Ministry for Primary Industries
Manatū Ahu Matua

Review of Sustainability Measures and Other Management Controls for Selected Deepwater Fishstocks

Final Advice and Recommendations for the TAC, TACC, and Allowances and Deemed Value Rates for six fishstocks

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HOKI (HOK 1) – FINAL ADVICE PAPER

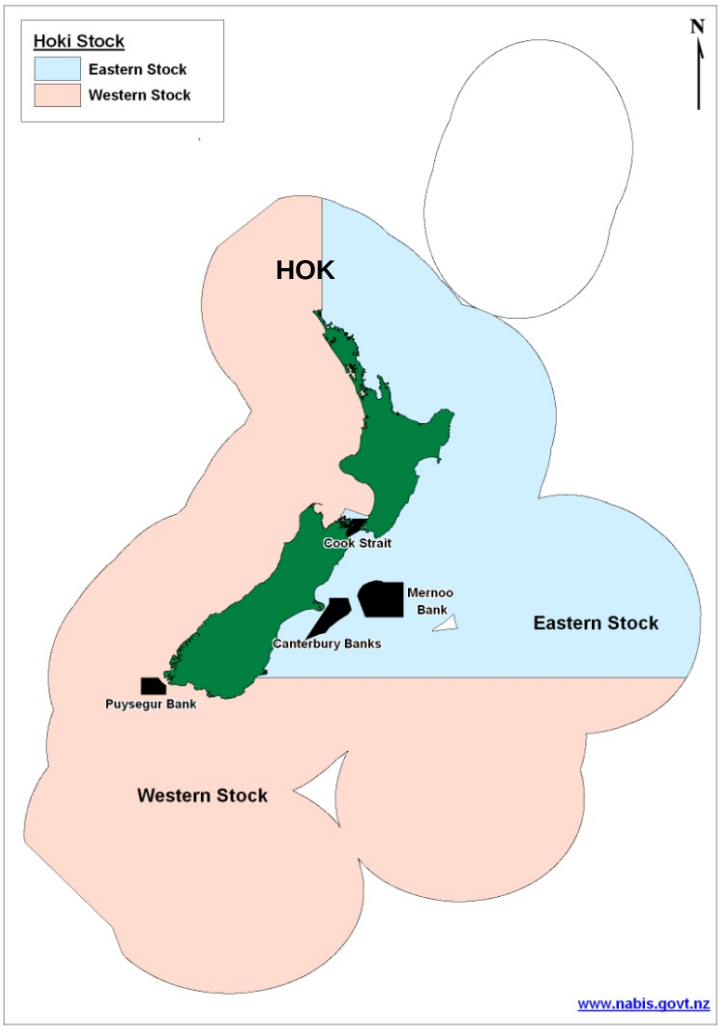

Figure 1: Map of the HOK 1 quota management area detailing the boundaries between the eastern and western biological stocks and the hoki management areas (HMAs) in black

Executive Summary

1 The hoki fishery is managed as one Quota Management System (QMS) stock, HOK 1, although HOK 1 is considered to consist of two biological stocks, an eastern stock and a western stock. The 2014 hoki stock assessment estimates the current status of the western stock to be 59% B_0 and the eastern stock 60% B_0. Both stocks are currently above B_{MSY} and above the upper bound of the hoki management target range of 35-50% B_0.

2 Five year projections, using the 2014 stock assessment, show that both stocks are likely to remain above both B_{MSY} and within or above the management target range at increased catch levels. This suggests that utilisation opportunities exist and a higher catch limit is likely to be sustainable.

3 Consequently, the Ministry for Primary Industries (MPI) consulted on increasing the total allowable catch (TAC) from 151,540 tonnes to either 161,640 tonnes or 171,740 tonnes (Table 1).

4 All options included a proposed catch split arrangement, which is a non-regulatory arrangement to manage the proportion of the catch harvested from each biological stock. This is to avoid any sustainability risks from the entire HOK 1 total allowable commercial catch (TACC) being harvested from a single biological stock.

5 MPI recommends increasing the TAC to 161,540 tonnes (Option 2). As part of this option, MPI recommends that you assign the full 10,000 tonne increase to the western hoki stock. On the basis of submissions made during consultation, this approach differs from the Option 2 that MPI consulted on, which assigned an equal 5,000 tonne increase to each stock.

6 Both Options to increase the TAC would retain the current nominal allowances for recreational and customary non-commercial fishing at 20 tonnes each. An allowance of 1% of the TACC for other sources of fishing related mortality (OSFRM) would also be retained.

Table 1: Options for the HOK1 TAC, TACC and allowances for 2014-15

Option	TAC	TACC	Catch split		*Allowances (tonnes)*		
			East stock	West stock	*Customary **Māori***	*Recreational*	*OSFRM*
Option 1 (status quo)	151,540	150,000	60,000	90,000	20	20	1,500
Option 2	161,640	160,000	65,000	95,000	20	20	1,600
Amended Option 2* (recommended)	161,640	160,000	60,000	100,000	20	20	1,600
Option 3	171,740	170,000	70,000	100,000	20	20	1,700

* Option 2 was amended following stakeholder submissions

7 The deemed value rates for hoki have also been reviewed for the 2014-15 fishing year. MPI recommends that, regardless of which of the Options you decide to implement, you retain the existing deemed value rates for hoki at this time.

Background Information

8 The hoki fishery is managed under the QMS as one stock, HOK 1, which covers fishery management areas 1-9. The fishery consists of two distinct biological stocks, an eastern stock and a western stock. Within each stock there are the following defined fishing areas:

a) Eastern hoki stock: Cook Strait fishery, Chatham Rise fishery, East Coast South Island fishery (ECSI) and the East Coast North Island fishery (ECNI).

b) Western hoki stock: West Coast South Island fishery (WCSI), Sub-Antarctic fishery and Puysegur fishery.

Juvenile hoki from both stocks combine on the Chatham Rise. Upon maturation, hoki are understood to migrate to either the eastern or western stock.

9 The largest hoki fishery operates from mid-July to late August on the WCSI where hoki from the western stock aggregate to spawn. The second spawning fishery occurs in Cook Strait, the main spawning ground for the eastern stock, where the season runs from late June to mid-September. Small catches of spawning hoki are taken from other spawning grounds off ECSI and, late in the season, at Puysegur Bank. Outside the spawning season there is a substantial fishery on the Chatham Rise and a smaller fishery in the Sub-Antarctic. There is also a small ECNI hoki fishery.

10 In 2001 the industry implemented a catch split arrangement to manage fishing effort across the two biological stocks that set individual catch limits for each stock. This is a pragmatic approach ensuring the catch from each stock remains within sustainable limits, while also recognising that because juveniles from both stocks mix on the Chatham Rise it is appropriate to consider management decisions for both stocks concurrently. Catch limits set under this arrangement are varied depending on the status of each stock, which are assessed separately.

11 Until 2008, the western stock biomass had been declining, largely due to an extended period of poor recruitment. Improved recruitment, supported by a more conservative management regime in recent years, has meant that the western stock has successfully rebuilt and the stock has been able to sustain catch increases in the last four fishing years. In contrast, the eastern stock has remained above the soft limit throughout the history of the fishery.

12 To protect juvenile hoki, industry has also implemented a range of measures that apply to all vessels greater than 28 m in overall length known as the Hoki Operational Procedure (HOP). These measures include closing four areas to hoki targeting which are known to contain large numbers of juvenile hoki. These areas, known as hoki management areas (HMAs), are still accessible to vessels targeting other species such as scampi, ling, silver warehou and squid. The four closed areas are (see Figure 1):

a) Cook Strait

b) Canterbury Banks

c) Mernoo Bank

d) Puysegur Bank

13 MPI actively monitors fishing activity within these HMAs and provides quarterly reports to industry.

Consultation

14 Decisions to vary TACs are made under section 13(4) of the Fisheries Act 1996 (the Act). Therefore, the consultation requirements of section 12(2) apply. Decisions to vary TACCs are made under section 20(2), to which the consultation requirements of section 21(2) apply. These provisions require consultation with such persons or organisations representative of those classes of persons having an interest in the stock or the effects of fishing on the aquatic environment in the area concerned, including Maori, environmental, commercial and recreational interests.

15 MPI consulted on your behalf on the three Options set out in Table 1 above. MPI followed its standard consultation process of posting initial position papers (IPPs) on the MPI website and alerting stakeholders to this through a letter sent to approximately 200 companies, organisations and individuals.

16 There is also an obligation to provide for input and participation of tangata whenua and have particular regard to kaitiakitanga. MPI recognises that information on customary harvest is uncertain and invited iwi, Tangata Tiaki/Kaitiaki, and customary permit holders to submit information. However, no additional information was submitted during the consultation process. MPI will continue to work with tangata whenua to improve reporting and information on customary non-commercial catches.

SUBMISSIONS RECEIVED

17 Submissions were received from the following:

a) Deepwater Group Ltd., (DWG)

b) Environment and Conservation Organisations of New Zealand Inc., (ECO)

c) Independent Fisheries Ltd., (IFL)

d) Iwi Collective Partnership (ICP)

e) Ngati Porou Seafoods Ltd., (NPSL)

f) Our Seas Our Future (OSOF)

g) Sanford Ltd., (Sanford)

h) Sealord Group Ltd., (Sealord)

i) Te Ohu Kaimoana (TOKM)

18 All submissions are attached to this paper for your reference.

SUBMISSIONS

19 ECO does not support an increase in the hoki TACC for 2014-15. The reasons given for this include a desire to avoid possible increases in bycatch associated with this fishery such as; seabirds, fur seals, and exceeding catch limits of fish bycatch species. ECO also wishes to ensure there is no increase in bottom trawling in this fishery and associated benthic impacts, and to recognise the ecological importance of hoki in the EEZ.

20 OSOF is a non-profit coastal and marine conservation advocacy group based in Dunedin. They support Option 1 (status quo) for similar reasons as those provided by ECO; to limit benthic impacts, the risk to seabird mortality and to protected marine mammals, as well as related fish bycatch.

21 NPSL supports the status quo (Option 1) for hoki to retain the TAC at 151,540 tonnes and the TACC at 150,000 tonnes. NPSL is of the view that whilst they usually support increases if the science suggests it is sustainable, there have been steady increases in the hoki TAC since 2008-09 and now believe the time has come to take a more cautionary approach. NPSL therefore believes the current catch allowances are the best way to ensure the long term sustainability of the fishery.

22 ICP is a collective of 14 iwi across the North Island that have pooled their annual catch entitlement (ACE) together, including hoki, to improve management returns, and opportunities within the fisheries sector.[1] ICP states that it is open to consider both Options 1 and 2 which are to retain the status quo or increase the TACC to 160,000 tonnes respectively. While ICP acknowledges the science 'might support an increase to 160,000 tonnes, it perhaps becomes a question of best utilisation'. On the utilisation question they are neutral and defer to other submitters who they feel are more experienced in the harvest, processing and marketing of hoki.

23 IFL is strongly opposed to any increase for hoki TACC given the increase from last year of 20,000 tonnes is 'yet to be caught' and no increases should be made to the eastern stock as this is the juvenile grounds. IFL is concerned that a further increase in 2014-15 could result in the fishery facing a reduction in future years as a result. They would rather see a cautionary approach taken for this year with a further stock assessment undertaken next year with the intention of allowing an increase in the TACC in 2015-16.

24 Sanford does not support an increase in the TACC for hoki and have opted for the status quo (Option 1) to be retained. While they have no concerns about the sustainability of this fishery they believe that a conservative approach longer term is warranted. Sanford further adds a lack of conclusive evidence to suggest that the fishery can sustain an increased level of catch exists and advocates for a slower, more cautious approach.

25 DWG is the industry organisation that represents holders of quota in New Zealand's major deepwater fisheries. DWG submits on behalf of its shareholders who own HOK 1 quota.[2] The submission summarises feedback received from shareholders on preferred Options for the TACC:

a) 22.58% of shareholders represented by DWG support the status quo (Option 1)

b) 68.91% of shareholders support a variation to Option 2 that was consulted on, namely a 10,000 tonne increase to the HOK 1 TACC from the western stock only (MPI's Option 2 proposed a 5,000 tonne TACC increase to both the western and eastern stock catch limit)

c) No DWG shareholders support Option 3.

26 Sealord strongly supports an increase in the hoki TACC for 2014 (Option 2), however, with an amended catch split arrangement which, they believe, should apply the 10,000 tonne increase only to the western stock. Hoki is a key species in the Sealord inventory and for some time the company has preferred a precautionary approach to ensure a sustainable hoki fishery. Sealord is supportive of the 2014 stock assessment for hoki as their vessels are once again catching 'very large' hoki off the WCSI, the results they

[1] Note that NPSL is also a member of the Iwi Collective Partnership and support the final submission of DWG.

[2] Note that Sealord, Sanford, ICP and TOKM are shareholders of the DWG and their views are represented in DWG's submission in addition to individual submissions made.

say, of more stable recruitment over the past decade, and a sign that stocks are well above the agreed management target range.

27 Sealord is of the view that one major gain of the management strategy to restrict catches of juvenile hoki on the Chatham Rise to maximise yield per recruit, has been the rapid rebuild of the western stock. Therefore, they do not believe it is appropriate to increase catches from the eastern stock.

28 TOKM supports Option 2, an increase on the TACC of 10,000 tonnes. The rationale for this position is MPI's IPP which notes both the eastern and western stocks well above that which will produce the B_{MSY} and above the hoki management target range of 35 – 50% B_0. TOKM adds that given the current status of both stocks, they support the increase being applied to the western stock.

