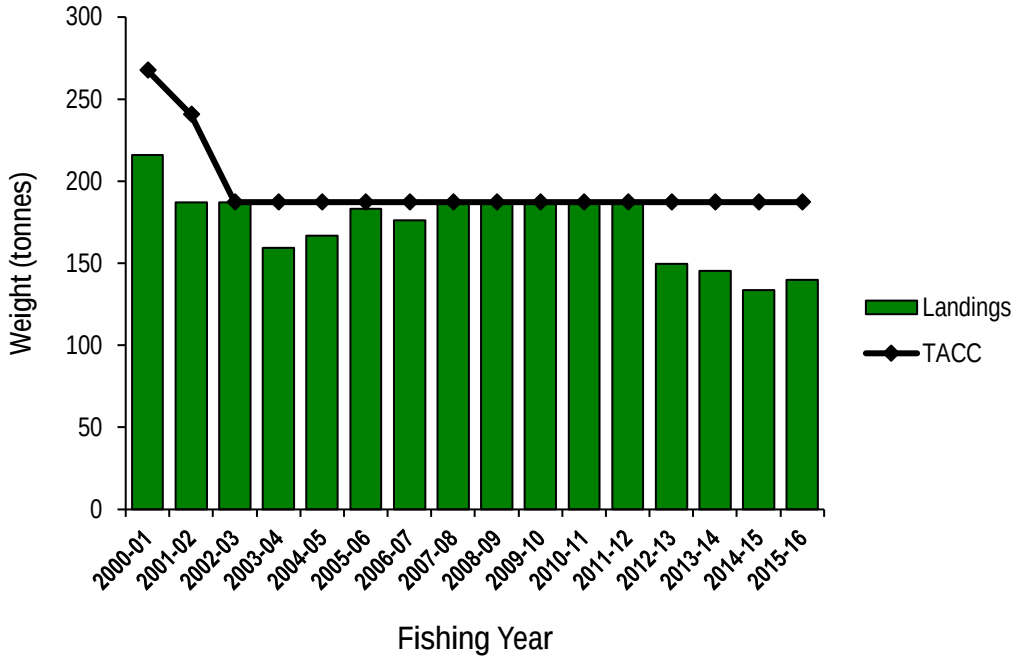

Figure 5: Annual catches vs TACC for PAU 7 from 2000/01 to2015/16.

3.3 DEEMED VALUE RATES

198. There are no proposed changes to the deemed value rates for PAU 3 and PAU 7 for the 2017/18 fishing year (see Table 2).

3.4 EVALUATION OF OPTIONS

PAU 3

199. MPI considers that decreasing the TACC is necessary as a result of new sustainability risks to the PAU 3 fishery following the Kaikōura earthquakes. The expected effect on revenue of the proposed options is outlined in Table 3.

Table 3: Predicted changes to commercial annual revenue of the proposed options, based on port price of $23.98/kg for PAU 3 in 2016/17

	TACC (t)	Change from status quo (t)	Predicted revenue change ($ p.a.)
Current settings	91.615		
Option 1	45.8	45.8 ↓ (50%)	1,098,644 ↓
Option 2	27.5	64.1 ↓ (70%)	1,537,478 ↓

200. MPI considers that the status quo is not a valid option given there is currently no TAC set for the fishery, and because a significant proportion of paua habitat was affected by the earthquakes.

201. Option 1 is the less cautious of the two options proposed, and assumes that the area of PAU 3 that remains open to fishing can sustain a level of catch that equates to 50% of the TACC. The impact of Option 1 on the commercial sector is shown in Table 3. However, this value has in effect been lost to industry already for the current fishing year as a result of the earthquake, emergency closure, and industry-led initiative to shelve ACE.

202. Option 2 is more cautious than Option 1 and assumes that the open area of PAU 3 can only sustain a level of catch that equates to 30% of the TACC. The impact of Option 2 on the commercial sector is shown in Table 3. This option has a greater impact to the commercial sector; however, it provides the greatest confidence of ensuring sustainability of the fishery.

203. MPI considers that both options will help ensure that overharvesting of the area of PAU 3 that remains open does not occur following the Kaikōura earthquakes. This achieves the purpose of the Act in ensuring sustainability of the fishery while providing for utilisation.

204. A TAC and associated allowances must be set for PAU 3. The proposed allowances for customary and recreational interests and all other mortality caused by fishing are considered sufficient to allow for current removals and are based on best available information (while noting uncertainties in that information).

205. MPI also intends to develop additional management controls in PAU 3 during 2017, including measures to ensure that non-commercial fishing of paua supports a rebuild of PAU 3. MPI will engage with tangata whenua and all stakeholders, using a shared fishery/multi-sector approach, in the development of options and will carry out full public consultation prior to any decisions being made.

PAU 7

206. MPI considers that decreasing the TAC and TACC is necessary as a result of new sustainability risks to the PAU 7 fishery following the Kaikōura earthquakes. The expected effect on revenue of the proposed options is outlined in Table 4.

Table 4: Predicted changes to commercial annual revenue of the proposed options, based on port price of $23.98/kg for PAU 7 in 2016/17

	TACC (t)	Change from status quo (t)	Predicted revenue change ($ p.a.)
Option 1 *(Status quo)*	93.6		
Option 2	84.2	9.4 ↓ (10%)	225,412 ↓
Option 3	79.6	14 ↓ (15%)	335,720 ↓

207. Option 1 (maintaining the *status quo*) proposes that the TAC, non-commercial allowances and TACC remain at their current levels. MPI notes that the current TACC has not been fully caught in recent years (Figure 5) but that the *status quo* may not be appropriate post-earthquake. Consequently, decreases to the allowances (Options 2 and 3) are proposed to address sustainability concerns relating to the fishery.

208. Option 2 provides for a higher level of commercial take than Option 3, and reflects estimates of what has come from the open area of PAU 7 in recent years. MPI considers that in addition to the TACC reduction implemented in 2016, a further 10% reduction following the Kaikōura earthquakes is appropriate to ensure sustainability and aid the stock in reaching the target biomass. The financial impact of Option 2 on commercial fishing is shown in Table 4.

209. Option 3 is more cautious than Option 2 and provides for the minimum catch estimated to have come from the open area of PAU 7 in recent years. It is likely that a 15% TACC reduction will aid the stock in achieving the target biomass (40% of unfished biomass) faster than Option 2, but will impact more significantly on utilisation of the fishery in the immediate term. The financial impact of Option 3 on commercial fishing is shown in Table 4.

210. MPI considers that both Options 1 and 2 will achieve the purpose of the Act in ensuring sustainability of the fishery while providing for utilisation. Based on best available information no change is proposed for the allowances for customary and all other mortality caused by fishing because they are considered sufficient to allow for current removals.

211. The proposed reductions in recreational allowance assume less harvest will be able to be taken by recreational fishers due to the closed area. MPI also intends to develop additional management controls in PAU 7 during 2017, including measures to ensure that non-commercial fishing of paua in PAU 7 supports a rebuild of paua stocks. MPI will engage with tangata whenua and all stakeholders, using a shared fishery/multi-sector approach, in the development of options and will carry out full public consultation prior to any decisions being made.

4. Other Relevant Matters

4.1 ENVIRONMENTAL PRINCIPLES AND SUSTAINABILITY MEASURES

212. The proposed options in this document meet the requirements of the environmental principles (s 9) and sustainability measures (s 11) set out in the Act.

213. Diving for paua is selective and not associated with a bycatch of associated or dependent species. MPI is not aware of specific impacts of paua harvesting on inshore

benthic community structure. No habitats of particular significance for fisheries management have been identified in PAU 3 or PAU 7 and it is considered unlikely that the method of hand gathering while diving would have a demonstrable adverse effect on habitat.

4.2 INPUT AND PARTICIPATION OF TANGATA WHENUA

214. Proposals to review PAU 3 and PAU 7 have been presented to Te Runanga o Kaikōura, and both Iwi Fisheries Forums relating to South Island iwi, the Te Waka a Māui me Ōna Toka Iwi Forum and the Te Tau Ihu Iwi Forum. Support for review of these fisheries was expressed during these discussions.

4.3 ADDITIONAL MANAGEMENT MEASURES

215. As noted, MPI intends to develop additional management controls in PAU 3 and PAU 7 during 2017, including measures to ensure that non-commercial fishing of paua in these areas supports a rebuild of paua stocks. MPI will engage with tangata whenua and all stakeholders, using a shared fishery/multi-sector approach, in the development of options and will carry out full public consultation prior to any decisions being made.

5. Further Information

216. Should you require further information, please see:

Fisheries Act (1996)

http://www.legislation.govt.nz/act/public/1996/0088/latest/DLM394192.html

MPI Plenary document:

Ministry for Primary Industries (2016). Fisheries Assessment Plenary, May 2016: stock assessments and stock status. Compiled by the Fisheries Science Group, Ministry for Primary Industries, Wellington, New Zealand, 1556 p.
Volume 2, Chapter PAUA (PAU) – Introduction, pg 861.
https://www.mpi.govt.nz/document-vault/12666
Volume 2, Chapter PAUA (PAU 7) – Marlborough, pg 948.
https://fs.fish.govt.nz/Doc/24131/64_PAU7_2016_FINAL.pdf.ashx

Previous reviews of the stock:

PAU 7 October Sustainability Round Review 2016
http://www.mpi.govt.nz/news-and-resources/consultations/review-of-fisheries-sustainability-measures-for-1-october-2016/

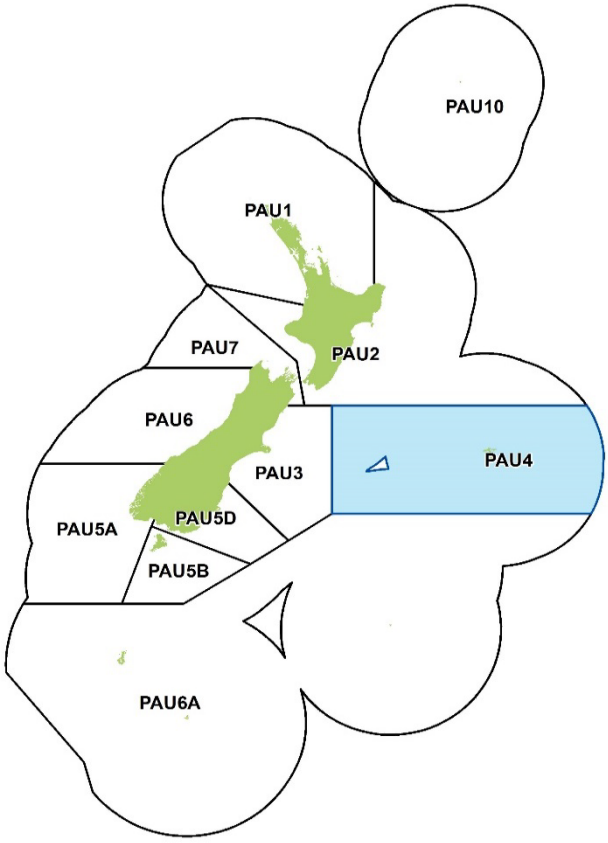

Figure 1: Quota management areas (QMAs) for the paua (PAU) fishery, with PAU 4 highlighted in blue.

1. What is proposed?

217. MPI proposes to review the catch limits and allowances for paua (*Haliotis iris, Haliotis australis*) in the Chatham Islands (PAU 4, see Figure 1). MPI proposes to set a Total Allowable Catch (TAC) for PAU 4 for the first time and to set allowances for Māori customary, recreational, and all other mortality caused by fishing. MPI also proposes to decrease the Total Allowable Commercial Catch (TACC) for PAU 4.

218. The initial options proposed by MPI are outlined in Table 1. MPI seeks information and views from tangata whenua and stakeholders regarding these options.

Table 1: Proposed management settings in tonnes (t) for PAU 4 from 1 October 2017

Option	Total Allowable Catch (t)	Total Allowable Commercial Catch (t)	TACC tonnage decrease and % change	Allowances		
				Customary **Māori (t)**	Recreational (t)	All other mortality caused by fishing (t)
Current settings	-	326	-	-	-	-
Option 1	236	228 ↓	98 t ↓ (30%)	3	3	2
Option 2	204	196 ↓	130 t ↓ (40%)	3	3	2

219. The current interim deemed value rate for PAU 4 is set at approximately 75% of the annual deemed value rate. The deemed value rates for other paua stocks are set at the

same level. As the current interim and annual deemed value rates are consistent with the Guidelines,[30] no changes are proposed to the deemed value rates for PAU 4, as outlined in Table 2.