29 There was no support amongst submitters for Option 3.

Rationale for Management Intervention

30 In 2014, the Deepwater Fisheries Assessment Working Group agreed that the 2014 hoki stock assessment was of high quality and met New Zealand's Science and Research Information Standard. The hoki assessment was not reviewed by MPIs Fisheries Assessment Plenary this year, however the model was subjected to a fully independent peer review by a panel of internationally recognised stock assessment experts in February 2014.

31 The review panel considered the results of the hoki assessment to be satisfactory and robust in regard to resource status and trends. The panel suggested a number of potential technical improvements but raised no issues of major concern.MPI is confident that the results from the assessment can therefore be accorded a high weight in fisheries management decisions.

32 The 2014 hoki stock assessment estimates the current status of the western hoki stock to be 59% B_0 and the eastern stock to be 60% B_0. Both stocks are currently above B_{MSY} for hoki (25-27% B_0) and above the hoki management target range of 35-50% B_0. These stock status estimates indicate that higher yields could be investigated from both stocks.

33 There is always some uncertainty associated with stock assessment, however, in this case that uncertainty is addressed in the assessment outputs, via confidence intervals, and has been taken into account when developing and assessing management Options. The major sources of uncertainty in the hoki assessment relate to:

- the assumed proportion of the strong 2011 year class that will recruit to the eastern or western stock.

  The strong 2011 year class was first observed as one year olds during the 2012 Chatham Rise trawl survey. To ensure a further observation of this year class, the Chatham Rise trawl survey scheduled for 2014 was bought forward to 2013. During the survey, it was determined that the 2011 year class was the fourth largest year class of two year olds on record. At present, the majority of this year class remain on the Chatham Rise, where juveniles from both stocks mix. Until these fish reach maturity, MPI is not able to predict what proportion of the year class will recruit to the eastern or western stock.

- the possible changes in the "catchability" [3] during the sub-Antarctic trawl survey time series.

  The sub-Antarctic trawl survey time series estimates abundance of the western hoki stock outside of the winter spawning season. The survey data shows large annual changes in the number of fish in each age class, which cannot be explained by changes in abundance, and are indicative of a change in survey catchability.

34 Despite that uncertainty, the current status of both stocks, being well above the upper bound of the management target range, still shows that a utilisation opportunity is available in the hoki fishery. The stock assessment and projections represent the best available information and MPI recommends increasing the TAC to take advantage of the opportunities available.

Management Measures Proposed

35 The TAC for the hoki stocks will be set under section 13(2)(a) of the Act, because the stock is estimated to be above B_{MSY}. TAC setting is also guided by the hoki harvest strategy which requires both stocks to fluctuate within the management target range of 35-50% B_0.

36 The management target range is set above estimates of deterministic B_{MSY} [4] for hoki, to provide greater certainty that the hoki stocks will remain at or above B_{MSY} and can sustain the fishery in the long term. The Soft and Hard Limit reference points in the hoki harvest strategy are set at 20% and 10% B_0, respectively.

37 Options for setting the HOK 1 TAC were informed by the results of a series of five year forward projections of future stock status. Projections are generated by the stock assessment model and assume a range of catch and recruitment scenarios to provide estimates of future stock status in relation to B_0 and the target and limit reference points.

38 The projected 2019 stock status, under each scenario, are presented in Table 2. The "base" and "sensitivity" projections illustrate the effect of changing the assumptions related to the key uncertainties in the assessment model - the recruitment of the 2011 year class, and the catchability of the sub-Antarctic trawl survey.

39 The assumption of how the large 2011 year class recruits to either the eastern or western stock also impacts the trajectories of the two stocks. The assessment model estimates that the 2011 year class mainly recruits to the western stock, potentially inflating the estimates of stock status for the western stock in the 5-year projections. The assumption that the 2011 year class will recruit evenly to the eastern and western stock results in lower stock status for the western stock, offset by higher projected stock status in the eastern stock.

40 The assumption that 'catchability' of the sub-Antarctic trawl survey changed in 2008 leads to a less optimistic estimation of the western stock status both in 2014 and in the five-year projections. This assumption has little effect on the estimation of the eastern stock status, leading only to a slight increase in estimated stock status.

[3] Catchability refers to the proportion of the stock assumed to be seen or available to an acoustic or trawl survey
[4] It is important to note that deterministic estimates of B_{MSY} are not considered to be appropriate as management targets as they rely on perfect information, which is unrealistic.

41 The combined effect of changing these two assumptions on the five-year projections is shown in Table 3. About half of the difference in the projections of 2019 stock status for each stock can be explained by the 'catchability' assumption and the remainder of the difference is explained by the recruitment assumption.

Table 2: Projection results - expected median stock status in 2019 under four different catch assumptions

Option	TACC	Eastern limit (t)	Western limit (t)	East stock (% B_0)		West stock (% B_0)	
				Base	Sensitivity	Base	Sensitivity
Option 1 (status quo)	150,000	60,000	90,000	62	70	70	52
Option 2	160,000	65,000	95,000	61	69	69	50
Amended Option 2 (Recommended)	160,000	60,000	100,000	62	70	67	49
Option 3	170,000	70,000	100,000	59	67	67	49

42 All the projections, under both alternative assumptions and all catch levels that were investigated, result in both hoki stocks remaining around the upper bound of the management target range (50% B_0) through to 2019 (Table 2).While MPI has in previous reviews indicated that it is not the intention to manage the hoki stocks above the management target range, the views indicated in submissions show that quota owners are comfortable with taking such a conservative approach. This is particularly the case with the eastern stock, which is now well above the management target range and yet submitters state their preference that the catch limit or this stock be retained at the status quo.

OPTION 1 - STATUS QUO

43 Under this Option the TAC would remain at 151,540 tonnes and the TACC would remain at 150,000 tonnes. The current catch split arrangement would also remain unchanged under this Option.

44 A majority of submissions (six) favoured this Option including those industry submitters in favour of a more conservative approach; and the environmental NGOs (ECO and OSOF) who cite the uncertainty in the assessment and bycatch concerns.

45 Support for this Option also included ICP which favoured both Options 1 and 2. While Sanford has 'no concerns about the sustainability of this fishery' they prefer a conservative approach longer-term. ICP acknowledges that while the science 'might support an increase' it is more a question of best utilisation of this fishery.

46 MPI's view is that a TAC increase is supported by projections from the 2014 stock assessment. All projections, even including the most pessimistic assumptions regarding the 2011 year class and catchability of the Sub-Antarctic trawl survey indicate that the stock would remain above the management target range, and above B_{MSY}, if you chose to retain the status quo. This Option will therefore result in lost utilisation opportunities.

AMENDED OPTION 2 – RECOMMENDED (THIS OPTION NOW COMPRISES A DIFFERENT CATCH SPLIT ARRANGEMENT FROM THAT ORIGINALLY CONSULTED ON)

47 MPI consulted on a 10,000 tonne increase that was apportioned equally between the eastern and western stocks. On the basis of submissions received, MPI has decided to amend Option 2 to reflect stakeholder preference.

48 Option 2 now proposes:

- To increase the TAC from 151,540 tonnes to 161,640 tonnes
- To increase the TACC from 150,000 tonnes to 160,000 tonnes
- To allocate the additional 10,000 tonnes to the western stock catch limit (*different to Option 2 as consulted on*)
- The allowance for other sources of fishing related mortality be increased from 1500 tonnes to 1600 tonnes (1% of the TACC)
- No changes to customary or recreational allowances.

49 When developing the options for consultation, MPI considered the higher stock status of the eastern stock and the uncertainty regarding which stock the strong 2011 year class will recruit to. Splitting any TACC increases evenly between the two stocks appeared to be an appropriate split of fishing effort across the fishery.

50 However, submissions have led MPI to re-consider the allocation of any TACC increase to the western stock only. Of nine submissions received, three favoured an increase in the TACC provided the catch split was varied from that originally proposed by MPI's consultation document. These submitters are unwilling to increase catch from the Chatham Rise due to the risks of catching juvenile fish and negatively effecting future recruitment. A fourth submission was 'open to consider both Options 1 and 2' but presented no view as to the catch split arrangement.

51 MPI considers this change to Option 2 will not increase the probability of the western stock declining below the management target range. The impact of a 10,000 tonne increase from the western stock was investigated within the original projections for Option 3. The status of the western stock in that projection was estimated to remain within the management target range through to 2019 with a 10,000 tonnes increase to the catch limit.

52 In previous reviews, TAC increases have been allocated to the western stock to limit fishing pressure on juvenile hoki from both stocks that exist on the Chatham Rise. Much of the hoki fleet is greater than 46m in length so is unable to access the Cook Strait spawning fishery, where the eastern hoki stock spawns. Consequently the majority of hoki from the eastern stock are harvested on the Chatham Rise, risking increased mortality of juvenile fish from both stocks. Allocation of TAC increases to the western stock provides greater ability to limit fishing pressure on juvenile fish.

53 The projections show that both stocks could likely support a larger catch increase without falling much below the upper end of the management target range. This Option also represents a relatively conservative approach to utilising the available biomass.

54 Based on export figures from 2013 of $1.45/kg greenweight, a 10,000 tonne increase in the TACC may result in an additional $16.9 m in revenue.[5]

OPTION 3

55 Option 3 proposes:

- To increase the TAC from 151,540 tonnes to 171,740 tonnes
- To increase the TACC from 150,000 tonnes to 170,000 tonnes

[5] Based export figures for 2013 calendar year of $1.45 / kg greenweight. This uses frozen headed and gutted (HGU) to estimate the greenweight export price as this form accounted for 28% of export earnings and 45% of export volume for hoki in the 2013 calendar year.

- To allocate the additional 20,000 tonnes evenly between the eastern and western stocks (10,000 tonnes each)
- To increase the allowance for other sources of fishing related mortality from 1500 tonnes to 1700 tonnes (1% of the TACC)
- No change to customary or recreational allowances.

56 Implementing this Option would also be unlikely to cause a sustainability risk for either hoki stock, given current stock status is so far above the target range. The projections indicate that the stocks will remain within, or be above the upper bound of, the management target range, which gives MPI confidence that this Option will not adversely affect the sustainability of the stocks over the next five years.

57 The status of the western stock in 2019 is projected to be 49% B0 under the most pessimistic model assumptions, while the eastern stock would be at 59% B0. MPI also intends to review these management settings well before 2019, mitigating any risk to the hoki stocks from this level of increased catch.

58 There was no support for this Option.

59 MPI considers the stock to be in a healthy position and able to support the 20,000 tonnes increase proposed in the TACC. However, MPI does not favour this Option due to a total lack of support from submitters.

60 Based on export figures from 2013 of $1.45/kg greenweight, a 20,000 tonne increase in the TACC may result in an additional $29 m in revenue.

Assessment of Management Options

61 This section describes the management Options available for your consideration in terms of how they will ensure that your relevant statutory obligations are met.

62 The MPI considers that all Options presented in this paper meet the purpose of the legislation as set out under section 8 of the Act in that they provide for utilisation in the hoki fishery while ensuring sustainability. Each management Option proposed will ensure the long term sustainability of the stock. Option 1 is more cautious, but is likely to limit utilisation opportunities. In contrast, increasing the TAC under Option 2 or 3 would allow for increased utilisation without adversely affecting the sustainability of the stock.

SECTION 13 – SETTING THE TAC

63 Section 13(2) of the Act requires you to set a TAC that:

a) Maintains the stock at or above a level that can produce a maximum sustainable yield, having regard to the interdependence of stocks;

b) Enables the level of a stock whose current level is below that which can produce the maximum sustainable yield to be altered

i. in a way and at a rate that will result in the stock being restored to at or above a level that can produce the maximum sustainable yield, having regard to the interdependence of stocks; and

ii. within a period appropriate to the stock having regard to the biological characteristics of the stock and any environmental conditions affecting the stock; or

c) Enables the level of any stock whose current level is above that which can produce the maximum sustainable yield to be altered in a way and at a rate that will result in the stock moving towards or above a level that can produce the maximum sustainable yield, having regard to the interdependence of stocks.

64 Under section 13 you are required to set a TAC for the entire hoki stock as a single unit of management (i.e. the combination of the eastern and western biological stocks). Given that hoki is assessed to be above a level that can produce the maximum sustainable yield, MPI considers that you should set a TAC under section 13(2)(c), having regard to the interdependence of stocks.

65 Bycatch species of the hoki fishery are predominantly species which are managed in the QMS. This is discussed in more detail below, but MPI considers there is no information to suggest that the interdependence of stocks should affect where the TAC is set for hoki. MPI considers that given the information presented above, your obligations under section 13(2)(c) are met and increasing the TAC from 151,540 to either 161,640 or 171,740 tonnes will ensure the stock remains at or above a level that can produce the maximum sustainable yield.

SECTION 13(3) – RATE OF CHANGE

66 Section 13(3) requires that, in considering the way and the rate that the stock may be moved towards a level that can produce MSY, you shall have regard to such social, cultural and economic factors as you consider relevant.

67 There is no statutory guidance on what an appropriate ‘way and rate’ might be in any given case for the purposes of applying section 13(2); it is a matter for you to determine having regard to social, cultural and economic factors.

68 MPI considers that an increase to the HOK 1 TAC is justified given the stock is very likely to be above B_{MSY}. The majority of the submissions received indicate support from the commercial sector for increasing the HOK 1 TAC and realising the accompanying economic benefits. As discussed, the majority of DWG shareholders, Sealord, ICP and TOKM supported 10,000 tonne increase being applied to the western stock only. However, environmental groups ECO and OSOF supported no increase, a position shared by 22% of DWG shareholders, including NPSL, Sanford and IFL. ICP were open to either Option 1 or Option 2

69 Given the very small recreational and customary catch from HOK 1, and the retention of the current allowances, the MPI considers increasing the TAC under either of the proposed Options will not have an adverse impact on non-commercial fishers.

SECTION 21 – ALLOCATING THE TAC

70 The TAC must be apportioned among the relevant sectors and interests as required under sections 20 and 21 of the Act. Section 21 prescribes that you shall make allowances for Maori customary non-commercial interests, recreational fishing interests, and for any other sources of fishing-related mortality, before setting the TACC.

Recreational and customary allowances

71 Recreational and customary fishers do not target hoki as it is predominantly an offshore fishery and the data on customary and recreational catches of hoki in recent years is negligible. However, there are references to customary catches of hoki occurring in the past. MPI also considers it likely that a small amount of hoki is caught by recreational fishers while fishing for other middle-depth species.

Other sources of fishing-related mortality

72 The MPI proposes an allowance for other sources of fishing-related mortality of 1% of the TACC. This would be 1,600 tonnes under Option 2 and 1,700 tonnes under Option 3. This allowance is required to take account of hoki mortality that is not reported such as hoki lost due to burst nets or dumping of damaged hoki.

SECTION 10 – INFORMATION PRINCIPLES

73 Under section 10 of the Act, you must take into account the following information principles:

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.

74 MPI considers that the best available information has been used as the basis for the recommendations herein. All science information upon which the management Options are based has been peer reviewed by one of MPI's Fisheries Assessment Working Groups and meets the Research and Science Information Standard for New Zealand Fisheries.

SECTION 11 CONSIDERATIONS

75 Under section 11 of the Act, before setting or varying any sustainability measure for any stock, you must:

a) Section 11(1)(a): take into account any effects of fishing on any stock and the aquatic environment. No information about any effects of fishing on any stock or on the aquatic environment, additional to that discussed elsewhere in this paper, is considered relevant to the review of sustainability measures for this stock at this time.

b) Section 11(1)(b): take into account any existing controls under the act that apply to the stock or area concerned. For this stock the measures that apply currently are a TAC, TACC and allowances for customary take, recreational take, and incidental fishing-related mortality. no other controls under the act specifically apply to this stock.

c) Section 11(1)(c): take into account the natural variability of the stock. This is incorporated into the discussion above on setting the TAC for this stock.

d) Sections 11(2)(a) and (b): have regard to any provisions of any regional policy statement, regional plan, or proposed regional plan under the resource management act 1991 and any management strategy or management plan under the conservation act 1987 that apply to the coastal marine area and that the minister considers relevant. MPI is not aware of any such policy statements, plans or strategies that should be taken into account for this stock.

e) Section 11(2)(c): have regard to sections 7 and 8 of the Hauraki Gulf Marine Park Act 2000 that apply to the coastal marine area and the minister considers relevant. There have only ever been negligible catches of hoki in the Hauraki Gulf (<20 kgs in 10 years). There is also no target fishing for hoki, and it is not taken by recreational fishers in the Hauraki Gulf. Therefore, MPI considers there are no relevant considerations under the Hauraki Gulf Marine Park Act 2000.

f) Section 11(2)(d): have regard to any planning document lodged 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 by you to be relevant. MPI is not aware that any such planning documents have been lodged at this time.

g) Section 11(2a)(b): take into account any relevant and approved fisheries plans. the application of the national fisheries plan for deepwater and middle-depth fisheries is discussed in the following section.

h) Sections 11(2a)(a) and (c): you must take into account any conservation or fisheries services, or any decision not to require such services. MPI does not consider that existing or proposed services materially affect the proposals for these stocks. No decision has been made to not require a service in this fishery at this time.

SECTION 11A – FISHERIES PLANS

76 MPI, 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 the long-term goals and objectives for deepwater fisheries. Fishery-specific chapters set specific Operational Objectives that will be delivered annually for each key deepwater species, and establish performance indicators to assess if the management objectives have been delivered.

77 The fishery-specific chapter of the National Deepwater Plan for hoki was completed in 2010. You are required to take the National Deepwater Plan into account when making a decision on the management Options presented for HOK 1. The management Options proposed in this FAP are consistent with the dual Outcomes of the National Deepwater Plan:

a) The Use Outcome: Fisheries resources are used in a manner that provides greatest overall economic, social and cultural benefit

b) The Environment Outcome: The capacity and integrity of the aquatic environment, habitats and species are sustained at levels that provide for current and future use.

78 These dual Outcomes are given effect to by 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.

79 MPI considers that the management Options presented in this FAP will contribute towards the achievement of these three Management Objectives.

80 There are two Forum Fisheries Plans relevant to the HOK 1 fishery area. Te Waka a Maui me ona Toka Iwi Forum has produced the Te Waipounamu Iwi Forum Fisheries Plan, and the Rekohu/Wharekauri iwi has produced the Chatham Islands Fisheries Forum Plan. Both these plans cover HOK 1 and identify hoki as a taonga species. Te Waipounamu Iwi Forum Fisheries Plan contains six Management Objectives, two of which are relevant to the management of HOK 1:

a) Management Objective 3: to develop environmentally responsible, productive, sustainable and culturally appropriate commercial fisheries that create long-term commercial benefits and economic development opportunities for South Island iwi

b) Management Objective 5: to restore, maintain and enhance the mauri and wairua of fisheries throughout the South Island.

81 MPI considers that the management options presented in this advice paper will contribute towards the achievement of these two management objectives. All options would ensure that the fishery remains sustainable and that environmental impacts are minimised.

SECTION 9 – ENVIRONMENTAL CONSIDERATIONS

82 Section 9 of the Act sets out the following environmental principles. These principles must be taken into account when implementing management measures under the Act.

a) Sections 9(a) and (b) require all persons exercising or performing functions, duties, or powers under the Act to take into account that associated or dependent species be maintained at or above a level that ensures their long-term viability, and that the biological diversity of the aquatic environment should be maintained.

b) Section 9(c) requires all persons exercising or performing functions, duties, or powers under the Act to take into account the principle that habitat of particular significance for fisheries management should be protected.

83 MPI is confident that the proposed Options are consistent with the requirements of section 9. Key environmental issues associated with the HOK 1 fishery and how they will be affected by the proposals to increase the TAC are discussed below.

Interdependence of stocks

84 The main commercial bycatch species in the hoki fisheries are hake, ling and silver warehou. Options 2 and 3 in this IPP would result in increased hoki fishing effort.

85 All three hake stocks have been assessed in the last three years. All stocks were assessed to be Likely or Very Likely to be above the default management target of 40% B_0. It is considered that all stocks could probably support higher catch levels, especially as all three TACCs have been under-caught in recent years. Any increase in the hoki TAC is unlikely to cause catches to exceed HAK TACCs or impact the sustainability of any hake stock.

86 Stock assessments for all ling stocks potentially affected by an increase in hoki fishing effort have been completed in the past four years. All stocks were estimated to be above the default management target of 40% B_0 and catch limits were increased in both LIN 5 and LIN 7 in 2013. MPI considers that increased catches of ling associated with additional hoki fishing effort are unlikely to impact on the sustainability of any ling stock.

87 The silver warehou TACC for the area that includes the WCSI (SWA 1) has been under-caught in recent years. Levels of additional SWA catch resulting from the proposed increased hoki fishing effort in this area are unlikely to have a negative impact on the stock.

88 The TACC for SWA 3 has been over-caught for the past 3 years and the TACC for SWA 4 was exceeded in 2012-13. It is possible that increasing the eastern hoki stock catch limit would result in the TACCs for SWA 3 and SWA 4 being over-caught. An initial analysis of catch per unit effort (CPUE) and length data from those areas suggested that these stocks may be able to support additional catch without impacts on sustainability. Catches will be monitored with a view to potentially reviewing these TACCs if they are over-caught again.

89 For these reasons, MPI is satisfied that any increase to the hoki TAC is unlikely to have an unacceptable impact on the sustainability of the key species that are caught in conjunction with hoki. Fish bycatch levels in the fishery will continue to be monitored.

Protected species interactions

90 Both proposed Options 2 and 3 would result in increased hoki fishing effort. This may result in increases to the known interactions with protected species, which are outlined below. However, MPI considers that current management processes will ensure that the long-term viability of these affected protected species populations is not negatively impacted.

Seabirds

91 Management of seabird interactions with New Zealand's commercial fisheries is driven through the 2013 National Plan of Action to Reduce the Incidental Captures of Seabirds in New Zealand fisheries (NPOA-Seabirds). The NPOA-Seabirds has established a risk-based approach to managing fishing interactions with seabirds, targeting management actions at the species most at risk.

92 The level of risk from commercial fishing to individual seabird species has been identified through a comprehensive hierarchical risk assessment and risk screening

approach that underpins the NPOA-Seabirds. Hoki fishing effort generally contributes a relatively low proportion of the total risk score for most seabird species. Table 5 also provides the seabird capture information in the hoki fishery for the period from 2007-08 to 2011-12.

93 There are three species captured in hoki fisheries which are estimated to be at very high risk from commercial fishing in New Zealand waters. These are the New Zealand white-capped albatross, Salvin's albatross, and Southern Buller's albatross. The middle depth commercial fisheries have been estimated to contribute between 6% and 40% of the total risk scores for these species.

94 Hoki fishing is estimated to contribute roughly 10% of the total risk for NZ white-capped albatross from New Zealand fishing activity and has, on average, comprised around 6% of the total estimated captures. For the Salvin's albatross, Hoki fishing is estimated to contribute just under 20% of the total risk, and has, on average, comprised around 11% of the total estimated captures. The proportion of risk contributed by hoki fishing is higher for these two species than the proportion of estimated on-deck captures because the risk assessment incorporates cryptic mortality, including potentially fatal captures with trawl warps that do not lead to an observed capture. Hoki fishing is also estimated to contribute roughly 40% of the estimated risk to Southern Buller's albatross from New Zealand fishing activity. There is no estimate of the proportion of overall Southern Buller's captures that are attributed to hoki fishing.

95 In 2011-12, 61 seabird captures were observed from 2,580 observed hoki target tows. Subsequent modelling of the level of effort and the number of observed seabird captured across the different hoki grounds provides an estimate of total seabird captures in hoki fisheries of 265 seabirds in 2011-12 (Table 5).

Table 3: Estimated and observed seabird captures in hoki fisheries 2007-08 to 2011-12

	Observed captures	Estimated captures	% tows observed	Total # of tows	Capture rate (per 100 tows)
2011-12	61	265	22.8	11,332	2.36
2010-11	54	335	16.6	10,405	3.13
2009-10	53	228	20.7	9,966	2.58
2008-09	37	200	20.3	8,176	2.23
2007-08	28	155	21.4	8,786	1.49

96 Increasing the hoki TACC will result in additional fishing effort and potentially a proportional increase in captures of seabirds in hoki fisheries (i.e. potentially a 7 to 13% increase in captures from hoki trawling). MPI will continue to work with industry stakeholders to reduce the risk to key seabird species.

97 A range of measures are currently in place or are under development. Mandatory seabird mitigation measures include the requirement that all trawlers over 28 m in length deploy bird mitigation devices during fishing. Research projects are currently underway that aim to improve the performance of these mitigation devices.[6]

98 Non-regulatory measures are also used to reduce the risk of seabird interactions with the hoki fleet. Every vessel over 28m in length has developed a specific vessel management plan (VMP) that sets out the onboard practices vessels must follow to reduce the risk to seabirds, including offal management procedures and good factory cleanliness. MPI

[6] More information on these projects can be found at the Department of Conservation's Conservation Services Programme website: www.doc.govt.nz/csp

monitors each vessel's performance against its VMP and works with DWG to rectify any non-adherence and also to assist the fleet improving their offal management capacity. These practices will continue during 2014-15.

Marine Mammals

99 The hoki fisheries are also responsible for some fur seal mortalities, particularly the fisheries on the WCSI and in Cook Strait. During the 2011-12 fishing year it is estimated that 200 fur seal incidental captures occurred in the hoki fisheries.

Table 4: Estimated and observed NZ fur seal incidental captures and capture rates in hoki fisheries 2007-08 to 2011-12

Year	Observed captures	Estimated captures	% tows observed	Capture rate (per 100 tows)	Total # of tows
2011-12	33	200	22.8	1.28	11,332
2010-11	24	172	16.6	1.39	10,405
2009-10	30	173	20.7	1.45	9,966
2008-09	37	202	20.3	2.23	8,176
2007-08	58	311	21.4	3.09	8,786

100 The rate of fur seal captures has declined fairly steadily since 2005. Increasing the TACC may result in additional fur seal mortalities, but MPI notes that the population is believed to be increasing and considers it is unlikely that the current level of mortalities is affecting the long-term viability of the national population.

101 New Zealand sea lions are rarely captured in hoki fisheries, with two observed captures having been reported in the past 10 years. In 2011-12, no New Zealand sea lions were observed captured in hoki fisheries. MPI considers that the risk to sea lions from hoki fishing is low, but will continue to work with DWG to monitor and minimise marine mammal captures in deepwater fisheries.

102 A risk assessment for marine mammals is underway which will provide further information on particular species at risk from fishing and allow management to be targeted based on risk. This work will inform future management of the New Zealand fur seal and New Zealand sea lion with respect to the deepwater fisheries, including that for hoki. Results are expected in the second half of 2014.