Table 2: Standard Deemed Value Rates ($/kg) for PAU 4

	Interim Rate	Annual Differential Rates ($/kg) for excess catch (% of ACE)					
	($/kg)	100-120%	120-140%	140-160%	160-180%	180-200%	200%+
Status quo	50.00	66.00	79.20	92.40	105.60	118.80	132.00

2. Why the need for change?

220. The best available information suggests the biomass of PAU 4 is declining. Commercial fishers in PAU 4 have expressed sustainability concerns based on their observations while fishing for paua. They consider there has been a decline in the abundance of paua in the fishery since the early 2000s, and that the TACC for PAU 4 was originally set too high when it was introduced into the QMS in the late 1980s[31]. In response to these concerns commercial fishers have, since 2010, implemented voluntary shelving of annual catch entitlements (ACE). However, some fishers have expressed concern about the effectiveness of this approach. Tangata whenua have also raised anecdotal concerns about a decrease of paua abundance in traditional harvesting areas.

221. Quantitative information on the current status of the PAU 4 is limited due to inaccurate reporting of catch per unit of effort (CPUE), and changes to management of the fishery. In particular, since 2013, commercial paua divers in PAU 4 have been able to use underwater breathing apparatus, which has improved the efficiency of divers. Previous scientific stock assessments for PAU 4 have been rejected by MPI's Shellfish Working Group (SFWG) due to such data issues.

222. In early 2017, a more sophisticated analysis was undertaken using all available catch data from (including from data loggers), new commercial length-frequency data, as well as diver questionnaires and interviews. The analysis suggested depletion of the resource could have occurred since 2001–02. While accepted by the SFWG, it noted the unreliability and uncertainty associated with the data used in the analysis.

3. Why are these options proposed?

3.1 SETTING THE TAC

223. The TAC for PAU 4 can be set or varied under s 13 of the Fisheries Act 1996 (the Act). Section 13(2) of the Act specifies requirements for setting a TAC where a reliable estimate of the current biomass of the stock and the level of biomass that can produce the maximum sustainable yield (B_{MSY}) is known. In cases such as PAU 4, where there is uncertainty around estimates of B_{MSY}, s 13(2A) of the Act provides for the Minister to use the best available information to set a TAC that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, the B_{MSY} level.

[30] Available at www.mpi.govt.nz/document-vault/3663

[31] The TACC for PAU 4 was initially set at 261 t in 1986 when PAU 4 entered the QMS. Between 1986 and 1995 the TACC was increased four times following Quota Authority Appeals resulting in the current TACC of 326 t, which has remained unchanged since.

224. The target biomass for PAU 4 is 40% B_0 (40% of the unfished biomass) as a proxy for B_{MSY}. Additionally, a soft limit of 20% B_0 and a hard limit of 10% B_0 have been agreed upon for the fishery in accordance with the Harvest Strategy Standard for New Zealand Fisheries[32]. Currently, there is a lack of data to quantify the biomass of PAU 4 and the current status of the fishery in relation to the target biomass, and soft and hard limits is unknown. As a result, a cautious approach is appropriate that takes into the anecdotal information from fishers and tangata whenua, as well as the limited quantitative data. Overall, this information suggests that the fishery may be declining, and the proposed options in this paper reflect this.

225. A TAC has not previously been set for PAU 4 and the two proposed TAC options are based on reducing the current TACC by either 30% or 40%, and setting allowances for Māori customary, recreational, and all other mortality caused by fishing of 3, 3 and 2 tonnes respectively. These options take into account that the fishery does not appear to have responded to voluntary shelving of 10-20% of ACE, and that a more substantial reduction is required to address the sustainability concerns for the fishery and maintain PAU 4 at a level that is consistent with the Minister's obligations under the Act. MPI notes the options proposed would result in a TACC below the 261 tonnes originally set for PAU 4 when it entered the QMS in the 1980s.

3.2 SETTING ALLOWANCES AND THE TACC

226. In setting a TACC, the Minister must have regard to the total allowable catch and make allowances for Māori customary non-commercial fishing interests, recreational fishing interests, and all other mortality to the stock caused by fishing (s 21 of the Act).

3.2.1 Māori customary fishing

227. Paua is considered a tāonga species by both Ngāti Mutunga o Wharekauri and Moriori that represent customary fishing in PAU 4. No allowance for Māori customary non-commercial interests has been set for PAU 4. Reported customary catch numbers fluctuated between 1000 and 4300 (unit not reported, but believed to be number of paua) between 2010 and 2013. Considering an average paua weight is 280g[33], the maximum reported customary number equates to approximately 1.2 tonne. Given the variability in customary harvest quantities, MPI proposes a three tonne customary allowance is appropriate for customary harvest. MPI welcomes information from tangata whenua and iwi to support the rationale for the proposed or an alternative allowance.

3.2.2 Recreational fishing

228. There is no recreational catch estimate for PAU 4. Due to the limited population on the Chatham Islands and its isolation, it is likely that recreational catch is small. MPI considers a three tonne allowance is appropriate to allow for current recreational harvest amounts, taking into account recreational effort from fishers that visit the island and the needs of the local community.

[32] Harvest Strategy Standard for New Zealand Fisheries – Refer Section 5 for link.
[33] Hartel, B & Davey, N (2015) Mean weight estimates for recreational fisheries in 2011-12. New Zealand Fisheries Assessment Report 2015/25. Ministry for Primary Industries, Wellington, New Zealand. pg 18.

3.2.3 All other mortality to the stock caused by fishing

229. There are various other potential sources of paua mortality caused by fishing, for example paua can die from wounds caused by removal from the reef, desiccation and stress if they are brought to the surface and kept out of water for a prolonged period of time. Sub-legal paua may be subject to handling mortality in the fishery if they are removed from the substrate to be measured. Indirect mortality may also occur where paua are returned to unsuitable habitat such as sand, or to areas where they are easily predated.

230. Research from other paua stocks suggests that overall incidental mortality of paua from commercial fishing could be approximately 0.3% of the landed catch (less than 1 tonne under each proposed option). However this does not include incidental mortality from non-commercial fishing. Taking this, and the potential for illegal fishing into account, MPI proposes to set the allowance at 2 tonnes to include all likely sources of other mortality.

3.2.4 Commercial fishing

231. The commercial fishing sector accounts for the majority of the harvest in PAU 4. As such, any catch reductions that result from this TAC review will be borne primarily by the commercial sector.

232. From the 2010/11 fishing year to the present, industry voluntarily shelved between 10% and 20% of PAU 4 ACE in response to sustainability concerns[34] (Figure 2). As a result, the TACC has not been fully caught since the 2009/10 fishing year.

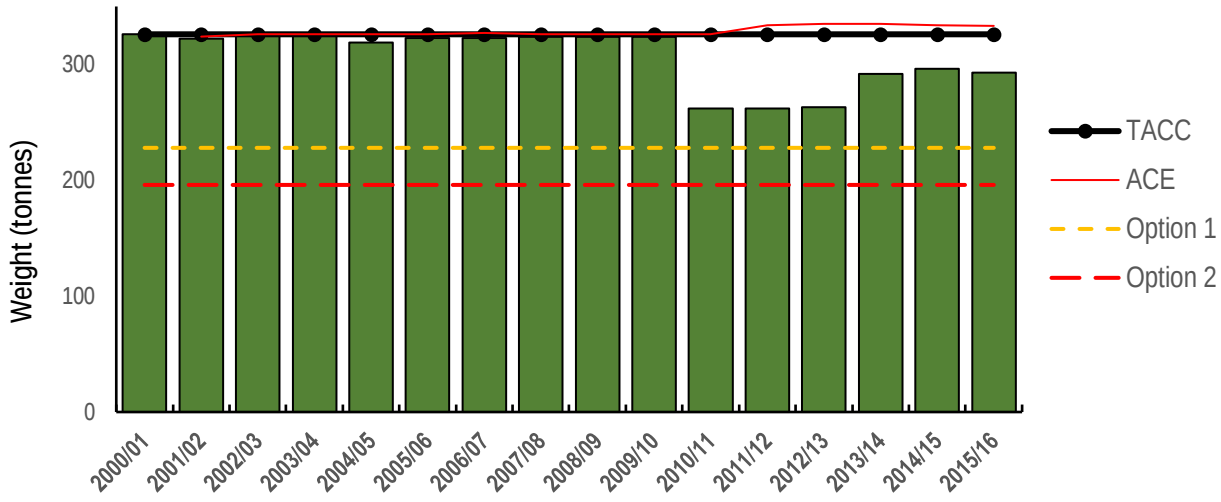

Figure 2. Annual landings vs TACC and available ACE for PAU 4 between 2000/01 and 2015/16 fishing years (as at April 2017), including TACC levels proposed for Options 1 and 2.

233. Shelving of ACE has, however, not addressed concerns that the biomass of the fishery is declining. MPI proposes greater reductions than these are required to address the sustainability concerns for the fishery and maintain PAU 4 at a level that is consistent with the Minister's obligations under the Act.

[34] 20% of ACE was shelved for 2010/11 to 2012/13, and 10% for 2013/14 to present.

3.3 DEEMED VALUE RATES

234. There are no proposed changes to the deemed value rates for PAU 4 for the 2017/18 fishing year (see Table 2 above).

3.4 EVALUATION OF OPTIONS

235. MPI considers that the *status quo* is not a valid option given there is currently no TAC set for the fishery, and continuing concerns regarding the sustainability of the fishery.

236. As this is the first time a TAC has been set for PAU 4, customary, recreational, and other sources of mortality allowances are required. The proposed allowances for these sectors are considered sufficient to allow for current catches (refer Table 1).

237. Under Option 1, the TAC would be set at 236 tonnes, based on a reduction to the TACC of 30% (from 326 to 228 tonnes) and appropriate allowances. It is proposed that 30% is the minimum reduction required given that shelving of ACE at levels of between 10 and 20% has not addressed concerns regarding the fishery. A TAC set at this level would reduce the risk of the abundance of paua declining further, allowing the fishery to stabilise or rebuild while further research and a more robust assessment of stock status can be made.

238. Reducing the TACC would have a significant impact on utilisation of the fishery in the short term. The economic impact to the commercial sector under Option 1 is summarised in Table 3. Note that the estimates of reduced revenue do not take into account that between 10 and 20% of ACE is already being shelved by industry. If this is included, the impact on revenue of Option 1 reduces by between a third and two thirds.

Table 3: Predicted changes to commercial revenue of the proposed options, based on port price of $23.98/kg for PAU 4 in 2016/17

Stock	TACC	Change from status quo (t)	Predicted revenue change ($ p.a.)
Current settings	326		
Option 2	228	98 ↓ (30%)	2,350,040 ↓
Option 3	196	130 ↓ (40%)	3,117,400 ↓

239. Under Option 2, the TAC would be set at 204 tonnes and the TACC would be reduced by 40% (from 326 to 196 tonnes). A TAC set at this level would result in greater reduction in commercial catch but provide a greater likelihood that the abundance of paua is maintained or rebuilds over a shorter timeframe than Option 1. This option would result in a greater economic impact than Option 1 in the short term, as set out in Table 3. Note that the estimates of reduced revenue do not take into account that between 10 and 20% of ACE is already being shelved by industry. If this is included, the impact on revenue of Option 2 reduces by between a quarter and a half.

4. Other Relevant Matters

4.1 ENVIRONMENTAL PRINCIPLES AND SUSTAINABILITY MEASURES

240. The proposed options in this document meet the requirements of the environmental principles (s 9) and sustainability measures (s 11) set out in the Act.

241. Diving for paua is selective and not associated with a bycatch of associated or dependent species. MPI is not aware of specific impacts of paua harvesting on inshore benthic community structure. No habitats of particular significance for fisheries management have been identified in PAU 4 and it is considered unlikely that the method of hand gathering while diving would have a demonstrable adverse effect on habitat.

4.2 INPUT AND PARTICIPATION OF TANGATA WHENUA

242. The proposals to review PAU 4 have been discussed with Ngāti Mutunga o Wharekauri and Moriori. They have raised concerns about a decrease of paua abundance in traditional harvesting areas, and support the review, however, there is expected to be a range of views on the most appropriate option.