Benthic impacts

103 Although hoki is a mid-water species, it is often caught by bottom trawl or midwater trawl fished on or near the bottom which will have an impact on benthic habitat.

104 Management measures to address the effects of deepwater trawl activity have focused on 'avoiding' these effects. This has been achieved through closing areas to bottom trawling; first with seamount closures in 2001 and then with Benthic Protection Areas (BPAs). The implementation of BPAs in 2007 effectively closed approximately 30% of the New Zealand EEZ to bottom trawling. A monitoring regime to ensure these closures are adhered to was also implemented.

105 The proposals to increase the TACC for hoki will result in an increase in fishing effort. Any change in the level of benthic interactions from increased fishing effort is partially dependent on which stock the TACC increase is allocated to. In the spawning fisheries, the majority of fishing is carried out using mid-water trawl gear which has little contact with the seabed. Most of the additional effort from any increase in the hoki TACC will

be on grounds that have previously been fished, somewhat limiting further benthic impacts.

106 MPI will continue to monitor the trawl footprint of the hoki and other deepwater fisheries annually.

SECTION 75 - DEEMED VALUES

107 Section 75 of the Act requires that you set deemed value rates for every stock in the QMS. This is to ensure there are appropriate incentives for fishers to acquire or maintain sufficient Annual Catch Entitlement (ACE) so that fishing effort does not result in catch limits being exceeded.

108 The current deemed value rates were revised in 2007 and are set as follows:

a) Annual deemed value rates set at $0.90 per kg

b) Interim deemed value rates set at $0.45 per kg

c) Differential deemed value rates apply at 102% of catch in excess of ACE at a rate of $1.30 per kg.

109 These deemed value rates were consulted on in the IPP as required by Section 75A of the Act; no comments were received. MPI considers these deemed value rates have been effective in constraining fishing effort to the TACC (although recognising that information on catch levels against the current TACC of 150,000 tonnes is not yet available). Despite recent increases in the hoki ACE trading price, the current annual deemed value rate is still set between the ACE trading price and the port price for the stock. The high differential deemed value rate also provides an appropriate incentive to limit catch to ACE holdings. The Ministry is satisfied that under both management Options proposed the deemed value rates are set at an appropriate level to limit catch to the TACC.

110 Fishing activity will be monitored during the 2014/15 fishing year and if there is evidence that fishers are either fishing in excess of the TACC or fishing in excess of their individual ACE holdings then the deemed value rates will be reviewed for the 2015/16 fishing year.

Other Management Measures

111 MPI is not proposing to make any changes to the deemed value rates for hoki, or any other management measures.

CATCH SPLIT MONITORING

112 The catch split arrangement has been adhered to for the last two years. MPI acknowledges that it is too early to assess the performance of the arrangement in the 2013/14 fishing year but expects that adherence will continue.

113 Adherence to the catch split is managed and reported by FishServe on behalf of the DWG. All ACE generated at the start of the fishing year is split into either HOK 1E (hoki that can be harvested from the eastern stock) or HOK 1W (hoki that can be harvested from the western stock) ACE. Catch against each type of ACE is then reported, enabling in-season monitoring of performance against the catch split arrangement. The performance against the catch split is verified on a quarterly basis for

the first three quarters and monthly for the remainder, and is reported to both DWG and MPI for review.

114 MPI is confident in the continued adherence of the industry to the voluntary catch split arrangement in the HOK 1 fishery to take any increase solely from the western stock.

COMPLIANCE ISSUES

115 MPI considers there may be some compliance risks with the proposed increase under both Options 2 and 3 as this will result in additional fishing effort on the western stock and particularly in the WCSI spawning fishery. There is a risk that this increased fishing effort may create an incentive for operators fishing the WCSI fishery to dump bycatch species where there is a constraining TACC and insufficient available ACE to balance catch.

116 Risks associated with the increase will be addressed through regular analysis of catch returns of hoki and bycatch species as well as increased observer coverage across the fisheries and monitoring of information collected by observers.

117 MPI's compliance group has also completed a risk profile of compliance issues in hoki fisheries with a focus on the west coast South Island. This profile guides monitoring and enforcement activities to ensure continued compliance with all regulations.

Conclusion

118 The most recent assessment of the hoki stock estimates the stock to be above B_{MSY} and above the upper bound of the management target range of 35-50% B_0. This indicates that utilisation opportunities exist and a higher catch limit is likely to be sustainable.

119 Of the three Options presented in this paper, MPI recommends Option 2, that you increase the HOK 1 TAC by 10,000 tonnes to 161,640 tonnes. The increase would be assigned in its entirety to the western hoki stock. This recommendation will allow the industry to take advantage of the current high stock biomass, and recognises that the majority of submissions presented the wish to harvest any TAC increase only from the western stock.

Recommendations

120 MPI recommends that you:

Note that the prerequisites for the setting or varying of the TAC, TACC and allowances (which include consultation and the provision of input and participation in the decision making process of tangata whenua with a non-commercial interest in the stock or an interest in the effects of fishing on the aquatic environment in the area concerned) have been complied with.

Noted

AND, choose either:

Option 1 – status quo

a) **Agree** to retain the existing TAC for HOK 1 at 151,540 tonnes and within the TAC:

i. Retain an allowance for recreational fishing interests of 20 tonnes;

ii. Retain an allowance for Māori customary non-commercial fishing interests of 20 tonnes;

iii. Retain an allowance of 1,500 tonnes for other sources of fishing-related mortality;

iv. Retain the TACC at 150,000 tonnes.

Agreed / Not Agreed

AND

b) **Note** that the current catch split arrangement will also be retained

Noted

OR

Option 2 (MPI Recommended option)

c) **Agree** to increase the TAC for HOK 1 from 151,540 tonnes to 161,640 tonnes and within the TAC:

i. Retain an allowance for recreational fishing interests of 20 tonnes;

ii. Retain an allowance for Māori customary non-commercial fishing interests of 20 tonnes;

iii. Set an allowance of 1,600 tonnes for other sources of fishing-related mortality; and

iv. Set the TACC at 160,000 tonnes.

Agreed / Not Agreed

AND

d) **Note** that the 10,000 tonne TACC increase will apply to the western stock, with the current catch limit of 60,000 tonnes retained for the eastern stock.

Noted

OR

Option 3

e) **Agree** to increase the TAC for HOK 1 from 151,540 tonnes to 171,740 tonnes and within the TAC:

i. Retain an allowance for recreational fishing interests of 20 tonnes;

ii. Retain an allowance for Māori customary non-commercial fishing interests of 20 tonnes;

iii. Set an allowance of 1,700 tonnes for other sources of fishing-related mortality;

iv. Set the TACC at 170,000 tonnes

Agreed / Not Agreed

AND

f) **Note** that the 20,000 tonne TACC increase will be split equally between the western stock and the eastern stock.

Noted

Scott Gallacher
Deputy Director-General
Regulation and Assurance
for Director-General

Hon Nathan Guy
Minister for Primary Industries

/ / 2014

Challenger orange roughy (ORH 7A) – FINAL ADVICE PAPER

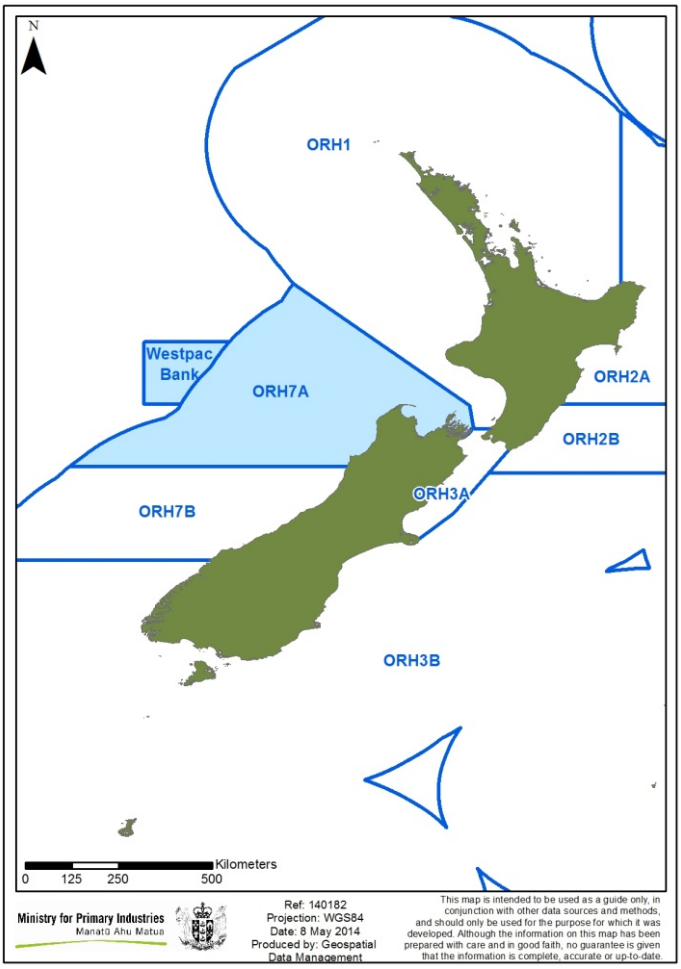

Figure 1: Map showing location and boundaries of ORH 7A

Executive Summary

1 The ORH 7A fishery has historically occurred in the southwestern region of the Challenger Plateau, both inside and outside of the New Zealand EEZ. Catches peaked in the late 1980s but dropped sharply in the early 1990s. The fishery was closed in 2000 on the basis of a biomass estimate indicating the stock was below 10% the unfished biomass (B_0). The fishery was re-opened in 2010 with a conservative TAC of 525 tonnes. This decision was informed by a biomass estimate from a 2009 survey that indicated stock size had increased to above the biomass that will produce the maximum sustainable yield (B_{MSY}).

2 The 2014 stock assessment of ORH 7A estimated the stock status as being above B_{MSY} and, at 42% B_0, above the upper bound of the current management target range for this stock (30-40% B_0). Stock status is estimated to have been increasing since the late 1990s (Figure 2).

3 The stock assessment indicates that a TAC increase is likely to be sustainable. To test the stock's response to increased catch levels, a series of five year projections were run based on the assessment model. Projections indicate the expected biomass trajectory in relation to the management reference points for orange roughy under different catch levels and form the basis for the options proposed in this paper.

4 MPI consulted on three options (Table 1) for catch limits in ORH 7A. The first option is the status quo, retaining the current TAC and allowances. Options 2 and 3 present TACs and allowances for two levels of increased catches.

5 MPI recommends that you implement Option 3, which would provide an appropriate increase in utilisation to take advantage of the utilisation opportunity available while also taking account of the uncertainty in the assessment results and environmental considerations.

Table 1: Options for the ORH 7A TAC, TACC and allowances in 2014/15 (tonnes)

	TAC	TACC	Customary Maori Allowance	Recreational Allowance	Other sources of fishing-related mortality
Option 1 (status quo)	525	500	0	0	25
Option 2	945	900	0	0	45
Option 3 (recommended)	1680	1600	0	0	80

6 MPI has reviewed annual, interim and differential deemed value rates and is proposing to increase the interim deemed value rate from $1.60 to $2.50 and the annual deemed value rate from $3.20 to $5.00 to align deemed value rates in this stock with other orange roughy stocks throughout the EEZ.

Background Information

7 Orange roughy is a slow-growing, long-lived fish that inhabits depths between 700 and 1500 m. On the basis of otolith ring counts, it is estimated that orange roughy may live up to 120-130 years, and are thought to spawn at around 32-41 years of age.

8 ORH 7A is a straddling stock [7] with the portion of the stock outside the EEZ [8] now managed by the South Pacific Regional Fisheries Management Organisation (SPRFMO). Historically, the Challenger fishery mainly occurred in the southwestern region of the Challenger Plateau, both inside and outside the EEZ.

9 Catches peaked in the late 1980s at about 10,000-12,000 t but then dropped sharply in the early 1990s and the fishery remained at 1,000-2,000 t for much of that decade before the fishery was closed in 2000. The fishery was re-opened in 2010 with a TAC of 525 tonnes on the basis of a biomass estimate which indicated that the stock was above B_{MSY}.

Consultation

10 Decisions to vary TACs are made under section 13(4) of the Fisheries Act 1996 (the Act). Therefore, the consultation requirements of section 12(2) apply. Decisions to vary TACCs are made under section 20(2), to which the consultation requirements of section 21(2) apply. These provisions require consultation with such persons or organisations representative of those classes of persons having an interest in the stock or the effects of fishing on the aquatic environment in the area concerned, including Maori, environmental, commercial and recreational interests.

11 MPI consulted on your behalf on the three options set out in Table 1 above. The standard consultation process has been followed, whereby initial position papers (IPPs) were posted on the MPI website and stakeholders were notified of this through a letter sent to approximately 200 companies, organisations and individuals.

12 There is also an obligation to provide for input and participation of tangata whenua and have particular regard to kaitiakitanga. MPI recognises that information on customary harvest is uncertain and invited iwi, Tangata Tiaki/Kaitaiki, and customary permit holders to submit information. However, no additional information was submitted during the consultation process. MPI will continue to work with tangata whenua to improve reporting and information on customary non-commercial catches.