5. Further Information

243. Should you require further information, please see:

Fisheries Act (1996)

http://www.legislation.govt.nz/act/public/1996/0088/latest/DLM394192.html

MPI Plenary document:

Ministry for Primary Industries (2016). Fisheries Assessment Plenary, May 2017: stock assessments and stock status. Compiled by the Fisheries Science Group, Ministry for Primary Industries, Wellington, New Zealand, Volume 2, Chapter PAUA (PAU4) – Chatham Islands, pg. 893.
https://fs.fish.govt.nz/Page.aspx?pk=113&dk=24128

MPI's recreational fisheries species page:

http://fs.fish.govt.nz/Page.aspx?pk=8&stock=PAU4

Harvest Strategy Standard for New Zealand Fisheries

http://fs.fish.govt.nz/Page.aspx?pk=113&dk=16543

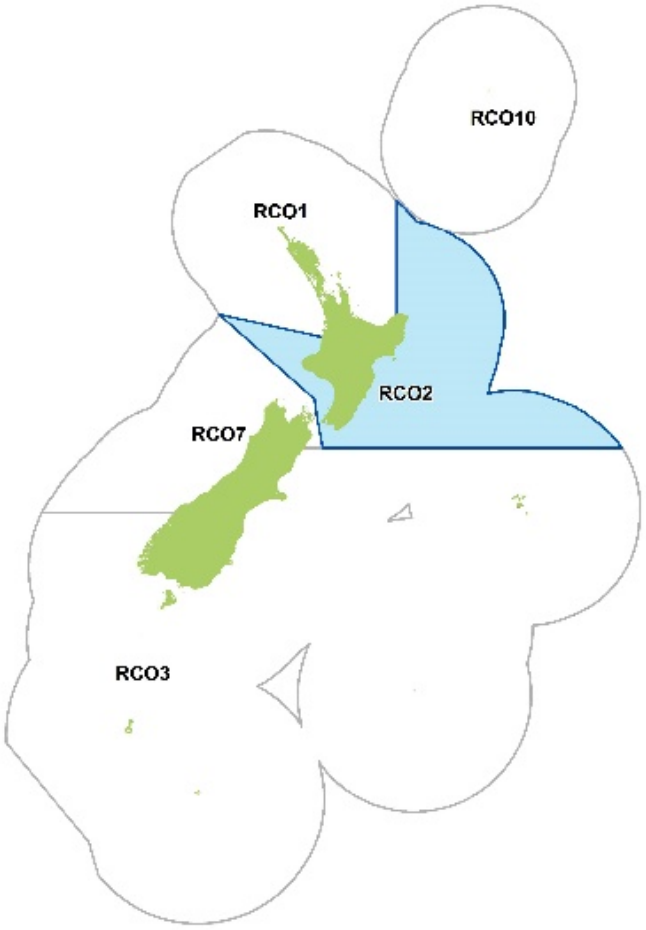

Figure 1: Quota management areas (QMAs) for red cod, with RCO 2 highlighted in blue.

1. What is proposed?

244. MPI proposes to review the total allowable catch (TAC), allowances for Māori customary fishing, recreational fishing, and all other mortality caused by fishing, and the total allowable commercial catch (TACC) for red cod (*Pseudophycis bachus,* hoka) in quota management area (QMA) RCO 2 (see Figure 1).

245. As a consequence of adjusting the baseline[35] TAC, the opportunity to set the baseline allowances for Māori customary interests, recreational interests, and all other mortality to the stock caused by fishing is provided. These measures will come into effect at the start of the 2017/18 fishing year. MPI proposes the following initial options and seeks information and views from tangata whenua and stakeholders (Table 1):

[35] For stocks managed using in-season reviews, the TAC and allowances for Maori customary fishing, recreational fishing, and all other mortality caused by fishing can be increased within a fishing year. Any increases are above the 'baseline' values that apply again from the start of each fishing year.

Table 1: Proposed management settings in tonnes (t) for RCO 2 from 1 October 2017

Option	Total Allowable Catch (t)	Total Allowable Commercial Catch (t)	Allowances		
			Māori Customary (t)	Recreational (t)	All other mortality caused by fishing (t)
Current (baseline) settings	500	500	-	-	-
Option 1	554 ↑	500	5	24	25
Option 2	561 ↑	500	5	31	25

246. The current interim deemed value rate is set at 50% of the annual rate. Consistent with Principle 7 of the Guidelines,[36] and to incentivise fishers to regularly cover catch with ACE throughout the year, MPI recommends increasing the interim deemed value rate for RCO 2 to 90%, as outlined in Table 2. Further details on this proposed change can be found in the Deemed Values section of this discussion document. No changes are proposed for the annual deemed value rate or differential schedule.

Table 2: Standard Deemed Value Rates ($/kg) for RCO 2

	Interim Rate ($/kg)	Annual Differential Rates ($/kg) for excess catch (% of ACE)					
		100-120%	120-140%	140-160%	160-180%	180-200%	200%+
Status quo	0.14	0.28	0.34	0.39	0.45	0.50	0.56
Proposed	0.25 ↑	0.28	0.34	0.39	0.45	0.50	0.56

2. Why the need for change?

247. The RCO 2 stock is managed to recognise its high inter-annual variability in abundance. The stock's inclusion on Schedule 2 of the Fisheries Act 1996 (the Act) allows for additional utilisation in years of high abundance by increasing the TAC within the fishing year. Since 2013, the Minister has managed RCO 2 under a procedure which estimates the level of abundance that can inform the 'in-season' TAC increase. In a separate review, MPI is proposing to increase the TAC, provide in-season ACE, and provide for non-commercial catch allowances for the 2016/17 fishing year only.

248. Although a TAC for RCO 2 has been set, baseline RCO 2 allowances for non-commercial sectors have not been set. This review provides the opportunity to set or vary the TACC and allowances. In setting or varying the TACC under s 20 of the Act, the Minister shall have regard to the TAC and, under s 21, allow for Māori customary non-commercial fishing interests, recreational interests, and all other sources of mortality caused by fishing.

249. For the 2017/18 fishing year, MPI is proposing to set the TACC at the current level. The initial setting of the baseline non-commercial allowances would necessitate an increase to the baseline TAC. If an option proposed in this document is accepted by the Minister, the TAC and baseline RCO 2 non-commercial allowances will both take effect at the start of the 2017/18 fishing year.

[36] Available at www.mpi.govt.nz/document-vault/3663

3. Why are these options proposed?

3.1 SETTING THE TAC

250. In cases such as red cod in RCO 2, where estimates for $B_{CURRENT}$ and B_{MSY} are not known, s 13(2A)(c) of the Act provides for the Minister to use the best available information to set a TAC that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, the B_{MSY} level.

251. No target stock level has yet been determined for RCO 2, however, MPI considers that the proposed increases of the baseline TAC for RCO 2 are not inconsistent with the s 13 objective of maintaining the stock at or above, or moving towards or above a level that can produce the maximum sustainable yield (MSY).

252. When making a decision concerning the TAC for a stock under s 13(2A), the Minister must have regard to the interdependence of stocks, the biological characteristics of the stock and any environmental conditions affecting the stock. While RCO 2 is caught in association with several other species, there is uncertainty about whether or not the current level of commercial RCO 2 catch is affecting the sustainability or productivity of other stocks or species in areas where red cod also occur. The proposed increase to the TAC for RCO 2 is a consequence of setting non-commercial allowances.

253. Red cod abundance in RCO 2 is characterised by high inter-annual variability. Annual recruitment to the stock is thought to be linked to environmental conditions during early life history, with recruitment being negatively correlated with sea surface temperature. RCO 2 is managed under Schedule 2 of the Act to accommodate this and to provide for utilisation in years of high abundance that will not risk the long-term sustainability of the stock.

254. The best available information suggests that both options proposed (see Table 1) for setting the baseline TAC could provide for an appropriate baseline allowance for the non-commercial harvest and all other mortality caused by fishing of red cod in RCO 2. MPI has considered both the past and potential future catch of RCO 2 and provides two options (see Table 1) with differing degrees of caution. Option 2 proposes a greater TAC to provide for an increase in the recreational allowance to allow for the possibility that recreational catch is higher than the estimated catch from the 2011/12 National Panel Survey of recreational fishing.

3.2 SETTING ALLOWANCES AND THE TACC

255. In setting the TACC, the Minister must have regard to the TAC and make allowances for Māori customary non-commercial fishing interests, recreational fishing interests, and all other mortality to the stock caused by fishing (s 20 & 21).

3.2.1 Māori customary fishing

256. MPI notes that information on customary catch is uncertain, but MPI has no information to indicate that customary catch has changed significantly over the last few years. Following pre-consultation with customary groups MPI proposes a Māori customary

catch allowance of 5 tonnes for both options presented, a level consistent with the Māori customary catch allowance for RCO 3.

3.2.2 Recreational fishing

257. There is no current recreational catch allowance for RCO 2. The best available information is from the most recent National Panel Survey of recreational fisheries, which estimated that 23.7 tonnes of red cod were caught by recreational fishers in the RCO 2 management area in the 2011/12 fishing year.[37] The best estimate of recreational catch of RCO 2 is low compared to the commercial catch. MPI proposes a recreational allowance of 24 tonnes under Option 1.

258. MPI notes that the recreational catch estimate from 2011/12 is uncertain. To allow for the possibility that red cod recreational catch was underestimated, MPI proposes a higher recreational allowance under Option 2 (Table 1). The rationale for this proposal is discussed further in the evaluation of options below.

3.2.3 All other mortality to the stock caused by fishing

259. There are various potential other sources of mortality caused by fishing of RCO 2, but MPI is not able to quantify these precisely. Sources may include commercial discarding to avoid deemed value payments and unseen mortality caused by particular fishing methods. MPI proposes to set the baseline allowance for other sources of mortality caused by fishing at 25 tonnes or 5% of the baseline TAC, for both options presented. This level is consistent with the proportional level that is set for RCO 3, a similar fishery to RCO 2.

3.3 DEEMED VALUE RATES

260. The review of deemed value rates for RCO 2 has not been triggered by landings in excess of TACC or a significant change in port prices. MPI does not propose increasing the annual deemed value rate for RCO 2.

261. Consistent with the deemed value guidelines, MPI proposes to increase the interim deemed values rate of RCO 2 from 50% of the annual deemed value rate to 90%, to incentivise fishers to balance their ACE throughout the year. Further details are provided in the Deemed Values section of this document.

3.4 EVALUATION OF OPTIONS

262. The TAC has been set for RCO 2, but non-commercial allowances were not. This review provides the opportunity to set baseline allowances for Māori customary fishers, recreational fishers, and all other mortality from fishing for the first time. For the 2017/18 fishing year, the TACC is proposed to be set at the current level of 500 tonnes in both options. Alternative allowances are proposed and reflected in the different TAC options.

[37] Wynne-Jones J, Gray A, Hill L, Heinmann A (2014) National Panel Survey of Marine Recreational Fishers 2011-2012: Harvest Estimates. New Zealand Fisheries Assessment Report 2014/67. 139p.

263. The initial setting of these non-commercial allowances necessitates an increase to the baseline TAC for the start of the 2017/18 fishing year.

3.4.1 Option 1

264. Option 1 proposes that a TAC of 554 tonnes be set.

265. The TAC includes an allowance of 5 tonnes for Māori customary fishing which allows for the known catch, although that is uncertain.

266. The proposed recreational allowance of 24 tonnes is, based on the best available information from the National Panel Survey (23.7 tonnes in 2011/12). The proposed recreational allowance of 24 tonnes will provide for the levels of non-commercial harvest of red cod in RCO 2 that occurred in 2011/12, a fishing year of high red cod abundance and availability to all sectors in RCO 2. MPI notes that there is uncertainty in using the estimate from 2011/12 to estimate or predict current catches. It is unknown if the non-commercial harvest of red cod in RCO 2 has changed since 2011/12.

267. An allowance of 25 tonnes, or approximately 5% of the TACC is proposed for all other mortality from fishing. This is consistent with the largely trawl fishery and levels of incidental mortality allowed for in similar stocks and fisheries.

268. No change to the current TACC of 500 tonnes is proposed under Option 1, and MPI considers that this option will have no impact on commercial fishing, given the ability to provide for increased abundance through in-season reviews.

3.4.2 Option 2

269. Option 2 proposes a TAC of 561 tonnes be set.

270. The TAC under Option 2 includes an allowance of 5 tonnes for Māori customary fishing and allows for the known, but uncertain, level of customary catch.

271. Option 2 includes a 30% increase in the recreational allowance above the National Panel Survey estimate for 2011/12. The allowance of 31 tonnes allows for the possibility of greater recreational utilisation of red cod in RCO 2 than was estimated in 2011/12.

272. The National Panel Survey sampled recreational fishers in a population-proportional manner and as a result fishers in lower population areas were less well sampled. Within that sample, red cod are a less commonly targeted and caught species compared to more popular species. These factors mean that the harvest estimate obtained from the survey is imprecise (a CV[38] of 0.13 based on estimated numbers of red cod).

273. The proposed 30% increase in the recreational allowance considers the statistical uncertainty of the National Panel Survey estimate.

[38] Coefficient of variation.

274. No change to the TACC is proposed under this option, hence no direct impact on commercial fishing is expected, as discussed above.

4. Other Relevant Matters

275. The proposals are not expected to significantly change the environmental impacts and interactions of the RCO 2 fishery (s 9). The increased TAC and the allowances proposed reflect best information, and are not expected to result in increased fishing effort by any sectors. The proposals are also considered to adequately address the requirements of s 11.

4.1 HAWKE BAY

276. MPI notes specific local area concerns that are being discussed in the Hawke Bay, where approximately two-thirds of commercially caught RCO 2 has been taken in recent years. Red cod is primarily taken by the commercial bottom trawl fishery.

277. MPI notes that these proposals to vary the TAC, set allowances, and retain the current TACC are unlikely to give rise to adverse effects on local areas.

4.2 PROTECTED SPECIES

278. The current interactions between the target RCO 2 fishery and protected species are unknown, but likely to be relatively minor given the relatively small amount of targeting that occurs.

279. However, the RCO 2 QMA overlaps with part of the known range of the Maui's dolphin. Due to their low abundance around the northern Taranaki coast in the North Island the endemic Maui's dolphin is declared as a threatened species under the provisions of the Marine Mammals Protection Act 1978.

280. The set net and bottom trawl fisheries in this area have been subject to a range of measures designed to reduce interactions with Maui's dolphins. MPI considers there will be no significant change to the effects on protected species given the proposal to set the TACC for the 2017/18 fishing year at the current level.

5. Further Information

281. Should you require further information, please see:

Fisheries Act (1996)
http://www.legislation.govt.nz/act/public/1996/0088/latest/DLM394192.html

MPI Plenary document:

Ministry for Primary Industries (2016). Fisheries Assessment Plenary, May 2016: stock assessments and stock status. Compiled by the Fisheries Science Group, Ministry for Primary Industries, Wellington, New Zealand, 618 p. Volume 2, Chapter RED COD (RCO). pg. 999. http://fs.fish.govt.nz/Page.aspx?pk=113&dk=24138

MPI's recreational fisheries species pages:

http://fs.fish.govt.nz/Page.aspx?pk=8&stock=RCO2

PART C – DEEPWATER STOCKS

Hake (HAK 7)

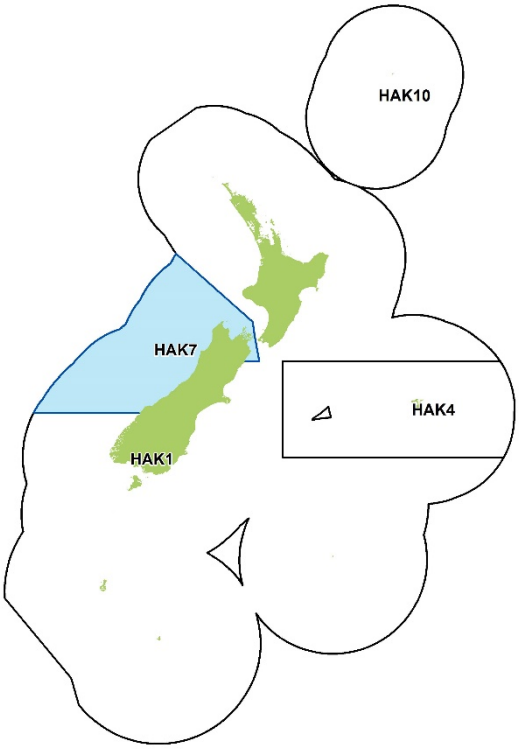

Figure 1: Quota management areas (QMAs) for hake, with HAK 7 highlighted in blue.

1. What is proposed?

282. MPI proposes to review the total allowable catch (TAC), allowances for Māori customary fishing, recreational fishing, and all other mortality caused by fishing, and the total allowable commercial catch (TACC) for hake (*Merluccius australis*) in HAK 7 (see Figure 1). MPI proposes the options outlined in Table 1 and seeks information and views from tangata whenua and stakeholders.

Table 1: Proposed management settings in tonnes (t) for HAK 7 from 1 October 2017

Option	Total Allowable Catch (t)	Total Allowable Commercial Catch (t)	TACC tonnage decrease and % change	Allowances		
				Customary **Māori (t)**	Recreational (t)	All other mortality caused by fishing (t)
Option 1 *(Status quo)*	7,777	7,700	-	0	0	77
Option 2	4,570 ↓	4,524 ↓	3,176 t ↓ (42%)	0	0	46 ↓
Option 3	5,120 ↓	5,069 ↓	2,631 t ↓ (32%)	0	0	51 ↓

283. The interim deemed value rate for HAK 7 is set at 50% of the annual deemed value rate. As the current interim and annual deemed value rates are consistent with the

Guidelines,[39] and for consistency with the deemed value rates of other hake stocks, no changes are proposed to the deemed value rates for HAK 7, as outlined in Table 2.

Table 2: Standard Deemed Value Rates ($/kg) for HAK 7

	Interim Rate	Annual Differential Rates ($/kg) for excess catch (% of ACE)					
	($/kg)	100-120%	120-140%	140-160%	160-180%	180-200%	200%+
Status quo	0.80	1.60	1.92	2.24	2.56	2.88	3.20

2. Why the need for change?

284. Hake is managed within the National Fisheries Plan for Deepwater and Middle-depths Fisheries (National Deepwater Plan) as a Tier 1 stock. A fisheries-specific Hake Fisheries Chapter for the National Deepwater Plan was finalised in 2013. The chapter sets the operational objectives and performance criteria for all hake fisheries. It also addresses the management of environmental effects caused by fishing for hake.

285. The management approach of HAK 7 is supported by a quantitative stock assessment undertaken every three years to estimate stock status. Key abundance indices that inform the assessment include a wide-area trawl survey series and CPUE indices.

286. The TAC and TACC are set based on the status of the stock in relation to the reference points for hake described in Table 3, which are based on the default reference points set in the Harvest Strategy[40].

Table 3: Harvest Strategy for hake: reference points and associated management responses

Reference point	Management response
Management target 40% B_0	Stock permitted to fluctuate around this management target. TAC/TACC changes will be employed to keep the stock around the target (with a 50% probability of being at the target)
Soft limit of 20% B_0	A formal time constrained rebuilding plan will be implemented if this limit is reached
Hard limit of 10% B_0	The limit below which fisheries will be considered for closure
Rebuild strategy	To be determined
Harvest control rule	Management actions focussed on adjusting fishing mortality determined following consideration of the results of stock assessments and in some cases, forward projections under a range of catch assumptions, guided by biological reference points.

287. For the 2017 stock assessment, two models were accepted by the Deepwater Working Group (DWWG) and considered to be equally plausible. Different abundance indices were used to inform each model and show conflicting trends in stock status.

288. The first model excludes the CPUE series and reflects a declining trend shown in the trawl survey series. This model estimates stock status to be 26% B_0 and continuing to decline.

289. The second model excludes the trawl survey series and reflects the steady abundance of the CPUE series. This model estimates stock status to be 50% B_0 and stable.

[39] Available at www.mpi.govt.nz/document-vault/3663
[40] Harvest Strategy Standard for New Zealand Fisheries, October 2008 http://fs.fish.govt.nz/Page.aspx?pk=113&dk=16543

290. The stock status of HAK 7 is therefore uncertain, with conflicting results. Given the indications under one scenario that the stock is below the management target of 40% B_0 and below the biomass that will support the maximum sustainable yield and declining, MPI considers that a cautious approach should be taken in accordance with section 10(c) of the Fisheries Act 1996 (the Act). If the stock status is that low, there is a high probability that it could decline below the soft limit of 20% B_0 before new information becomes available to better inform the estimate of stock status.

291. The proposed options in Table 1 are intended to minimise the risk of the stock declining below 20% B_0 in the short term while additional investigation is completed. The TAC may be adjusted next year based on any new information that becomes available.

3. Why are these options proposed?

3.1 SETTING THE TAC

292. It is proposed that the TAC is varied under section 13 of the Act to maintain HAK 7 at or above a level that can produce the maximum sustainable yield, having regard to the interdependence of stocks.

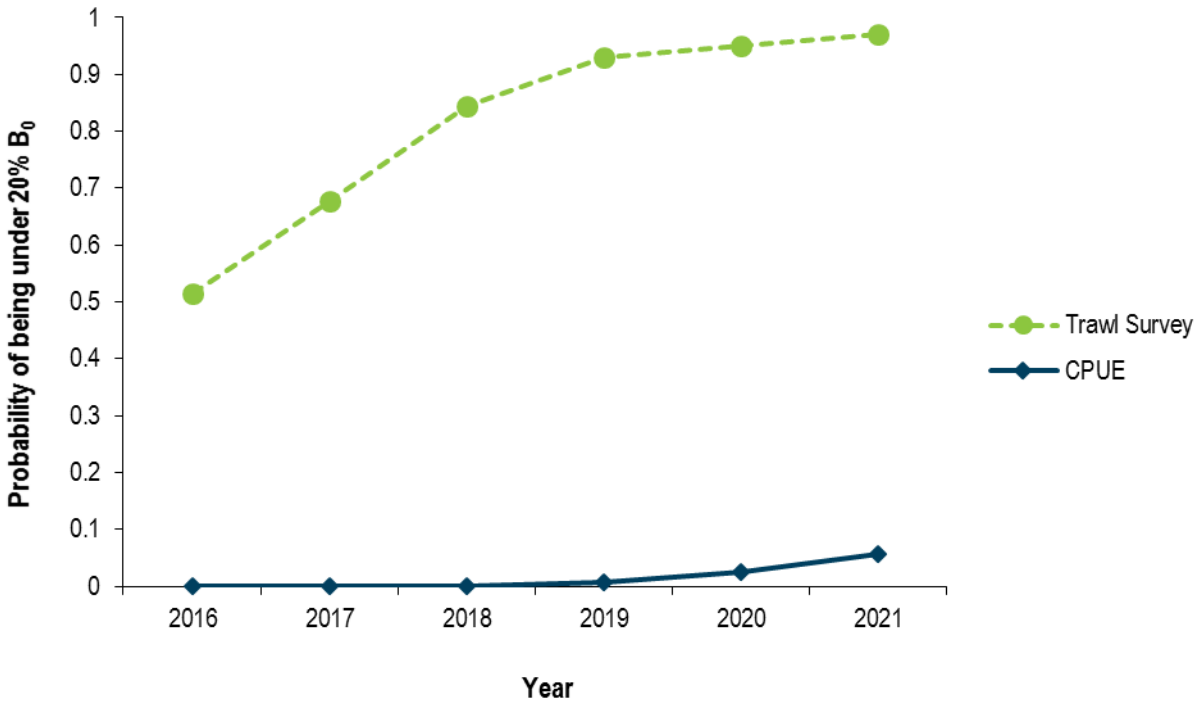

Figure 2: Probability of the stock being below the soft limit of 20% B_0 for the two models assuming a constant catch scenario at the level of the existing TACC of 7,700 tonnes per year

3.1.1 Option 1 *(Status quo)*

293. Option 1 (*status quo*) proposes no change to catch limits or allowances. MPI notes that the current TACC has not been fully caught in recent years (Figure 3) but that the *status quo* may not be appropriate due to concerns regarding the effect current catch limits would have on the sustainability of the stock if fully caught. Decreases to the catch limits proposed in Options 2 and 3 are proposed to address potential sustainability concerns and the uncertainty of the status of the fishery.

3.1.2 Option 2

294. Option 2 proposes a TAC which is based on the average catch over the past five years. This option gives the stock a probability of 83% of being above the soft limit in 2019, and an 89% probability of being above the soft limit in 2021 when using the trawl survey model (see Figure 2) in conjunction with optimistic recruitment.

3.1.3 Option 3

295. Option 3 proposes a TAC which is based on an 80% probability that the stock remains above the soft limit in 2019 with optimistic recruitment. This means it is a level which is very unlikely to lead to the stock declining below the 20% soft limit, while further analysis is carried out in the 2017/18 fishing year. See Figure 2.

3.2 SETTING ALLOWANCES AND THE TACC

296. In determining the TACC within the TAC, the Minister must in setting or varying the TACC, make allowances for Māori customary non-commercial fishing interests, recreational fishing interests, and all other mortality to the stock caused by fishing as provided in sections 20 & 21 of the Act.

297. There is no known Māori customary or recreational catch of hake in HAK 7.

298. The proposed options maintain the current settings (0 tonnes) for Māori customary and recreational allowances, as no new information has been provided to suggest any amendments are required to allowances.

299. MPI proposes to retain the current allowance for other sources of fishing-related mortality, set at 1% of the TACC.

3.3 DEEMED VALUE RATES

300. There are no proposed changes to the deemed value rates for HAK 7 for the 2017/18 fishing year (see Table 2 above).

3.4 EVALUATION OF OPTIONS

301. Three options are proposed, two of which would decrease the TAC, TACC, and fishing related mortality allowances for HAK 7 (see Table 1).

302. The deepwater trawl fleet has changed significantly in recent years, some as a result of the legislation[41] requiring that from 1 May 2016, vessels must be flagged to New Zealand to fish in New Zealand fisheries waters. A number of vessels which targeted

[41] Fisheries (Foreign Charter Vessels and Other Matters) Amendment Act 2014, accessible at: http://www.legislation.govt.nz/act/public/2014/0060/latest/DLM4794424.html

hake during the 2004/05 to 2014/15 period exited the fishery at the end of the 2014/15 fishing year. This is the likely cause of the decrease in proportion of hake target catch (see Figure 3). There are currently no indications of a significant return to target hake fishing in HAK 7 in the short term.