SUBMISSIONS RECEIVED

13 Submissions were received from the following:

a) Deepwater Group Ltd., (DWG)

b) Environment and Conservation Organisations of New Zealand Inc., (ECO)

c) Iwi Collective Partnership (ICP)

d) Ngati Porou Seafoods Ltd., (NPSL)

[7] A straddling stock is defined as one which occurs both within the EEZ of a country and in an area beyond and adjacent to it.
[8] The main area fished outside the EEZ is about 25 nautical miles outside the EEZ boundary. Fish here are considered to be from the same biological stock as those inside the EEZ.

e) Our Seas Our Future (OSOF)

f) Sanford Ltd., (Sanford)

g) Sealord Group Ltd., (Sealord)

h) Te Ohu Kaimaona (TOKM)

14 All submissions are attached to this paper for your reference.

SUMMARY OF SUBMISSIONS

15 ECO does not support an increase in the TACC for this stock for 2014-15 and therefore considers that the status quo (Option 1) should be the preferred option. The reasons given for this are concerns, in their view, with uncertainty in the stock assessment which should prompt further research. Further, ECO considers the status quo should continue so as to avoid increases in bycatch of seabirds and to ensure no increase in the impacts of bottom trawling and associated benthic impacts within this fishery.

16 OSOF supports the status quo (Option 1) as this 'will best limit related bycatch' and also 'best limit interaction with protected marine species such as sharks, fur seals and seabirds' and 'limit effects on benthic habitats.' OSOF agrees with the efforts of MPI to work with stakeholders to reduce risks to seabirds, and supports use of multi-frequency acoustic surveys for stock assessments.

17 There was no support from submitters for Option 2.

18 DWG is the industry organisation that represents holders of quota in New Zealand's major deepwater fisheries. DWG advises that in a poll of its shareholders, based on tonnages of ORH 7A owned, there was unanimous support for Option 3, an increase in the TACC to 1,600 tonnes.

19 Sealord supports an increase in the TACC to 1,600 tonnes (Option 3). Sealord view this new catch limit as an interim step up from the current limit of 500 tonnes, and expect results from the 2014 survey to lend support to a future long-term higher yield for this stock. Sealord is mindful of the perceived previous reputational damage to New Zealand from overfishing of this stock and supports a conservative approach where possible. They also view it as important to send a strong message to SPRFMO and other states that have previously exploited orange roughy outside the EEZ that New Zealand is capable of fully exploiting this stock under UNCLOS.

20 NPSL supports Option 3, an increase in the TAC from 525 tonnes to 1,680 tonnes, increasing the TACC from 500 tonnes to 1,600 tonnes. The overarching reason for supporting this position is the belief that this is the best option at present to utilise this orange roughy fish stock in a sustainable manner.

21 ICP[9] supports an increase in the TACC from 500 tonnes to 1,600 tonnes (Option 3) staged over a three-year timeframe. ICP believes that while all the options provided by MPI are consistent with the harvest strategy for orange roughy, Option 3 allows better utilisation opportunities that the stock assessment indicates are available and sustainable.

22 Sanford indicates that it supports the DWG submission across all orange roughy stocks.

[9] Note that NPSL is also a member of the Iwi Collective Partnership and support the final submission of DWG.

23 Similarly, TOKM endorses the submission made by DWG on the orange roughy stocks under review (Option 3 for ORH 7A), and that while this increase is greater than for Option 2, the stock will still remain within the accepted management regime.

Rationale for Management Intervention

24 The 2014 Fisheries Assessment Plenary (the Plenary) agreed that the 2014 ORH 7A stock assessment was of high quality and met New Zealand's Science and Research Information Standard for New Zealand Fisheries.[10] MPI is therefore confident that the results from the assessment can be accorded a high weight in fisheries management decisions.

25 The Plenary agreed on an assessment model which assumes natural mortality (*M*) at 0.045, is single-sex and age-structured. The model includes the following data sources: biomass estimates from acoustic and trawl surveys (2006, 2009-2013); the trawl surveys from 1987-89; and age frequencies from the three trawl surveys. This information has been collected from within the EEZ and the Westpac Bank area (Figure 1) outside of the New Zealand EEZ.

26 The assessment estimates current biomass to be 42% B_0. The Plenary considered this to be Very Likely (> 90% probability) to be at or above the lower bound of the management target range (30% B_0) and About as Likely as Not (40-60% probability) to be at or above the upper bound of the management target range (40% B_0).

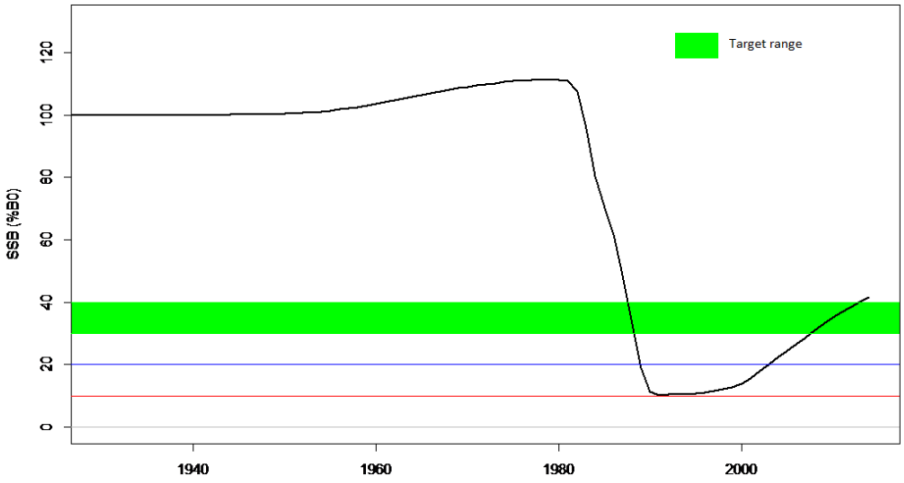

Figure 2: Estimated biomass trajectory for ORH 7A, an output of the 2014 assessment model.

27 Major sources of uncertainty associated with the stock assessment model include: the assumptions made about the proportion of the stock indexed by the combined acoustic and trawl survey; and age composition data used to determine the pattern of year class strengths, is available for only 3 years.

28 MPI considers this assessment to be robust to these uncertainties. Additional model runs investigated the sensitivity of the model to different values for natural mortality and to changes in the assumption regarding the proportion of the stock indexed by the survey biomass estimates. None of these sensitivity runs was significantly different from the base model run.

[10] Available at: http://www.fish.govt.nz/en-nz/Publications/Research+and+Science+Information+Standard.htm

Management Measures Proposed

29 Orange roughy is managed under section 13(2) of the Act, with TAC setting also guided by the orange roughy harvest strategy, which requires the stock to fluctuate within the target range of 30-40% B_0. This target was set above deterministic B_{MSY} (22-23% B_0)[11] to provide greater certainty that the stock will remain at or above B_{MSY} and can sustain the fishery in the long term.

30 Management actions are guided by a series of five year projections that provide estimates of future stock status in relation to B_0 and in relation to the management target range. The projections use the assessment model to estimate the likely stock status trajectory under different catch assumptions.

31 To inform the 2014 review of management settings, projections were produced assuming four different levels of catch taken from the ORH7A stock:

a) the status quo of 500 tonnes;

b) an increase of 400 tonnes to a catch limit of 900 tonnes;

c) an increase of 1,100 tonnes, to a catch limit of 1,600 tonnes; and

d) an increase of 1,600 tonnes to a catch limit of 2,100 tonnes.

32 Based on the results of the 2014 ORH 7A stock assessment, and the projections, MPI considers all the options proposed are consistent with the orange roughy harvest strategy and maintaining ORH 7A at or above B_{MSY}. All projections result in the stock remaining above the lower bound of the management target range (30% B_0) with high probability through to 2019 (Table 2). Even if a catch of 2,100 tonnes is assumed, the stock biomass would remain within the management target range of 30-40%B_0 over the next five years.

Table 2: Five year projection results, showing the expected median status of ORH 7A in 2019, and the probability that status is within or above management target range (30-40%B_0)

Projection	TACC (tonnes)	Projected stock status	Probability of being above 30% B_0	Probability of being above 40% B_0
a) Option 1 (status quo)	500	48% B_0	100%	92%
b) Option 2	900	46% B_0	100%	86%
c) Option 3 (recommended)	1,600	42% B_0	99%	66%
d) For information only	2,100	40% B_0	96%	48%

33 These projections were used to select the management options proposed during consultation. In recognition that these projections assume average recruitment in each of the next five years, which is uncertain, MPI included only the three lower catch levels as management options. MPI therefore has confidence that these options are robust to the uncertainty in future recruitment. Furthermore, additional surveys and stock assessment updates are planned and MPI intends to re-assess the catch limit well in advance of 2019.

34 Work is also ongoing to further investigate the appropriateness of the agreed management target range. Final results are not yet available although preliminary results

[11] It is important to note that deterministic estimates of B_{MSY} are not considered to be appropriate as management targets as they rely on perfect information, which is unrealistic

indicate that the management target range may need to extend upwards to provide an increased level of certainty that the stock will remain above the soft limit reference point. This could potentially result in aiming to have stocks fluctuating around 40% B_0 as the midpoint of that target range. Options 2 and 3 would be consistent with this approach if it was adopted in future.

OPTION 1 - STATUS QUO

35 Under this option the TAC would remain at 525 tonnes and the TACC would remain at 500 tonnes.

36 This option will result in lost utilisation opportunities. The stock assessment results provide confidence that the stock is likely to be able to support a harvest level greater than the status quo.

37 The 500 tonne TACC represented a conservative yield when the fishery was reopened in 2010. The estimated sustainable yield from the stock was determined to be 1,050 tonnes, and the TAC was set at half this figure. Under this conservative catch limit the stock has continued to rebuild and is now considered to be above the upper limit of the current management target range.

38 Environmental stakeholders (ECO and OSOF) preferred this option. Both provided similar reasons for this namely; uncertainty with the stock assessment and to avoid increases in interactions with protected species, fish bycatch, and to limit effects on benthic impacts. MPI disagrees that the uncertainties in the assessment require retaining such a conservative TACC. The assessment has investigated the impacts of the main uncertainties through sensitivity analyses and the results are considered robust. The environmental interactions of the fishery are addressed later in this paper.

OPTION 2

39 Option 2 proposes:

- To increase the TAC from 525 tonnes to 945 tonnes
- To increase the TACC from 500 tonnes to 900 tonnes
- To increase the allowance for other sources of fishing related mortality from 25 tonnes to 45 tonnes (maintaining it at 5% of the TACC)
- No changes to customary or recreational allowances.

40 The projections indicate that the status of ORH 7A would remain above the upper bound of the management target range for the next five years with a TACC of 900 tonnes. The projections also indicate that the stock could support a larger catch increase before it would be likely to decline below the upper bound of the management target range (Table 2). This option therefore presents a conservative approach to the current harvesting opportunity available in this stock.

41 You could take this conservative approach if you wished to have particular regard for the uncertainties associated with the stock assessment model. Under this option, the stock would be maintained at a higher biomass level than under Option 3, which would increase the likelihood that the stock would remain above the upper end of the management target range. However as mentioned, MPI is confident the assessment results are robust to these uncertainties.

42 This option would not take full advantage of the available utilisation opportunity indicated by the stock assessment and the current harvest strategy. This option would implement a catch level below the sustainable yield estimated in 2010. ORH 7A biomass has continued increasing since 2010 and a higher yield is now sustainable for this stock. MPI considers that there is now enough confidence that the stock has successfully rebuilt, there is less need for taking such a conservative approach to utilisation of this resource.

43 This option could also be implemented as the first step up in a longer-term approach of incrementally increasing the TACC over time. Future increases would be considered based on this assessment and as new information was made available to further strengthen confidence in the results of the 2014 stock assessment.

44 Based on export figures from 2013 of $4.31/kg greenweight, a 400 tonne increase in the TACC may result in an additional $1.7 m in revenue.[12]

OPTION 3 – RECOMMENDED

45 Option 3 proposes:

- To increase the TAC from 525 tonnes to 1,680 tonnes
- To increase the TACC from 500 tonnes to 1,600 tonnes
- To increase the allowance for other sources of fishing related mortality from 25 tonnes to 80 tonnes (maintaining it at 5% of the TACC)
- No changes to customary or recreational allowances.

46 Option 3 would implement the estimate of yield that would cause the stock to fluctuate around the upper bound of the management target range (40% B_0). While this option is the least conservative of the three proposed Options, the increase is lower than the maximum yield the stock assessment estimated ORH7A could sustain.

47 ORH 7A stock status is estimated to be 42%B_0, above the upper bound of the current management target range. The five-year management projections also indicate that stock status would remain above the top end of the target range for the next five years with a TACC of 1,600 tonnes, and a catch of 2,100 tonnes would bring stock biomass back within the management target range (Table 2). MPI has not included 2,100 tonnes as a management option, as some caution is warranted given the assessment is new.

48 MPI also considers this to be the most appropriate option to take advantage of the utilisation opportunity that is available. Implementing this option will also ensuring that the stock will remain within or above the management target range. An acoustic survey has recently been carried out in ORH 7A, and the stock assessment is scheduled to be updated in 2015. This will provide additional certainty with regards to the status of the stock, and may result in a further review of the ORH 7A TAC.

49 All industry submitters (five) were in favour of this Option. Sanford and TOKM endorsed the DWG submission and the assertion that the TACC should aim to maintain the stock at 40% B_0.

[12] Based on export figures for 2013 calendar year of $4.31 / kg greenweight. This uses frozen fillets to estimate the greenweight export price as this product form accounted for 85% of export earnings and 72% of export volume for orange roughy in the 2013 calendar year. Precise value is difficult to estimate and is influenced by factors such as commodity prices, exchange rate, catching costs and export state.

50 Based on export figures from 2013 of $4.31/kg greenweight, a 1,100 tonne increase in the TACC may result in an additional $4.7 m in revenue.

Assessment of Management Options

51 This section describes the management options available for your consideration in terms of how they will ensure that your relevant statutory obligations are met.

52 The purpose of the Act (Section 8) is to provide for utilisation of fisheries resources while ensuring sustainability. MPI considers that all options presented in this paper satisfy the purpose of the Act in that they provide for utilisation in the ORH 7A fishery while ensuring sustainability.

53 Each management option proposed will ensure the long term sustainability of the stock. Option 1 maintains the current catch levels set in 2010 at a conservative value of 525 tonnes. Option 2 would provide for an additional volume of catch that would support ORH 7A remaining above the upper bound of the management target range for the next five years. Option 3 would cause the stock to fluctuate around the upper bound of the management target range.

SECTION 13 – SETTING THE TAC

54 The best available information estimates the stock status for ORH 7A as being above B_{MSY} and, at 42% B_0, above the upper bound of the current management target range for this stock (30-40% B_0). Stock status is estimated to have been increasing since the late 1990s Accordingly, MPI proposes that the TAC be set under section 13(2)(b) to enable the ORH 7A stock to be increased; and with the stock's response to increased catch levels tested by a series of five-year projections based on the accepted assessment model.

55 Section 13(2)(b) of the Act requires you to set a TAC that:

a) Enables the level of a stock whose current level is below that which can produce the maximum sustainable yield to be altered -

i. in a way and at a rate that will result in the stock being restored to, at or above a level that can produce the maximum sustainable yield, having regard to the interdependence of stocks; and

ii. within a period appropriate to the stock having regard to the biological characteristics of the stock and any environmental conditions affecting the stock; or

56 Section 13(2)(b) also contains specific considerations that you must have regard to when setting the TAC:

a) The interdependence of stocks (section 13(2)(b)(i)). There is no information to suggest the interdependence of stocks should affect the level of the TAC for ORH 7A at this time, given that bycatch proportions are low. The interdependence of stocks is discussed further below.

b) The biological characteristics of ORH 7A (section 13(2)(b)(ii)). It is known that orange roughy are very long-lived and late maturing, which are biological characteristics that render them slow to recover from overfishing. These

biological characteristics have been taken into account in the stock assessment model and in the formation of management options.

c) Environmental conditions affecting ORH 7A (section 13(2)(b)(ii)). No specific environmental conditions affecting the ORH 7A stock have been identified.

SECTION 13(3) – RATE OF CHANGE

57 Section 13(3) requires that, in considering the way and the rate that the stock may be moved towards a level that can produce MSY, you shall have regard to such social, cultural and economic factors as you consider relevant.

58 There is no statutory guidance on what an appropriate 'way and rate' might be in any given case for the purposes of applying section 13(2); it is a matter for you to determine having regard to social, cultural and economic factors.

59 MPI considers that an increase to the ORH 7A TAC catch limit is justified given the stock is very likely to be above B_{MSY}. Submissions received indicate support from the commercial sector for increasing the ORH 7A TAC and maximising the accompanying economic benefits.

60 Given the lack of recreational and customary catch from ORH 7A, and the retention of the current allowances, MPI considers increasing the TAC catch limit under either of the proposed options will not have an adverse impact on non-commercial fishers.

ALLOCATING THE TAC

61 The TAC must be apportioned among the relevant sectors and interests as required under sections 20 and 21 of the Act. Section 21 prescribes that you shall make allowances for Maori customary non-commercial interests, recreational fishing interests, and for any other sources of fishing-related mortality, before setting the TACC.

Recreational and customary allowances

62 Recreational and customary fishers do not target orange roughy as it is a deepwater, offshore fishery and the data on customary and recreational catches of orange roughy is negligible. MPI considers there to be no rationale to change the current recreational or customary allowances of zero tonnes.

Other sources of fishing-related mortality

63 MPI proposes an allowance for other sources of fishing-related mortality of 5% of the TACC. This would remain at 25 tonnes under Option 1, be increased to 45 tonnes under Option 2, and increased to 80 tonnes under Option 3. This allowance is required to take account of orange roughy mortality that is not reported such as orange roughy lost due to burst nets or discarding of damaged orange roughy.

SECTION 10 – INFORMATION PRINCIPLES

64 Under section 10 of the Act, you must take into account the following information principles:

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.

65 MPI considers that the best available information has been used as the basis for the recommendations in this paper. All science information upon which the management options are based has been peer reviewed by one of the MPI's Fisheries Assessment Working Groups and the Science Plenary, and meets the Research and Science Information Standard for New Zealand Fisheries.

SECTION 11 CONSIDERATIONS

66 Under section 11 of the Act, before setting or varying any sustainability measure for any stock, you must:

a) Section 11(1)(a): take into account any effects of fishing on any stock and the aquatic environment. No information about any effects of fishing on any stock or on the aquatic environment, additional to that discussed elsewhere in this paper, is considered relevant to the review of sustainability measures for this stock at this time.

b) Section 11(1)(b): take into account any existing controls under the Act that apply to the stock or area concerned. For this stock the measures that apply currently are a TAC, TACC and allowances for customary take, recreational take, and other sources of fishing-related mortality. No other controls under the Act specifically apply to this stock.

c) Section 11(1)(c): take into account the natural variability of the stock. This is incorporated into the discussion above on setting the TAC for this stock.

d) Sections 11(2)(a) and (b): have regard to any provisions of any regional policy statement, regional plan, or proposed regional plan under the Resource Management Act 1991 and any management strategy or management plan under the Conservation Act 1987 that apply to the coastal marine area and that the Minister considers relevant. MPI is not aware of any such policy statements, plans or strategies that should be taken into account for this stock.

e) Section 11(2)(c): have regard to sections 7 and 8 of the Hauraki Gulf Marine Park Act 2000 that apply to the coastal marine area and the Minister considers relevant. The boundaries of the ORH7A do not intersect with the Hauraki Gulf. Therefore, there are no relevant considerations under the Hauraki Gulf Marine Park Act 2000 for this stock.

f) Section 11(2)(d): have regard to any planning document lodged 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 by you to be relevant. MPI is not aware that any such planning documents have been lodged at this time.

g) Section 11(2A)(b): take into account any relevant and approved fisheries plans. The application of the National Fisheries Plan for Deepwater and Middle-depth Fisheries and Forum Fisheries Plans is discussed in the following section.

h) Sections 11(2A)(a) and (c): you must take into account any conservation or fisheries services, or any decision not to require such services. MPI does not consider that

existing or proposed services materially affect the proposals for these stocks. No decision has been made to not require a service in this fishery at this time.

SECTION 11A – FISHERIES PLANS

67 MPI, 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 the long-term goals and objectives for deepwater fisheries. Fishery-specific chapters set specific Operational Objectives that will be delivered annually for each key deepwater species, and establish performance indicators to assess if the management objectives have been delivered.

68 The fishery-specific chapter of the National Deepwater Plan for orange roughy was completed in 2010. You are required to take the National Deepwater Plan into account when making a decision on the management options presented for ORH 7A. The management options proposed in this FAP are consistent with the dual Outcomes of the National Deepwater Plan:

a) The Use Outcome: Fisheries resources are used in a manner that provides greatest overall economic, social and cultural benefit

b) The Environment Outcome: The capacity and integrity of the aquatic environment, habitats and species are sustained at levels that provide for current and future use.

69 These dual Outcomes are given effect to by 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.

70 MPI considers that the management options presented in this FAP will contribute towards the achievement of these three Management Objectives.

71 There is one Forum Fisheries Plan relevant to the ORH 7A fishery area. The Te Waka a Maui me ona Toka Iwi Forum has produced the Te Waipounamu Iwi Forum Fisheries Plan. This Plan covers ORH 7A and identifies orange roughy as a taonga species. The Te Waipounamu Iwi Forum Fisheries Plan contains six Management Objectives, two of which are relevant to the management of ORH 7A:

a) Management Objective 3: To develop environmentally responsible, productive, sustainable and culturally appropriate commercial fisheries that create long-term commercial benefits and economic development opportunities for South Island Iwi

b) Management Objective 5: To restore, maintain and enhance the mauri and wairua of fisheries throughout the South Island.

72 MPI considers that the management options presented in this advice paper will contribute towards the achievement of these two management objectives. All options

would ensure that the fishery remains sustainable and that environmental impacts are minimised.

SECTION 9 – ENVIRONMENTAL CONSIDERATIONS

73 Section 9 of the Act sets out the following environmental principles. These principles must be taken into account when implementing management measures under the Act.

a) Sections 9(a) and (b) require all persons exercising or performing functions, duties, or powers under the Act to take into account that associated or dependent species be maintained at or above a level that ensures their long-term viability, and that the biological diversity of the aquatic environment should be maintained.

b) Section 9(c) requires all persons exercising or performing functions, duties, or powers under the Act to take into account the principle that habitat of particular significance for fisheries management should be protected.

74 MPI is confident that the proposed options are consistent with the requirements of section 9. Key environmental issues associated with the ORH 7A fishery and how they will be affected by the proposals to increase the TAC are discussed below.

Protected species interactions

75 Either Option 2 or Option 3 would result in increased orange roughy fishing effort on the Southwest Challenger Plateau. This could result in increases to the known interactions with protected species, which are outlined below. However, MPI is comfortable that current management processes will ensure that there is low risk of negatively impacting on the long-term viability of the affected protected species populations.

76 Orange roughy trawl fisheries rarely interact with marine mammals (Table 4). MPI considers that the management proposal is unlikely to have any additional effects on New Zealand fur seals, New Zealand sea lions, or any other marine mammals. However, MPI will continue ongoing monitoring of marine mammal interactions in all deepwater fisheries.

77 Management of seabird interactions with New Zealand's commercial fisheries is now being driven through the 2013 National Plan of Action to reduce the incidental capture of seabirds in New Zealand fisheries (NPOA-Seabirds). The NPOA-Seabirds has established a risk-based approach to managing fishing interactions with seabirds, targeting management actions at the species most at risk.

78 The risk based approach that underpins the NPOA-Seabirds has identified the level of risk to individual seabird species, generated by different vessel classes within the commercial fishing fleet, via a comprehensive and hierarchical risk assessment and risk screening approach.

Table 3: Observed and estimated captures of seabirds and NZ fur seals in all orange roughy trawl fisheries. There have been no reported interactions with New Zealand sea lions or any other marine mammals

	Seabird captures		NZ fur seal captures		Total # of tows	Observed tows	% of tows observed
	Observed	Estimated	Observed	Estimated			
2011-12	0	6	0	0	1,588	437	27.5
2010-11	2	10	0	0	1,889	795	26.2
2009-10	13	27	0	0	2,922	1,139	39.0
2008-09	6	16	0	1	3,544	1,435	40.5
2007-08	2	12	0	0	3,689	1,618	43.9

79 Orange roughy fishing effort generally contributes a very low proportion of the total risk score for those seabird species that have been found to be at high or very high risk (e.g. Salvin's albatross) and this will not be materially affected by the increase in fishing effort inherent in Options 2 and 3.

80 MPI will continue to work with industry stakeholders to reduce the risk to key seabird species. A range of measures are currently in place or are under development. Mandatory seabird mitigation measures include the requirement that all trawlers over 28 m in length deploy bird mitigation devices during fishing. Research projects are currently underway that aim to improve the efficacy of these mitigation devices.[13]

81 Non-regulatory measures are also used to reduce the risk of seabird interactions with the orange roughy fleet including use of mitigation devices and offal management procedures. MPI monitors seabird captures and works with the DWG where necessary to minimise and mitigate captures. These practices will continue during 2014/15.

Benthic impacts

82 Bottom trawling can affect fragile benthic invertebrate communities but adverse effects may be reduced if vessels repeatedly trawl along the same towlines in a fishery. There are cost implications for the industry in terms of lost or damaged gear when fishing in new areas and as a result, fishing effort is more likely to continue in areas previously fished.

83 In recent years, management measures to address the effects of deepwater trawl activity have focused on 'avoiding' these effects. This has been achieved through closing large areas of the EEZ to bottom trawling; first with seamount closures in 2001 (none of these are within the ORH 7A QMA) and then with Benthic Protection Areas (two of these areas are within the ORH 7A area). The implementation of BPAs in 2007 effectively closed approximately 30% of the New Zealand EEZ to bottom trawling and established a monitoring regime to ensure these closures are adhered to.

84 The proposals to increase the TACC for orange roughy will result in an increase in fishing effort, and potentially new areas being trawled, though at this stage MPI is of the view that areas targeted will be comprised by areas that have been previously trawled.

85 The trawl footprint of the orange roughy fishery will continue to be mapped and monitored annually.

[13] More information on these projects can be found at the Department of Conservation's Conservation Services Programme website: www.doc.govt.nz/csp

Section 75 - Deemed values

86 Section 75 of the Act requires that you set deemed value rates for every stock in the QMS. This is to ensure there are appropriate incentives for fishers to acquire or maintain sufficient ACE so that fishing effort does not result in catch limits being exceeded.

87 The current interim and annual deemed value rates for ORH 7A were reviewed against current port prices, estimated export value, and deemed values for other orange roughy stocks. MPI proposes that the deemed value rates for ORH 7A be increased as follows:

a) The annual deemed value rate would be $5.00 per kg.

b) The interim deemed value rate would be $2.50 per kg.

c) A differential deemed value rate of $6.25 would apply to catch in excess of 110% of ACE holdings.