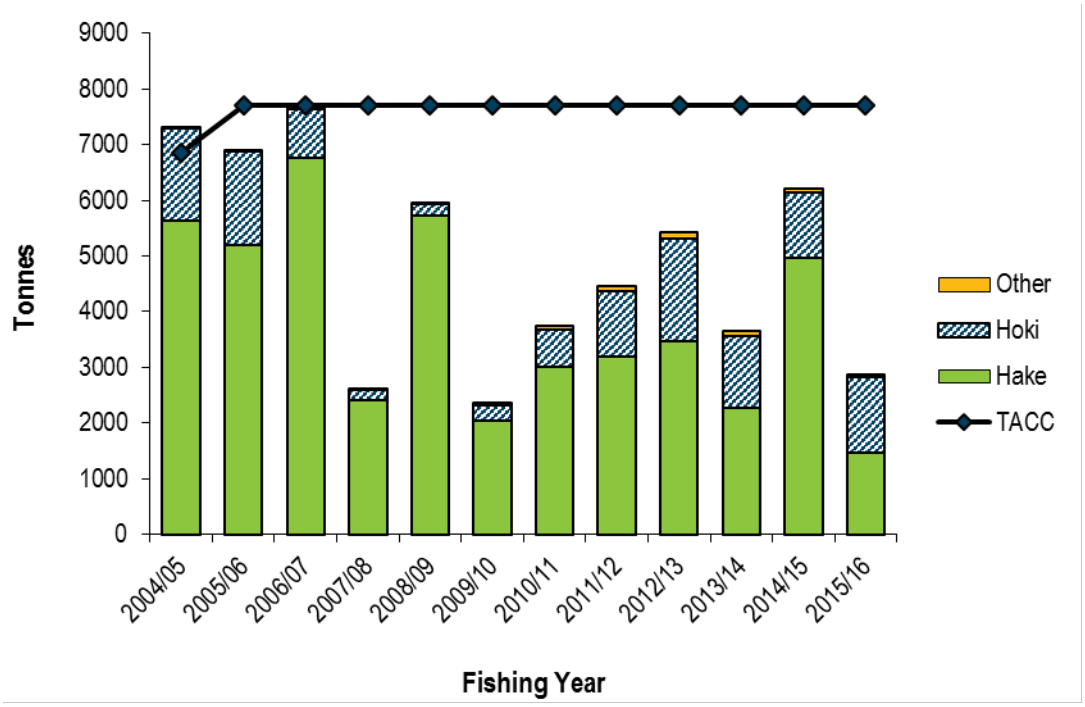

Figure 3: Landings of hake by target species, and TACC, for HAK 7 from 2004/15 to 2015/16.

303. The landings of HAK 7 have been below the TACC since 2007/08 (Figure 3). Catches over the past 5 fishing years have averaged 4,524 t with peak landings of 6,219 t over this period.

304. The proportion of catch attributed to hake target has been relatively high, peaking in the 2008/09 fishing year at 96%. Since 2010/11, the proportion of hake taken from the West Coast hoki target fishery as bycatch has increased, with around 47% of HAK 7 caught in hoki target fishing in 2015/16.

305. Under section 13(3) of the Act the Minister shall have regard to such social, cultural and economic factors as he considers relevant when determining the way in which and rate at which a stock is moved towards or above a level that can produce the maximum sustainable yield. The economic considerations related to the two options proposed in Table 1 are outlined below, including the expected effect on revenue of the proposed options (Table 4).

Table 4: Predicted changes to commercial revenue of the proposed options, based on an estimated export price of $3.46/kg greenweight for HAK 7 in 2016 [42]

	TACC	Change from status quo (t)	Predicted revenue change ($)
Option 1 *(Status quo)*	7,700		
Option 2	4,524 [43]	3,176 ↓ (42%)	11,000,000 ↓
Option 3	5,069 [44]	2,631 ↓ (32%)	9,000,000 ↓

3.4.1 Option 1 *(Status quo)*

306. Option 1 (*status quo*) proposes no change to catch limits or allowances.

3.4.2 Option 2

307. Option 2 has been developed based on the five year average of catch (adjusted for an estimate of other sources of mortality), which would result in a TAC reduction of 42% from 7,777 tonnes to 4,570 tonnes. The TACC would be decreased from 7,700 tonnes to 4,524 tonnes.

308. Based on the trawl survey model, Option 2 results in a probability of 83% that the stock will remain above the Soft Limit of 20% B_0 by 2019.

309. Hake is often caught as bycatch in the hoki fishery on the west coast of the South Island, therefore, a significant decrease in the HAK 7 TACC could potentially impact the ability of hoki fishers to source ACE to cover their bycatch of hake. MPI considers this option (1) to be unlikely to affect the ability of hoki fishers to source ACE because of a reduction in target hake fishing leaves more ACE available to those targeting hoki.

3.4.3 Option 3

310. Option 3 proposes a TAC reduction of 34% from 7,777 tonnes to 5,120 tonnes. The TACC would be reduced from 7,700 tonnes to 5,069 tonnes.

311. This option was calculated based on projections using the trawl survey model requiring an 80% probability that the stock remain above the Soft Limit for the next three years (to 2019).

312. This option may impact on the ability of fishers in the West Coast South Island hoki fishery to source ACE for bycatch of hake. However, given that the proposed decrease to the HAK 7 TACC is less under this option (2), MPI considers this option even less likely to affect the hoki fishery.

[42] Calculated based on estimated value from the 2016 calendar year of $5.20 per kilogram headed & gutted product (highest volume product exported) and a conversion factor of 1.5.
[43] MPI notes that average catch has been around this level in recent years.
[44] MPI notes that average catch has been approximately 10% lower than this option in recent years.

4. Other Relevant Matters

313. The proposed options are considered to adequately take into account the considerations in section 11 of the Act in respect of sustainability measures, and address the requirements of section 9 of the Act, with a lower TAC likely to reduce any adverse effects on the associated or dependent species, the biological diversity of the aquatic environment or any habitat of particular significance.

314. The National Deepwater Plan sets out a series of Management Objectives for deepwater fisheries, the most relevant to the proposals for HAK 7 being:

    a. Management Objective 1.1: Enable economically viable deepwater and middle-depth fisheries in New Zealand over the long-term
    b. Management Objective 1.3: Ensure the deepwater and middle-depths fisheries resources are managed so as to provide for the reasonably foreseeable needs of future generations

315. Both options proposed for TAC reductions are considered to be consistent with these management objectives.

316. The proposal to consult on HAK 7 was presented to both Iwi Fisheries Forums relating to South Island iwi, the Te Waka a Māui me Ōna Toka Iwi Forum and the Te Tau Ihu Iwi Forum. These two forums represent the nine iwi of the South Island, each holding mana moana and significant interests (both commercial and non-commercial) in South Island fisheries. The Te Tau Ihu Iwi Forum represents the eight iwi at the top of the South Island, and the Te Waka a Māui me Ōna Toka Iwi Forum represents those eight iwi plus Ngai Tahu. No objections were raised.

317. Upcoming analysis of fleet wide CPUE data and modelling expected in the 2017/18 fishing year should further inform decisions regarding the HAK 7 fishery and in doing so reduce the level of uncertainty. Additional management action is likely to be considered based on updated information. This adjustment is proposed to ensure that the stock is not depleted while additional information is being analysed.

5. Further Information

318. Should you require further information, please see:

Fisheries Act 1996

http://www.legislation.govt.nz/act/public/1996/0088/latest/DLM394192.html

MPI Plenary document:

Ministry for Primary Industries (2016). Fisheries Assessment Plenary, May 2016: stock assessments and stock status. Compiled by the Fisheries Science Group, Ministry for Primary Industries, Wellington, New Zealand, 1556 p. Volume 1, Chapter HAKE (HAK), pg 443. (http://fs.fish.govt.nz/Page.aspx?pk=113&dk=24095)

MPI's recreational fisheries species pages:

http://fs.fish.govt.nz/Page.aspx?pk=8&stock=HAK 7

Orange Roughy (ORH 3B)

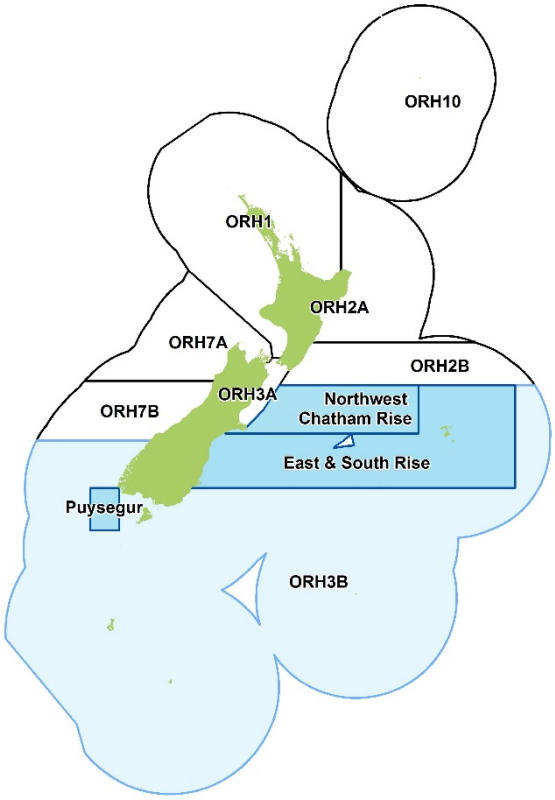

Figure 1: Quota management areas (QMAs) for orange roughy, with ORH 3B and sub areas highlighted in blue.

1. What is proposed?

319. MPI proposes to review the total allowable catch (TAC), allowances for Māori customary fishing, recreational fishing, and all other mortality caused by fishing, and the total allowable commercial catch (TACC) for orange roughy *(Hoplostethus atlanticus)* in quota management area (QMA) ORH 3B (see Figure 1) involving the sub-stock[45] in the Puysegur sub-QMA. MPI seeks information and views from tangata whenua and stakeholders on the options proposed in Tables 1 & 2:

Table 1: Proposed management settings in tonnes (t) for ORH 3B from 1 October 2017

Option	Total Allowable Catch (t)	Total Allowable Commercial Catch (t)	TACC tonnage increase and % change	Allowances		
				Customary **Māori (t)**	Recreational (t)	All other mortality caused by fishing (t)
Option 1 *(Status quo)*	5,250	5,000	-	0	0	250
Option 2	5,470 ↑	5,202 ↑	202 t ↑ (4%)	0	0	268 ↑

[45] Unless otherwise clarified in the text "stock" refers to the QMA management unit ORH 3B (per the definition of "stock" in s 2 of the Fisheries Act 1996) and "sub-stock" refers to a biologically or geographically distinct orange roughy population within ORH 3B.

Table 2: Proposed sub-QMA catch limits within proposed ORH 3B TAC and TACC

	Option 1 *(Status quo)*	Option 2
Northwest Chatham Rise catch limit	1,250	1,250
East and South Chatham Rise catch limit	3,100	3,100
Puysegur	150	352 ↑
Arrow Plateau (protected by BPA[46])	0	0
Sub-Antarctic	500	500
TACC	5,000	5,202 ↑
All other mortality caused by fishing (5% of TACC)	250	268 ↑
TAC	5,250	5,470 ↑

320. The interim deemed value rate for ORH 3B is currently set at 50% of the annual deemed value rate. As the current interim and annual deemed value rates are consistent with the Guidelines,[47] and in order to discourage misreporting between adjacent ORH stocks, no changes are proposed to the deemed value rates for ORH 3B, as outlined in Table 3.

Table 3: Special Deemed Value Rates ($/kg) for ORH 3B

	Interim Rate ($/kg)	Annual Differential Rates ($/kg) for excess catch (% of ACE)	
		100-110%	>110%
Status quo	2.50	5.00	6.25

2. Why the need for change?

321. Orange roughy is managed within the National Fisheries Plan for Deepwater and Middle-depths Fisheries (National Deepwater Plan[48]) as a Tier 1 stock (high value). A fisheries-specific orange roughy chapter for the National Deepwater Plan was finalised in 2010. The chapter details the management approach and operational objectives for the fishery.

322. ORH 3B is a large and spatially complex area that comprises at least four individual sub-stocks (Figure 1). The Minister sets the TAC for the ORH 3B stock as a whole. The Deepwater Group Ltd (DWG), which represents approximately 98% of the ORH 3B quota owners, agrees each year to adhere to non-regulatory catch limits at a sub-QMA level for the individual sub-stocks (sub-area catch limits). Adherence to these sub-area catch limits is monitored by MPI and reported on each year in the MPI Annual Review Report for Deepwater Fisheries.