88 These deemed value rates were consulted on in the IPP as required by Section 75A of the Act; no comments were received. These rates are consistent with those in place in other New Zealand orange roughy fisheries, and MPI considers the increased rates are appropriate to provide incentives for fishers to acquire or maintain sufficient ACE so the catch limits are not exceeded.

89 Fishing activity will continue to be monitored during the 2014-15 fishing year and if there is evidence that fishers are either fishing in excess of the TACC or fishing in excess of their individual ACE holdings then the deemed value rates will be reviewed for the 2014-15 fishing year.

Other Management Measures

SUB-QMA CATCH SPREADING ARRANGEMENTS

90 As indicated above, ORH 7A is a straddling stock, with a proportion of the fishing taking place outside New Zealand's EEZ on the Westpac Bank, an area now managed by SPRFMO. The Westpac Bank area was closed to fishing in 2000 alongside the closure of ORH 7A. When ORH 7A was re-opened in 2010, industry requested that the Westpac Bank be re-opened as well under the same conditions that existed prior to the fisheries' closure.

91 The Westpac bank has been closed to bottom fishing by SPRFMO because it was not included in the 2002-06 SPRFMO bottom fishing footprint. The Westpac Bank has been re-examined as a result of the opening of ORH 7A. There were several trawl surveys during 2002-06 which have been included in New Zealand's bottom trawling footprint.

92 New Zealand is in the process of opening two areas of the Westpac Bank to fishing where they meet the definition of areas that should be open based on historic fishing activity as described in the NZ Bottom Fishing Impact[14] assessment. There is a catch limit for orange roughy in the wider SPRFMO area of 1,852 tonnes.

93 For New Zealand vessels, orange roughy catches in the Westpac Bank area will be required to be reported against the ORH 7A TACC to ensure that total catches of the

[14] http://www.southpacificrfmo.org/assets/Science/Benthic-Impact-Assessments/New-Zealand/New-Zealand-Bottom-Fishery-Impact-Assessment-v1.3-2009-05-13.pdf

stock remain within the sustainable limit. The schedule of SPRFMO conditions for the 1 May 2014 fishing season (including the Westpac Bank) is being finalised.

94 To minimise risk of localised depletion caused by taking too large a proportion of the TACC from Westpac Bank, the fishery will be actively monitored in 2014-15. If it is considered that a disproportionate amount of the TACC is being caught on Westpac Bank, MPI will work with DWG to implement voluntary sub-area catch limits for this area.

COMPLIANCE ISSUES

95 Key offences that may occur in ORH 7A include misreporting of QMA, species and weights, and fishing in closed areas. Any reduction in TACs may increase the incentive to offend.

96 However, the ORH 7A fishery is closely managed from an industry perspective with few vessels operating in the fishery and regular reporting requirements in place. Observer coverage in the orange roughy fisheries is relatively high with 29-42% of tows observed in the most recent five years.

97 MPI considers that the monitoring arrangements in place are robust and appropriate. DWG and MPI will continue to actively monitor this fishery closely to ensure compliance with catch limits and all management arrangements.

Conclusions

98 The 2014 stock assessment of ORH 7A estimates stock status to be above the level that can support the maximum sustainable yield, and above the upper bound of the current management target range for this stock. This indicates that a TAC increase is likely to be sustainable.

99 Of the three options proposed for this stock, MPI recommends Option 3. Under this Option you would increase the ORH 7A TAC by 1,155 tonnes, to take advantage of the utilisation opportunities that are available. Forward projections of stock status indicate that stock size will remain stable at the recommended catch level, and that a larger catch increase would be sustainable in ORH 7A.

Recommendations

100 MPI recommends that you:

Note that the prerequisites for the setting or varying of the TAC, TACC and allowances (which include consultation and the provision of input and participation in the decision making process of tangata whenua with a non-commercial interest in the stock or an interest in the effects of fishing on the aquatic environment in the area concerned) have been complied with **NOTED**

AND, Choose either:

Option 1 – status quo

a) **Agree** to retain the existing TAC for ORH 7A at 525 tonnes and within the TAC:
   i. Retain an allowance for recreational fishing interests of 0 tonnes;
   ii. Retain an allowance for Māori customary non-commercial fishing of 0 tonnes;
   iii. Retain an allowance of 25 tonnes for other sources of fishing-related mortality;
   iv. Retain the TACC at 500 tonnes.

Agreed / Not Agreed

OR

Option 2

c) **Agree** to increase the TAC for ORH 7A from 525 tonnes to 945 tonnes and within the TAC:
   i. Retain an allowance for recreational fishing interests of 0 tonnes;
   ii. Retain an allowance for Māori customary non-commercial fishing interests of 0 tonnes;
   iii. Set an allowance of 45 tonnes for other sources of fishing-related mortality;
   iv. Set the TACC at 900 tonnes.

Agreed / Not Agreed

OR

Option 3 (MPI Recommended option)

d) **Agree** to increase the TAC for ORH 7A from 525 tonnes to 1,680 tonnes and within the TAC:
   i. Retain an allowance for recreational fishing interests of 0 tonnes;
   ii. Retain an allowance for Māori customary non-commercial fishing interests of 0 tonnes;
   iii. Set an allowance of 80 tonnes for other sources of fishing-related mortality;
   iv. Set the TACC at 1,600 tonnes

Agreed / Not Agreed

AND, Choose either

Option 1 – status quo

a) **Agree** to leave the deemed value rates for ORH 7A unchanged for the 2014/15 year;

Agreed / Not Agreed

OR

Option 2 (MPI Recommended option)

a) **Agree** to amend the deemed value rates for ORH 7A as follows:

   a. Set an annual deemed rate of $5.00 per kg

   b. Set an interim deemed value rate of $2.50 per kg

   Set a differential deemed value rate for this stock starting at 10% of catch in excess of a fisher's ACE holding of $6.25

Agreed / Not Agreed

Scott Gallacher
Deputy Director-General
Regulation and Assurance
for Director-General

Hon Nathan Guy
Minister for Primary Industries

/ / 2014

ORH 3B – FINAL ADVICE PAPER

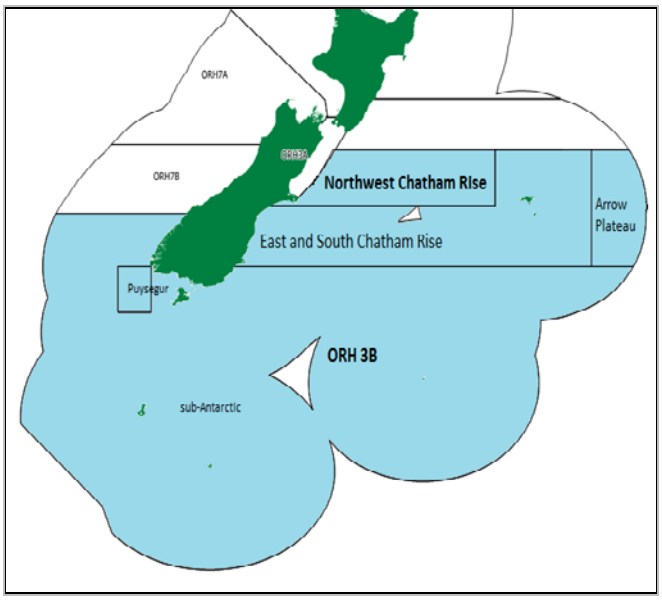

Figure 1: Sub-stock boundaries for the ORH 3B Quota Management Area

Executive Summary

1 ORH 3B is a large and spatially complex quota management area that comprises at least four individual sub-stocks (Figure 1). You set the total allowable catch (TAC) for the ORH 3B stock as a whole. The Deepwater Group Ltd (DWG), which represents approximately 98.0% of the ORH 3B quota owners, agrees each year to adhere to catch limits at a sub-Quota Management Area (QMA) level for the individual sub-stocks (catch limits). These sub-QMA catch limits are not statutory but are monitored and audited by the Ministry for Primary Industries (MPI).

2 Stock assessments were completed in 2014 for the two largest sub-stocks in ORH 3B: Northwest Chatham Rise and East and South Chatham Rise.

3 The 2014 stock assessment of the Northwest Chatham Rise sub-stock estimates the sub-stock to be at 37% of the unfished orange roughy biomass (B_0) and increasing. This result places the stock's status near the upper bound of the management target range (30-40% B_0) and indicates additional utilisation opportunities may be available.

4 MPI has publically consulted on options to amend the catch limit for the Northwest Chatham Rise sub-stock (Table 1). All options presented are consistent with the agreed harvest strategy for orange roughy and will not prevent stock biomass increasing further in the short-term.

5 The 2014 stock assessment of the East and South Chatham Rise sub-stock estimates the sub-stock is at 30% B_0, which is at the lower bound of the management target range (30-40% B_0). MPI considers that the status of this sub-stock should increase further into the current management target range before the harvest level is increased.

6 MPI did not consult on any options to amend the East and South Chatham Rise catch limit and is not proposing any changes for this sub-stock.

Table 1: Summary of management options proposed for ORH 3B (tonnes)

	Option 1 (Status quo)	Option 2	Option 3 (Recommended)
Northwest Chatham Rise catch limit	750	900	1,250
East and South Chatham Rise catch limit	3,100	3,100	3,100
Puysegur	150	150	150
Arrow Plateau (protected by BPA*)	0	0	0
Sub-Antarctic	500	500	500
TACC	4,500	4,650	5,000
Other sources of fishing-related mortality (5% of TACC)	225	233	250
TAC	4,725	4,883	5,250

7 The deemed value rates for ORH 3B have also been reviewed for the 2014/15 fishing year. MPI recommends that, regardless of which of the options you decide to implement, you retain the existing deemed value rates for ORH 3B at this time.

Background Information

8 Orange roughy is a slow-growing, long-lived fish that inhabits depths between 700 and 1,500 m within the New Zealand EEZ. On the basis of otolith ring counts, it is estimated that orange roughy may live to 120-130 years of age, and are thought to reach maturity at around 32-41 years of age.

9 ORH 3B is a spatially complex quota management area and comprises several biological sub-stocks.[15] The status of each biological sub-stock is assessed independently. The two largest sub-stocks are located on the Chatham Rise (Figure 1). Catches from these stocks represent around 90% of the total orange roughy catch from ORH 3B.

Table 2: Current TAC, TACC and sub-area catch limits for ORH 3B (tonnes)

Sub-stock	2013/14 Catch limit
Northwest Chatham Rise	750
East and South Chatham Rise	3,100
Puysegur	150
Arrow Plateau (protected by BPA)	0
Sub-Antarctic	500
TACC	4,500
Other sources of fishing-related mortality (5% of TACC)	225
TAC	4,725

* - BPA refers to the Benthic Protected Areas

10 The most recent TAC and catch limit review for ORH 3B took place in 2013. The overall TACC for ORH 3B was increased from 3,600 tonnes to 4,500 tonnes with the increase being allocated entirely to the East and South Chatham Rise catch limit. The East and South Chatham Rise catch limit was increased from 1,950 tonnes to 3,100 tonnes in response to a stock assessment including information from surveys on a newly discovered orange roughy plume (the Rekohu plume).

11 The catch limit for the Northwest Chatham Rise stock was last reviewed in 2006 when the catch limit was reduced from 1,500 tonnes to 750 tonnes. The reduction was based on a stock assessment that estimated stock status to be below 20% B_0. The high

[15] Unless otherwise clarified in the text "stock" refers to the QMA management unit ORH 3B (per the definition of "stock" in section 2 of the Fisheries Act 1996) and "sub-stock" refers to a biologically or geographically distinct orange roughy population within ORH3B.

uncertainty in this stock assessment was acknowledged and the model used has since been discredited.

12 Very little catch has come from the Northwest Chatham Rise sub-stock since 2010 when quota owners gave a commitment not to fish this sub-stock for the 2010/11, 2011/12 and 2012/13 fishing years. Based on the preliminary results of the 2014 stock assessment showing the sub-stock was likely to be within the target range, the 750 tonne catch limit is being fished in the remainder of the 2013/14 fishing year.

Consultation

13 Decisions to vary TACs are made under section 13(4) of the Fisheries Act 1996 (the Act). Therefore, the consultation requirements of section 12(2) apply. Decisions to vary TACCs are made under section 20(2), to which the consultation requirements of section 21(2) apply. These provisions require consultation with such persons or organisations representative of those classes of persons having an interest in the stock or the effects of fishing on the aquatic environment in the area concerned, including Maori, environmental, commercial and recreational interests.

14 MPI consulted on your behalf on the three options set out in Table 1. MPI followed its standard consultation process of posting Initial Position Papers (IPPs) on the MPI website and alerting stakeholders to this through a letter sent to approximately 200 companies, organisations and individuals.

15 There is also an obligation to provide for input and participation of tangata whenua and have particular regard to kaitiakitanga. MPI recognises that information on customary harvest is uncertain and invited iwi, Tangata Tiaki/Kaitaiki, and customary permit holders to submit information. However, no additional information was submitted during the consultation process. MPI will continue to work with tangata whenua to improve reporting and information on customary non-commercial catches.

SUBMISSIONS RECEIVED

16 Submissions were received from the following:

a) Deepwater Group Ltd (DWG)

b) Environment and Conservation Organisations of NZ Inc. (ECO)

c) Iwi Collective Partnership (ICP)

d) Ngati Porou Seafoods Limited (Ngati Porou)

e) Our Seas Our Future (OSOF)

f) Sealord Group Limited (Sealord)

g) Te Ohu Kai Moana (Te Ohu)

17 All submissions are attached to this paper for your reference.

SUMMARY OF SUBMISSIONS

18 OSOF is a marine conservation group based in New Zealand. OSOF recommends Option 1, considering that it will limit related by-catch, interaction with protected marine species, and effects on benthic habitats.