323. Orange roughy stocks are generally monitored using acoustic surveys and stock assessments completed every four years as recommended by a Management Strategy Evaluation[49] completed for orange roughy in 2014. The Management Strategy Evaluation was also used to develop a harvest strategy[50] which recommends reference points. These include a management target range and limit reference points for orange

[46] As per the Fisheries (Benthic Protection Areas) Regulations 2007, accessible at: http://legislation.govt.nz/regulation/public/2007/0308/latest/DLM973968.html?src=qs
[47] Accessible at www.mpi.govt.nz/document-vault/3663
[48] Accessible at http://fs.fish.govt.nz/Page.aspx?pk=79&tk=498
[49] Accessible at: http://deepwatergroup.org//wp-content/uploads/2014/08/Cordue-2014-A-Management-Strategy-Evaluation-for-Orange-Roughy.-ISL-Re....pdf
[50] Accessible at: http://deepwatergroup.org/wp-content/uploads/2014/08/Orange-Roughy-Harvest-Strategy-w-Appendix-14082014.pdf

roughy. A harvest control rule (HCR) was also agreed for three orange roughy stocks, however there has not been an explicit agreement to implement this harvest strategy (including the HCR) for the Puysegur fishery.

324. The current harvest strategy for the Puysegur fishery includes a management target range of 30-40% of the unfished biomass (B_0) and a Soft Limit of 20% B_0 below which a formal, time-constrained rebuilding plan should be implemented. Sub-area catch limits are set based on an exploitation rate (F) of 4.5% of current biomass if the stock is estimated to be within or above the management target range.

325. Acoustic surveys in 2016 underpinned stock assessments in 2017 for three key sub-stocks in ORH 3B: Puysegur, Northwest Chatham Rise, and East and South Chatham Rise.

Puysegur

326. Catches in the Puysegur fishery peaked in the early 1990's with catches of up to 6,950 tonnes. Catch declined rapidly in the late 1990s, and a sub-area catch limit of 0 tonnes was set in 1997/98. In 2010, as part of a review of a number of sub-area catch limits in ORH 3B, the catch limit was increased to 150 tonnes, specifically to allow the status of the stock to be monitored. The 150 tonne voluntary sub-area catch limit has not been commercially fished until the current year as the result of an agreement amongst quota owners to only provide for research fishing in the area.

327. A full acoustic survey of the Puysegur stock was completed in 2016 using an acoustic optical system. This was the first time multi-frequency technology had been used to estimate orange roughy biomass in Puysegur, and the first full abundance survey since a trawl survey in 1995.

328. Updated survey biomass estimates were incorporated into a new stock assessment in 2017 which estimates the sub-stock to be at 49% B_0. This result places the status of the sub-stock near the top of the management target range indicating a utilisation opportunity exists for the Puysegur fishery.

329. Updated stock assessments are underway for Northwest Chatham Rise and East and South Chatham Rise, however there is no information suggesting that the sub-area catch limits for any other areas in ORH 3B should be reviewed at this time.

3. Why are these options proposed?

3.1 SETTING AND VARYING THE TAC

330. Orange roughy stocks are managed under s 13(2) of the Fisheries Act 1996. The TAC for ORH 3B is set under s 13(2)(a).

Rationale for proposed TAC options

331 The proposed TAC increase from 5,250 tonnes to 5,470 tonnes is the result of a proposed increase to the Puysegur sub-area catch limit based on the application of a 4.5% exploitation rate to the estimate of current biomass.

3.2 SETTING AND VARYING ALLOWANCES AND THE TACC

332 When varying the TAC, under s 20 & 21 of the Fisheries Act, the Minister must make allowances for Māori customary non-commercial fishing interests, recreational fishing interests, and all other mortality to the stock caused by fishing.

333 Recreational and customary fishers do not target or catch orange roughy due to the depths it is found. The current recreational and Māori customary allowance for all orange roughy stocks is zero tonnes. MPI is proposing to retain these nil allowances.

334 MPI is proposing to increase the allowance for other sources of fishing related mortality from 250 tonnes to 268 tonnes. This allowance accounts for unreported orange roughy mortality, such as mortality of fish passing through mesh or lost due to burst nets.

3.3 DEEMED VALUE RATES

335. There are no proposed changes to the deemed value rates for ORH 3B for the 2017/18 fishing year (see Table 3 above).

3.4 EVALUATION OF OPTIONS

336. Under Option 2, the TAC for ORH 3B would be increased by 4% from 5,250 tonnes to 5,470 tonnes. This option is based on the application of a fishing mortality of 4.5% to the current biomass estimate from the 2017 Puysegur stock assessment and a 5% allowance for other sources of fishing related mortality. It is estimated that the abundance of the sub-stock would continue to increase with catches at this level.

337. This increase in catch limit would provide for orange roughy target fishing and also for a return of the oreo fishery which has been excluded from the area as a result of the previous agreement not to take orange roughy commercially in the Puysegur area.

338. The expected effect on revenue of the proposed options are outlined in Table 4. MPI notes that there will also be some additional economic benefit from oreo target fishing in the area which is likely to take place following the resumption of commercial fishing for orange roughy. The TAC for OEO 1, the relevant oreo stock, has been significantly undercaught in recent years.

Table 4: Predicted changes to commercial revenue of the proposed option, based on an estimated export price of $10.00/kg for orange roughy in 2016/17

	TACC	Change from status quo (t)	Predicted revenue change ($ p.a.)
Option 1 *(Status quo)*	5,000		
Option 2	5,202	202 ↑ (4%)	2,000,000 ↑

4. Other Relevant Matters

4.1 SUB-QMA MANAGEMENT

339. Where two or more biological stocks exist in a single QMA, catch spreading arrangements ensure fishing effort is not concentrated in one or two areas which would increase fishing pressure on those biological stocks. To achieve this, catch limits for each sub-stock are put in place to ensure appropriate fishing intensity on individual biological stocks. These limits are monitored by MPI and Deepwater Group Ltd (DWG). MPI will continue to support the following catch spreading arrangements in the ORH 3B fishery whereby DWG agrees to:

    - Submit monthly monitoring reports to MPI regarding catch levels in all ORH 3B sub-stocks
    - Notify MPI when catch reaches 80% of the catch limit for any sub-stock and also notify MPI when any limit has been reached.

340. MPI undertakes to continue to monitor DWG reports and operators' fishing patterns to evaluate the effectiveness of these sub-stock catch limits. MPI will ensure that, through joint MPI-DWG communications, operators are fully informed as to the progress of catch taken against sub-stock limits.

4.2 HARVEST CONTROL RULE

341. Following the Management Strategy Evaluation in 2014, a harvest control rule was developed and used to inform the voluntary catch limits for three key orange roughy fisheries (ORH 7A, ORH 3B Northwest Chatham Rise, ORH 3B East & South Chatham Rise).

342. There has been no explicit agreement to apply the harvest control rule to the Puysegur fishery, although this remains a possibility in future.

4.3 ENVIRONMENTAL PRINCIPLES AND SUSTAINABILITY MEASURES

4.3.1 Protected species

343. The proposed option will increase fishing effort targeting orange roughy or oreo species in the Puysegur sub-QMA. Orange roughy and oreo target fishing is considered to pose low risk to seabirds and marine mammals based on outputs of quantitative risk assessments.

4.3.1 Interdependence of stocks

344. The increase in fishing is likely to increase catch of some associated species. The main species associated with orange roughy fishing, based on MPI observer-collected information from other areas, are oreos and deepwater sharks. It is not expected that the re-opening of this fishery will have any adverse impacts on oreo stocks.

345. Management of shark species in New Zealand is driven by the National Plan of Action for Sharks (NPOA-Sharks) 2013[51]. Orange roughy fishing is known to interact with several species of deepwater sharks, many reported using generic codes for 'other sharks and dogfish' and 'deepwater dogfish'. It is considered that these species may have life history characteristics that make them vulnerable to overfishing.

346. The changes proposed to the ORH 3B TAC will result in only a moderate increase in fishing effort for orange roughy which is unlikely to significantly change fishing pressure on deepwater sharks. MPI will continue to monitor interactions with sharks in orange roughy fisheries and considers that the implementation of the NPOA-Sharks 2013 and follow up management actions will mitigate any risks posed by increased orange roughy fishing effort.

4.3.2 Benthic impacts

347. Bottom trawling can affect fragile benthic invertebrate communities but any adverse effects may be reduced if vessels repeatedly trawl along the same towlines in a fishery. A return to targeting orange roughy and potentially oreos in the Puysegur area will result in increased potential for benthic impact.

348. Management measures to address the effects of deepwater trawl activity have focused on 'avoiding' these effects. This has been achieved through regulations closing areas to bottom trawling; first with seamount closures in 2001[52] (ten of these closures are within the ORH 3B QMA) and then with Benthic Protection Areas[53] (12 of these are within the ORH 3B QMA). Seamount closures and BPAs combined result in the closure of 15% of the recognised depth range of ORH in the ORH 3B QMA to bottom trawling. A monitoring regime to ensure these closures are adhered to is in place.

349. The bottom trawl footprint of orange roughy fisheries will continue to be monitored annually.

4.4 FISHERIES PLANS

350. The Ministry, in collaboration with industry and environmental organisations, has developed a National Fisheries Plan for Deepwater and Middle-depth Fisheries (the National Deepwater Plan) which was given Ministerial approval in 2010. The National Deepwater Plan sets out management objectives for deepwater fisheries. Fishery-specific chapters set specific Operational Objectives for each key deepwater species,

[51] Accessible at http://fs.fish.govt.nz/Page.aspx?pk=165
[52] Through section 73 of Fisheries (Commercial Fishing) Regulations 2001, accessible at http://legislation.govt.nz/regulation/public/2001/0253/46.0/DLM76407.html#DLM78041
[53] Accessible at http://legislation.govt.nz/regulation/public/2007/0308/latest/DLM973968.html?src=qs

and establish performance indicators to assess if the management objectives have been delivered.

351. The National Deepwater Plan sets out a series of Management Objectives, the most relevant of those being:

a) Management Objective 1.1: Enable economically viable deepwater and middle-depth fisheries in New Zealand over the long-term

b) Management Objective 1.3: Ensure the deepwater and middle-depths fisheries resources are managed so as to provide for the reasonably foreseeable needs of future generations

c) Management Objective 2.5: Manage deepwater and middle-depth fisheries to avoid or minimise adverse effects on the long-term viability of endangered, threatened and protected species.

4.4.1 Iwi Fish Plans and Forum Fish Plans

352. Any relevant Iwi or Forum Fish Plans must be taken into account when setting or varying the TAC for a stock. In respect to ORH 3B, the input and participation of tangata whenua is effected through MPI's relationship with Te Waka a Māui me Ōna Toka Iwi Forum and CIFF@44 (Chatham Islands) Forum. Orange roughy is identified as a tāonga species in both Forums' Fisheries Plans.

4.5 INPUT AND PARTICIPATION OF TANGATA WHENUA

353. The proposal to consult on ORH 3B was presented to both Iwi Fisheries Forums relating to South Island iwi, the Te Waka a Māui me Ōna Toka Iwi Forum and the Te Tau Ihu Iwi Forum. These two forums represent the nine iwi of the South Island, each holding mana moana and significant interests (both commercial and non-commercial) in South Island fisheries. The Te Tau Ihu Iwi Forum represents the eight iwi at the top of the South Island, and the Te Waka a Māui me Ōna Toka Iwi Forum represents those eight iwi plus Ngai Tahu. No objections were raised.

5. Further Information

354. Should you require further information, please see:

Fisheries Act (1996):

http://www.legislation.govt.nz/act/public/1996/0088/latest/DLM394192.html

MPI Plenary document:

Ministry for Primary Industries (2016). Fisheries Assessment Plenary, May 2016: stock assessments and stock status. Compiled by the Fisheries Science Group, Ministry for Primary Industries, Wellington, New Zealand, 1556 p. Volume 2, Chapter ORANGE ROUGHY, CHATHAM RISE AND SOUTHERN NEW ZEALAND (ORH 3B), p725.
http://fs.fish.govt.nz/Page.aspx?pk=113&dk=24114

Previous reviews of the stock:

ORH 3B Sustainability Round Review 2014
e.g. http://www.mpi.govt.nz/document-vault/3777

PART D – DEEMED VALUE RATES

1. Executive Summary

355. The Ministry for Primary Industries (MPI) is seeking information and views from tangata whenua and stakeholders to inform a review of deemed value rates for seven stocks managed under the Quota Management System (QMS).

356. Deemed values rates are set by Gazette Notice under section 75 of the Fisheries Act 1996 (the Act). Commercial fishers[54] who do not balance catch with transferable Annual Catch Entitlements (ACE) must make deemed value payments. The deemed value regime is intended to constrain commercial catch to respective catch limits by encouraging fishers to balance their catch with ACE, while not discouraging them from landing and accurately reporting catch.

357. The rates can be grouped into three key types;

    a. **Interim** – the rate charged during the year, which can be remitted if Annual Catch Entitlement is obtained.

    b. **Annual** – the base rate charged at the end of the fishing year for catch in excess of Annual Catch Entitlement.

    c. **Differential** – increased annual rates for higher levels of excess catch. The standard approach is to increase rates once a fisher has caught 120% of his or her entitlement, increasing in 20% increments up to a maximum of 200% of the annual deemed value rate. A special annual deemed value schedule may be applied to some stocks where utilisation and sustainability objectives are best met by providing stronger incentives for catch not to exceed ACE. The exact structure of the schedule and maximum annual differential rate will be tailored to the stock in question.

358. Application of the deemed value framework is explained in detail in MPI's Deemed Value Guidelines (the Guidelines).[55] The Guidelines have been used to identify stocks for review and formulate the following options for selected fish stocks in the upcoming fishing year, refer to Table 1. Shaded parts of the table indicate a change from the current settings for the 2017/18 fishing year.

Table 1: Current and proposed deemed value rates ($/kg) for selected stocks from 1 October 2017

		Current				Proposed			
Species	Stock	Interim $/kg	Annual $/kg	Annual at maximum excess $/kg	Differential	Interim $/kg	Annual $/kg	Annual at maximum excess $/kg	Differential
Green-lipped mussel	GLM 9	5.40	6.00	12.00	Standard	9.00	10.00	20.00	Special
Red cod	RCO 2	0.14	0.28	0.56	Standard	0.25	0.28	0.56	Standard
School shark	SCH 3	0.90	1.80	3.60	Standard	3.20	3.60	7.20	Standard
Skates	RSK 8	0.32	0.35	0.70	Standard	0.24	0.26	0.52	Standard
	SSK 8	0.32	0.35	0.70	Standard	0.24	0.26	0.52	Standard

[54] As defined in section 76 of the Act.
[55] Available at www.mpi.govt.nz/document-vault/3663

		Current				Proposed			
Species	Stock	Interim $/kg	Annual $/kg	Annual at maximum excess $/kg	Differential	Interim $/kg	Annual $/kg	Annual at maximum excess $/kg	Differential
Tarakihi	TAR 8	1.25	2.50	5.50	Special	2.48	2.75	5.50	Special
Trevally	TRE 2	0.70	1.25	2.50	Special	1.13	1.25	5.00	Special

359. See the Fisheries (Total Allowable Catch, Total Allowable Commercial Catch, and Deemed Value Rates) Notice 2015 (link) for descriptions of "standard" and "special" differential deemed value rates for specific stocks.

2. Purpose

2.1 THE DEEMED VALUE FRAMEWORK

360. The Quota Management System (QMS) is the backbone of the New Zealand fisheries management regime and includes a total of 642 fish stocks representing 98 species. Balancing catch against catching rights is known as the catch balancing regime and it is one of the keys to ensuring the integrity of the QMS.

361. On the first day of the fishing year all quota owners are provided with ACE based on their quota share and the current TACC. Under the catch balancing regime, fishers are required to balance their catch with ACE or pay a deemed value on catch in excess of ACE.

362. Deemed values are charges that commercial fishers must pay for every unprocessed kilogram of QMS fish stocks landed in excess of their ACE holdings ($/kg). The purpose of the deemed value framework is to encourage commercial fishers to balance their catch with ACE while not discouraging them from landing and accurately reporting catch. The intent is to protect the long-term value of stocks and to support kaitiakitanga by providing incentives for the overall commercial catch for each QMS stock to remain within the total available ACE and/or the Total Allowable Commercial Catch (TACC). The effectiveness of this incentive is dependent on individual fishers' compliance with landing and reporting requirements, their responses to the incentives provided and on the impact of other incentives such as those created by market conditions.

363. Effective deemed value rates contribute to both sustainability and utilisation objectives (which represent the purpose of section 8 of the Act). Sustainability objectives are achieved as appropriate deemed value rates encourage fishers to balance catch with ACE and, in doing so, encourage harvesting to remain within the TACC. Utilisation objectives relate not only to the long-term benefits from managing catches within limits, but the deemed value framework also provides flexibility for commercial operators to manage small, unexpected amounts of catch by balancing unintentional catches in excess of ACE.

364. Incorrectly set deemed value rates may lead to catches in excess of the TACC (*i.e.*, if set too low), which may have negative implications for sustainability and the long-term value of the resource. Likewise, incorrectly set deemed value rates may also discourage landing and accurate reporting (*i.e.*, if set too high) which can compromise fisheries management.

365. The deemed value system does not create a standard deemed value rate, but a set of rates that apply under different circumstances. The base rate is the annual deemed value which is charged at the end of the fishing year on catch in excess of ACE. Interim deemed value rates are charged each month to commercial fishers for every kilogram of fish landed in excess of ACE ($/kg). Annual deemed value rates must be set higher than the interim rate, and interim rates have historically been set at 50% of the lowest annual rate. If the fisher sources enough ACE to cover his or her catch, the interim rates paid are remitted. If the fisher does not source enough ACE by the end of the fishing year, the difference between the interim and annual deemed value rates is charged for all catch in excess of ACE. As mentioned the annual rate applies at the end of the fishing year only.

366. In reviewing deemed value settings, and being consistent with the MPI Deemed Value Guidelines, MPI recommends that interim deemed value rates for the majority of fish stocks be transitioned from the historic 50% of annual rate to 90%. This is to incentivise fishers to cover deemed value payments on a regular basis should targeted or bycatch landings change throughout the fishing year.

367. Differential annual deemed value rates in respect of the same stock, if applicable, are also charged at the end of the fishing year if the fisher harvested well in excess of their ACE holdings. This is permitted under section 75(4) of the Act. This results in an escalated schedule of rates as the percentage by which catch exceeds ACE increases. The standard approach increases in 20% increments up to a maximum of 200% of the annual deemed value (see Table 2). Differential rates reflect the increasingly detrimental impact on sustainability of higher levels of over catch and on the long-term value of the resource, providing stronger incentives to avoid over catch.

Table 2: Standard differential deemed value rate schedule for most stocks

Catch in excess of ACE holdings	Differential deemed value rate as a percentage of the annual deemed value rate
0–20%	100%
> 20%	120%
> 40%	140%
> 60%	160%
> 80%	180%
> 100%	200%

368. For vulnerable or rebuilding stocks, a more stringent non-standard differential or special annual deemed value schedule (*e.g.*, applying from 5% or 10% over catch) may be more appropriate than the standard schedule.

369. For targeted stocks with high selectivity and low vulnerability to bycatch a more stringent non-standard differential or special annual deemed value schedule may also be more appropriate than the standard schedule.

370. The deemed value rate changes proposed in this paper are aimed at protecting the TACC, regardless of the level at which it is set, by encouraging balancing of landings with ACE while avoiding creating incentives to discard and misreport.

2.2 THE ACT AND THE DEEMED VAUE GUIDELINES

371. Section 75(1) of the Act requires the Minister to set deemed value rates for all stocks managed under the QMS. Section 75(2)(a) requires the Minister, when setting deemed value rates, to take into account the need to provide an incentive for every commercial fisher to acquire or maintain ACE that is not less than the fisher's total catch of each stock taken.

372. Section 75(2)(b) allows the Minister, when setting deemed value rates, to have regard to:

- the desirability of commercial fishers to land catch for which they do not have ACE,
- the market value of ACE,
- the market value of the stock,
- the economic benefits obtained by the most efficient fisher, licensed fish receiver, retailer or any other person from the taking, processing or sale of the fish or associated with the fish,
- the extent to which the catch of that stock has exceeded or is likely to exceed the TACC for the stock in any year; and
- any other matters that the Minister considers relevant.

373. The practical application of these statutory criteria is set out in the Guidelines, which are summarised below:

- deemed value rates must generally be set between the ACE price and the reported port price, [56]
- deemed value rates must generally exceed the ACE price by transaction costs,
- deemed value rates must avoid creating incentives to misreport,
- deemed value rates for constraining bycatch species may be higher,
- deemed value rates must generally be set at twice the port price for high value single species fisheries and species subject to international catch limits,
- deemed value rates for Chatham Island landings may be lower,
- interim deemed value rates must generally be set at 90% of the annual deemed value rate; and
- differential deemed value rates must generally be set.

[56] Reported port prices are the average price for green weight fish of each stock reported to be paid to independent fishers by licensed fish receivers (LFRs). These values ignore differences in size, quality and state of fish landed (i.e. fishing method), location of landings, seasonal price variations, deductions that fishers may pay to LFRs from time to time and price differentials for vertically integrated fishing companies. Reported port prices are therefore an indicator of limited reliability. In general, real port prices for average size and quality fish landed in the main ports by independent fishers would tend to be higher than the average prices reported by LFRs.

3. Background Information

3.1 IDENTIFYING STOCKS FOR DEEMED VALUE REVIEW

374. Before determining which stocks to review deemed value rates for, MPI:

- invited the fishing industry to nominate stocks for deemed value rate reviews, in the context of discussions as part of the annual fisheries planning process;
- considered stocks where total allowable catch reviews were being considered for 1 October 2017;
- assessed October fishing year stocks against the Performance Measures outlined in the Guidelines for the deemed value framework -
  - Catch in excess of the TACC[57]
  - The percentage of catch for each stock not balanced with Annual Catch Entitlement (ACE).
- considered whether deemed value rates were consistent with the Guidelines (*i.e.*, interim deemed value rates 90% of annual DV rate and how annual DV rates relate to ACE and port price); and
- compared the ratio of the total deemed value payments to the value of quota (at a general and stock level) – the target in relation to this indicator is less than 0.1% of the value of quota in any fishing year.

Table 3: Rationale for fish stocks prioritised for review

Stock	Rationale for review
RCO 2	- Subject to sustainability review in 2017 - Schedule 2 stock with agreed management procedure for 'in-season' TAC review
GLM 9	- 110% caught in 2015/16 - Schedule 6 stock, highly selective catch, set revised annual DV differential rate - Ratio DV to QV[58] is 0.010 or 1.0%
SCH 3	- 103% caught in 2015/16 - Schedule 6 stock, undervalued port price - Ratio of DV to QV is 0.017 or 1.7%
RSK 8	- 148% caught in 2015/16 - Schedule 6 stock, undervalued port price - Ratio of DV to QV is 0.086 or 8.6%
SSK 8	- 148% caught in 2015/16 - Schedule 6 stock, undervalued port price - Ratio of DV to QV is 0.082 or 8.2%
TAR 8	- 102% caught in 2015/16 - Ratio of DV to QV is 0.006 or 0.6%
TRE 2	- 108% caught in 2015/16 - Ratio of DV to QV is 0.01 or 1%

[57] Catch in excess of ACE as an alternative to catch in excess of the TACC because a small amount of ACE can be carried over from the previous fishing year.
[58] QV = Quota value.

4. Proposed Options

375. Table 4 sets out key information that informed the development of proposals for the prioritised stocks. Relevant fishery information is also discussed alongside the proposals in this section.

Table 4: Information to support review of deemed value rates for stocks that meet the criteria[59]

Stock	TACC (tonnes)	% Caught in 2015/16*	ACE $/kg	Interim Deemed Value (DV) $/kg	Annual DV $/kg	2015/16 Port Price $/kg	Ratio of total DV paid to total QV
Stocks to be considered in conjunction with current TAC decisions							
RCO 2	500	76%	0.09	0.14	0.28	0.77	N/A
Stocks with over catch in 2015/16							
GLM 9	180	110%	6.75	5.40	6.00	5.23	0.010
RSK 8	21	148%	0.18	0.24	0.26	0.25	0.086
SSK 8	20	148%	0.18	0.24	0.26	0.33	0.082
SCH 3	387	103%	0.72	0.90	1.80	2.30	0.017
TAR 8	225	102%	1.13	1.38	2.75	3.60	0.006
TRE 2	241	108%	0.67	0.70	1.25	1.33	0.010

* 2015/16 landings against available ACE, as opposed to TACC

5. Stocks to be considered in conjunction with current TAC decisions

376. All bluenose stocks (BNS 1, BNS 2, BNS 3, BNS 7 and BNS 8), gurnard (GUR 7), hake (HAK 7), orange roughy (ORH 3B) and paua (PAU 3, PAU 4 and PAU 7) are subject to TAC reviews in 2017. However, no criterion apart from the TAC review is triggered and deemed value rates for these stocks are not proposed for review in this paper.

377. Recently gained information supports the proposals for the TACC for GUR 7 to be increased for the start of the 2017/18 fishing year. As this stock is taken as either bycatch or part of a mixed fishery, any increase in the TACC of this stock will not likely lead to a significant increase in targeted fishing effort, but will likely mitigate the occurrence of possible deemed value payments and provide for potential increased bycatch. MPI is not proposing to alter the interim or annual deemed value rates for GUR 7.

5.1 RED COD (RCO 2)

5.1.1 Fishery information

378. RCO 2 is proposed for a sustainability measures review for the 2017/18 fishing year as the Minister is required to set or adjust a TACC in consideration of setting initial catch allowances for recreational, Māori customary and other sources of mortality caused by fishing. For the 2017/18 fishing year MPI proposes to set the TACC at the current level of 500 tonnes.

[59] All figures provided are sourced from information that relate to the 2015/16 fishing year only.

379. RCO 2 is primarily taken as bycatch in a mixed trawl fishery and the review of deemed value rates for RCO 2 has not been triggered by landings in excess of TACC or significant changes in port prices. However, as the stock is included on Schedule 2 of the Act, which enables the 'in-season' TAC to be increased within a fishing year, MPI is proposing to alter the interim deemed value rates for these stocks as any potential or realised allocation of additional ACE within a fishing year may influence the ACE balancing behaviour of fishers.

5.1.2 Deemed value rates

Table 5: Current and proposed deemed value rates ($/kg) for RCO 2

Stock	Option	Interim deemed value rate ($/kg)	Annual deemed value rate ($/kg)	Differential deemed value rate	Maximum 200% of annual rate for excess catch (% of ACE)
RCO 2	Current	0.14	0.28	Standard	200%
	Proposed	0.25	0.28	Standard	200%

380. To encourage fishers to land all RCO 2 of legal size MPI does not recommend adjusting the annual deemed value rate. Consistent with the deemed value guidelines, MPI recommends increasing the interim deemed values rates of RCO 2 from 50% of annual deemed value rate to 90%, as outlined in the shaded part of Table 5, to ensure fishers balance their catch against ACE throughout the year. Commercial fishers cannot be certain that the 'in-season' ACE of RCO 2 will be increased in any given fishing year. These interim deemed value rates are proposed to mitigate any speculation of additional 'in-season' ACE being allocated later in the year, which could cover ACE of unbalanced landings earlier in the fishing year.

6. Stocks with over catch in the 2015/16 fishing year

6.1 GREEN-LIPPED MUSSEL (GLM 9)

6.1.1 Fishery information

381. Commercial harvesting of GLM 9 occurs primarily for spat attached to beach-cast algae and is a highly selective target fishery. Landings have been variable but in recent years has increased to exceed the TACC with commercial fishers paying deemed values as a result. The deemed value rates for GLM 9 were reviewed in 2016 and increased for the 2016/17 fishing year. As a result of the high market value and demand, intentional harvest of GLM 9 above the available ACE has continued in 2016/17, with fishers incurring significant deemed value payments for the stock.

382. The key trigger for the review of GLM 9 deemed value rates is over catch with high deemed value payments compared to quota value. Green-lipped mussels are listed on Schedule 6 of the Act to allow fishers to return to the sea any GLM 9 mussels or spat, and as the harvest of GLM 9 is highly selective, only intentionally harvested GLM 9 mussels and spat would be required to be landed and balanced with ACE. However, fishers have chosen to land GLM 9 mussels and spat in excess of ACE holdings, suggesting that the current deemed value settings, in relation to the reported port price, do not accurately reflect the value of the fishery to industry.

383. No change to the TAC or TACC for GLM 9 is proposed for the 2017/18 fishing year, but ongoing intentional harvest of GLM 9 in excess of the TACC and available ACE could lead to sustainability risks in the long-term.

6.1.2 Deemed value rates

Table 6: Current and proposed deemed value rates ($/kg) for GLM 9

Stock	Option	Interim deemed value rate ($/kg)	Annual deemed value rate ($/kg)	Annual Differential Rates ($/kg) for excess catch (% of ACE)				
GLM 9	Current			*>120%*	*>140%*	*>160%*	*>180%*	*>200%*
		5.40	6.00	7.20	8.40	9.60	10.80	12.00
	Proposed			*>105%*				
		9.00	10.00	20.00				

384. MPI recommends adjusting the deemed value rates for GLM 9, and changing the annual deemed value rate differential from a standard to a special schedule, as outlined in the shaded part of Table 6. The interim deemed value rate for GLM 9 is currently set at 90% of the annual rate and MPI does not propose to change this. The proposed deemed value settings would incentivise fishers to constrain harvests of GLM 9 within the TACC and would significantly mitigate the financial impact of the higher deemed value rates proposed. As harvest for this stock is principally sourced from beach-cast spat attached to algae, the proposed annual deemed value rate for green-lipped mussel in GLM 9 is based on the Guidelines that deemed value rates for high-value single species fisheries must generally be set at twice the port price to promote catch to stay within the TACC.

385. The current annual deemed differential rates are set at a standard schedule. As he harvest of GLM 9 is both highly selective and as the primary intention for harvest is for future on-growth capabilities of mussel spat in aquaculture operations, MPI proposes to set a flat special annual deemed value differential rate of 200% at a level of 5% excess catch (105% of ACE) to address the GLM 9 stock's vulnerability to sustainability issues.

6.2 SCHOOL SHARK (SCH 3)

6.2.1 Fishery information

386. School shark in SCH 3 is predominantly caught in the mixed species set net fishery and the mixed species trawl fishery. School shark catches are usually constrained at about the level of the TACC and have exceeded the TACC in 3 out of the last 12 years since the TACC was raised for the 2004/05 fishing year.

387. The port price for SCH 3 has declined in recent years. Taking into account that the lands of school shark have not significantly changed over recent years, the fact that fishers have chosen to land SCH 3 in excess of ACE holdings suggests that the port price for both the trunk and fins of SCH 3 may not accurately reflect the full value of SCH 3 to industry. A prohibition on the finning of sharks at sea was introduced in 2014[60] and a niche market for the landed fins of school shark has developed since. Payments for fins

[60] Fisheries (Commercial Fishing) Amendment Regulations (No 2) 2014 (link)

from specialised licenced fish receiver returns explains the reduction in SCH 3 port price if fins are removed and valued separately.

6.2.2 Deemed value rates

Table 7: Current and proposed deemed value rates ($/kg) for SCH 3

Stock	Option	Interim deemed value rate ($/kg)	Annual deemed value rate ($/kg)	Differential deemed value rate	Maximum 200% of annual rate for excess catch (% of ACE)
SCH 3	Current	0.90	1.80	Standard	200%
	Proposed	3.20	3.60	Standard	200%

388. MPI recommends increasing the deemed value rates for SCH 3, as outlined in the shaded part of Table 7, with the interim deemed value adjusted to 90% of the annual deemed value and the differential annual deemed value remaining at a standard rate. The deemed value rates for SCH 3 were last adjusted for the 2011/12 fishing year and MPI considers these rates do not reflect the current value of SCH 3 and are not providing effective incentives to constrain catch.

6.3 SKATES (RSK 8 AND SSK 8)

6.3.1 Fishery information

389. Rough and smooth skates were included in the QMS since the 2003/04 fishing year. The landings of rough skates in RSK 8 have consistently exceeded the TACC since the introduction of the species to the QMS and smooth skate landings in SSK 8 have exceeded the TACC in the most recent nine fishing years of this 13 year period. In the most recent fishing year of 2015/16 the landings of both stocks were approximately 150% of the respective TACCs, with both stocks having been near to, or exceeding, 200% of the TACCs in recent years. Although the over catch levels for RSK 8 and SSK 8 are relatively large as a percentage of the TACC, the TACCs for these stocks are small in comparison with other skate stocks.

390. Skates are mainly taken as bycatch in trawl fisheries targeting a range of species such as flatfish, red cod, ling and tarakihi. Due to the strong biological and market similarities, between rough and smooth skate, the MPI's approach is to review the deemed value rates for both species at the same time. This is consistent with the Guidelines to set rates that avoid creating incentives to misreport species of the area where the fish were taken. As most skates that are landed have been processed at sea, MPI understands that there may be frequent but unintentional misreporting of landed skate species when there is failure to differentiate between species once some processing has occurred.

391. Schedule 6 of the Act allows the return of live smooth and rough skate to the water as long as skates are likely to survive and are returned as soon as practicably possible after they are taken. Despite this, over catch is still reported.

6.3.2 Deemed value rates

Table 8: Current and proposed deemed value rates ($/kg) for RSK 8 and SSK 8

Stock	Option	Interim deemed value rate ($/kg)	Annual deemed value rate ($/kg)	Differential deemed value rate	Maximum 200% of annual rate for excess catch (% of ACE)
RSK 8	Current	0.32	0.35	Standard	200%
	Proposed	0.24	0.26	Standard	200%
SSK 8	Current	0.32	0.35	Standard	200%
	Proposed	0.24	0.26	Standard	200%

392. To encourage fishers to return live skate where possible and balance catch with ACE, MPI recommends decreasing interim and annual deemed value rates for the above skate stocks, as outlined in the shaded part of Table 8, and proposes interim deemed value rates to remain at 90% of the annual deemed value with the differential annual deemed value rates remaining at a standard rate. The proposed deemed value rates are set as per Principle 2 of the Deemed Value Guidelines, at $0.10 per kg above the 90th percentile ACE price for RSK 8 and SSK 8 of $0.18.

393. Rough skates and smooth skates are listed on Schedule 6 of the Act. This allows fishers to return to the sea a fish that is likely to survive, as long as it is reported accordingly. In that case, fishers are not necessarily required to retain, land and balance all skate catches with ACE. This provides fishers with some flexibility to manage unintended bycatch and would mitigate, to some extent, the financial impact of the higher deemed value rates proposed.

6.4 TARAKIHI (TAR 8)

6.4.1 Fishery information

394. Tarakihi in TAR 8 is taken as both a target and a trawl bycatch species. Tarakihi catches are usually constrained at about the level of the TACC but have exceeded the TACC in 6 out of the last 10 years. The key trigger for the review of TAR 8 deemed value rates is over catch. The current annual deemed value rates are set between the ACE price and reported port price. The interim deemed value rate for TAR 8 is set at 50% the annual rate.

6.4.2 Deemed value rates

Table 9: Current and proposed deemed value rates ($/kg) for TAR 8

Stock	Option	Interim deemed value rate ($/kg)	Annual deemed value rate ($/kg)	Differential deemed value rate	Maximum 200% of annual rate for excess catch ($/kg above 120% of ACE)
TAR 8	Current	1.25	2.50	Special	5.50
	Proposed	2.48	2.75	Special	5.50

395. MPI recommends adjusting the deemed value rates for TAR 8 as outlined in the shaded part of Table 9. The proposed increased interim deemed value rate from 50% to 90% of the annual deemed value rate will lead to more regular balancing of catch with ACE throughout the year. Regular balancing should support greater awareness of the availability of ACE and promote catch to stay within the TACC. MPI considers the

special maximum annual deemed value rate, as being twice the lowest annual rate, consistent with the Guidelines and does not propose amending this.

6.5 TREVALLY (TRE 2)

6.5.1 Fishery information

396. In the TRE 2 quota management area, trevally is mainly taken in the inshore mixed trawl fishery, mostly in conjunction with gurnard and tarakihi. Landings have exceeded the TACC in 14 of the last 20 fishing years. The key trigger for the review of TRE 2 is the frequent over catch with high deemed value payments compared to quota value. The current annual deemed value rates for TRE 2 are set above the ACE price and approximate to the reported port price. The interim deemed value rate is set at 50% the annual rate and a special differential deemed value rate is set for TRE 2.

6.5.2 Deemed value rates

Table 10: Current and proposed deemed value rates ($/kg) for TRE 2

Stock	Option	Interim deemed value rate ($/kg)	Annual deemed value rate ($/kg)	Differential deemed value rate	Maximum 200% of annual rate for excess catch ($/kg above 120% of ACE)
TRE 2	Current	0.70	1.25	Special	5.00
	Proposed	1.13	1.25	Special	5.00

397. MPI recommends adjusting the deemed value rates for TRE 2, as outlined in the shaded part of Table 10. The annual deemed value rate is based at about the level of the port price for this stock and MPI does not propose changing this. The proposed increased interim deemed value rate from 50% to 90% of the annual deemed value rate will lead to more regular balancing of catch with ACE throughout the year. Regular balancing should support greater awareness of the availability of ACE and promote catch to stay within the TACC.

7. Conclusion

398. The Guidelines have been used to identify seven stocks for review of deemed value rates. Proposals for adjustments have been developed based on statutory requirements, the Guidelines and key information.

399. The majority of the proposals are to increase interim deemed value rates from 50% to 90% of the annual deemed value rate and will lead to more regular balancing throughout the year with ACE.

400. MPI is seeking information and views from tangata whenua and stakeholders to support the development of final advice to the Minister on the setting of revised deemed value rates for the fishing year commencing 1 October 2017.

401. It is important to note that the Minister has broad discretion in exercising his powers of decision-making. He will make his own independent assessment of the information presented to him before making final decisions on deemed value rates.