19 ECO is a national alliance of 55 groups with a concern for the environment and has been concerned at the state of marine management and the impacts of fishing on threatened species for over 20 years. ECO does not support a change in the TACC for 2014-15 (Option 1), as it is concerned at the uncertainty in the stock assessment and the contradictory signals in the assessment.

20 Ngati Porou is the commercial asset holding company established under the Maori Fisheries Act settlement process to receive and manage the quota assets allocated to Ngati Porou. Ngati Porou submit in support of Option 2 balancing their support of an increase with the uncertainty of the stock assessment. Option 2 is considered a cautious approach to an increase.

21 DWG is the industry organisation that represents holders of quota in New Zealand's major deepwater fisheries. DWG submits on behalf of its shareholders who own around 95% of the entire deepwater quota in New Zealand. DWG supports Option 3, and agrees with the implementation of a TACC that aims to maintain stock status around 40% B_0.

22 Sealord expresses support for Option 3 with the view that the increase is an important message demonstrating improved and quality science. They consider Option 3 to be conservative, and note that the yield does not include any of the biomass from the Morgue feature (currently closed to fishing). Sealord also conveys disappointment that the catch limit for the East and South Rise was not reviewed, but points to the benefits in the partnership between MPI and DWG in delivering quality science to underpin management of deepwater fisheries in New Zealand.

23 The ICP was formed in 2010 to represent the collective fisheries interests of 14 iwi partners located throughout the North Island. The ICP also shares ownership and joint venture interests with other iwi located in the South Island and Chatham Islands. ICP submits in support of Option 3 on the basis that it allows for the best utilisation opportunity that the stock assessment indicates is sustainable, and the forecast that the stock will continue to increase at higher catch levels.

24 Te Ohu endorses the submission of DWG on the orange roughy stocks under review, and reiterates support for Option 3 for ORH 3B, noting that MPI considers this option is consistent with the orange roughy harvest strategy and will maintain the stocks at or above BMSY and within the management target range with high probability in the short term.

Rationale for Management Intervention

25 The 2014 Plenary agreed that the stock assessment of the Northwest Chatham Rise was of high quality and met New Zealand's Science and Research Information Standard.[16] The results from the assessment can therefore confidently be accorded a high weight in fisheries management decisions.

26 The agreed model estimates current biomass to be at 37% B_0. The Plenary considered the stock status as Very Likely (> 90% probability) to be at or above the lower bound of the management target range (30-40% B_0). It is also considered Very Unlikely (< 10% probability) to be below the Soft Limit (20% B_0) and Exceptionally Unlikely (< 1% probability) to be below the Hard Limit (10% B_0).

[16] Available at: http://www.fish.govt.nz/en-nz/Publications/Research+and+Science+Information+Standard.htm

27 Stock status is estimated to have been increasing slowly over the last 10 years (Figure 2). Stock biomass is projected to continue increasing at the current catch level and if catches from the stock are increased as proposed.

28 Major sources of uncertainty associated with the stock assessment model include the proportion of the spawning stock that is indexed by the acoustic survey in each year and that the pattern of year class strengths is based on only one year of age composition data.

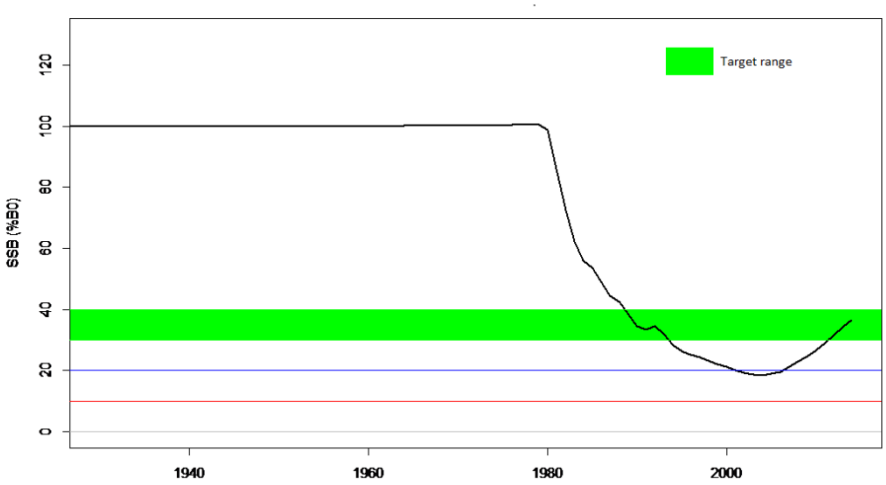

Figure 2: Estimated biomass trajectory for ORH 3B Northwest Chatham Rise

29 MPI considers this assessment to be robust to these uncertainties. Additional model runs investigated the sensitivity of the model to different values for natural mortality and to changes in the assumptions regarding the proportion of the stock being indexed through the survey. None of these sensitivity runs was significantly different from the base model run.

Management Measures Proposed

30 Orange roughy is managed under section 13(2) of the Act, with TAC setting also guided by the orange roughy harvest strategy, which requires the stock to fluctuate within the target range of 30-40% B_0. This target was set above deterministic B_{MSY} (22-23% B_0)[17] to provide greater certainty that the stock will remain at or above B_{MSY} and can sustain the fishery in the long term.

31 Management actions are guided by a series of five year projections that provide estimates of future stock status in relation to B_0 and in relation to the management target range. The projections use the assessment model to estimate the likely stock status trajectory under different catch assumptions.

32 To inform the 2014 review of management settings, projections have been produced assuming four different levels of catch taken from the Northwest Chatham Rise sub-stock:

a) the status quo of 750 tonnes;

[17] It is important to note that deterministic estimates of B_{MSY} are not considered to be appropriate as management targets as they rely on perfect information, which is unrealistic

b) an increase of 150 tonnes to a catch limit of 900 tonnes;

c) an increase of 500 tonnes, to a catch limit of 1,250 tonnes; and

d) an increase of 650 tonnes to a catch limit of 1,400 tonnes.

33 All projections result in the stock remaining above the lower bound of the management target range (30% B_0) with high probability through to 2019 (Table 3). Even if a catch of 1,400 tonnes is assumed, the stock biomass is projected to continue increasing over the next five years.

34 These projections were used to select the management options proposed during consultation. In recognition that these projections assume average recruitment in each of the next five years, which is uncertain, MPI included only the three lower catch levels as management options. MPI therefore has confidence that these options are robust to the uncertainty in future recruitment. Furthermore, additional surveys and stock assessment updates are planned and MPI intends to re-assess the catch limit well in advance of 2019.

Table 3: Five year projection results, showing the expected median status of the Northwest Chatham Rise sub-stock in 2019 and the probability that status is within or above the management target range

Northwest Rise catch limit	Total ORH 3B TAC	Projected stock status in 2019	Probability of being above 30% B_0	Probability of being above 40% B_0
750	4,725	43% B_0	100%	72%
900	4,883	42% B_0	100%	61%
1,250	5,250	40% B_0	95%	48%
1,400	N/A	39% B_0	93%	43%

35 Work is also ongoing to further investigate the appropriateness of the agreed management target range. Final results are not yet available although preliminary indicate that the management target range may need to extend upwards to provide an increased level of certainty that the stock will remain above the soft limit reference point. This could potentially result in aiming to have stocks fluctuating around 40% B_0 as the midpoint of that target range. Options 2 and 3 would be consistent with this approach if it was adopted in future.

OPTION 1 – STATUS QUO

36 Under this option the ORH 3B TAC would remain at 4,725 tonnes and the TACC would remain at 4,500 tonnes. The current sub-QMA catch limits would also remain unchanged.

37 Under this option the Northwest Chatham Rise sub-stock is highly likely to remain above B_{MSY} and the management target range at the end of the 5 year projection period. While this option is undoubtedly more conservative, it would likely result in lost utilisation opportunities as the Northwest Chatham Rise stock assessment indicates the stock is likely able to support a harvest level greater than 750 tonnes.

38 This option is supported by OSOF and ECO who consider this option best reflects the uncertainty in the assessment and will limit the impacts of fishing on the wider marine environment.

39 MPI's view is that a TAC increase is supported by the 2014 stock assessment and associated projections that indicate the stock is near the top of the current management target range. The stock biomass is projected to continue increasing at either of the

increased catch levels proposed in Options 2 and 3. The Fisheries Assessment Plenary agreed that the stock assessment was of high quality and was appropriate to underpin fisheries management decisions.

OPTION 2

40 Option 2 proposes:

- To increase the TAC from 4,725 tonnes to 4,883 tonnes
- To increase the TACC by 150 tonnes, from 4,500 tonnes to 4,650 tonnes
- To increase the allowance for other sources of fishing related mortality from 225 tonnes to 233 tonnes (maintaining it at 5% of the TACC)
- No changes to customary or recreational allowances.

41 If you select Option 2, the 150 tonne TACC increase would be allocated entirely to the Northwest Chatham Rise sub-stock, increasing the catch limit for that stock from 750 tonnes to 900 tonnes.

42 The five year management projections indicate that setting the TAC and TACC based on the higher catches of Option 2 will ensure the Northwest Chatham Rise sub-stock remains above B_{MSY} (see Table 3). It is also likely the stock will remain above the upper bound of the management target range (40% B_0).

43 Under Option 2, the Maori customary and recreational allowances would be retained at zero tonnes each and an allowance for other sources of fishing-related mortality would remain at 5% of the TACC.

44 This option is supported by Ngati Porou, who considers it a cautious approach permitting additional catch while also allowing for uncertainty in the stock assessment model.

45 MPI considers this option is also conservative, and would not take full advantage of the utilisation opportunity available. Projections using the stock assessment indicate that a much larger TACC increase would be sustainable and still maintain the stock above B_{MSY} and within the management target range.

46 Based on export figures from 2013 of $4.31/kg greenweight, a 150 tonne increase in the TACC may result in an additional $0.6 m in export revenue.[18]

OPTION 3 - RECOMMENDED

47 Option 3 proposes:

- To increase the TAC from 4,725 tonnes to 5,250 tonnes
- To increase the TACC by 500 tonnes, from 4,500 tonnes to 5,000 tonnes
- To increase the allowance for other sources of fishing related mortality from 225 tonnes to 250 tonnes (maintaining it at 5% of the TACC)
- No changes to customary or recreational allowances.

[18] Based on export figures for 2013 calendar year of $4.31 / kg greenweight. This uses frozen fillets to estimate the greenweight export price as this product form accounted for 85% of export earnings and 72% of export volume for orange roughy in the 2013 calendar year. Precise value is difficult to estimate and is influenced by factors such as commodity prices, exchange rate, catching costs and export state.

48 If you select Option 3, the 500 tonne TACC increase would be allocated entirely to the Northwest Chatham Rise sub-stock, increasing the catch limit for that stock from 750 tonnes to 1,250 tonnes.

49 Under Option 3, the Maori customary and recreational allowances would be retained at 20 tonnes each and an allowance for other sources of fishing-related mortality would remain at 5% of the TACC.

50 Option 3 is supported by all shareholders of DWG, including Sealord, Sanford, ICP and Te Ohu who also submit in support of Option 3.

51 MPI considers this option takes full advantage of the utilisation opportunity available. Projections from the stock assessment indicate that a larger increase would remain sustainable, however MPI considers that some caution is warranted given that the assessment is new. The TACC may be reviewed again as further scientific information becomes available.

52 In addition, a catch limit of 1,250 tonnes for the Northwest Chatham Rise sub-stock is consistent with the level estimated to maintain the stock at or around 40%B_0, the upper bound of the management target range.

53 Based on export figures from 2013 of $4.31/kg greenweight, a 500 tonne increase in the TACC may result in an additional $2.2 million in export revenue.

Assessment of Management Options

54 This section describes the management options available for your consideration in terms of how they will ensure that your relevant statutory obligations are met under the Act.

55 Section 8 says that the purpose of the Act is to provide for utilisation while ensuring sustainability. MPI considers that all options presented in this paper satisfy the purpose of the Act in that they provide for utilisation in the ORH 3B fishery while ensuring sustainability. Each management option proposed will ensure the long term sustainability of the stock. Option 1 is more cautious, but is likely to limit utilisation opportunities. In contrast, increasing the TAC under Option 2 or 3 would allow for increased utilisation without adversely affecting the sustainability of the stock.

SECTION 13 – SETTING THE TAC

56 Under section 13 you are required to set a TAC for the entire ORH 3B as a single unit of management (i.e. the combination of the sub-stocks).

Status of ORH 3B stock as a whole

57 Stock assessments were completed in 2014 for the two largest biological stocks in the ORH 3B QMA: Northwest Chatham Rise and East and South Chatham Rise. These two stocks have historically made up more than 90% of all catches in ORH 3B. The two catch limits combined currently comprise 86% of the total ORH 3B TACC, and catch from these two stocks made up 98% of ORH 3B catches in 2012/13 (due to the remaining catch limits in ORH 3B being under-caught).

58 The 2014 assessment for Northwest Chatham Rise sub-stock indicates that stock status is above a level that can produce the maximum sustainable yield. The assessment

estimates the unfished biomass of the Northwest Chatham Rise sub-stock at 66,000 tonnes, and current biomass at 24,420 tonnes.

59 The 2014 assessment of the East and South Chatham Rise sub-stock indicates that stock status is above a level that can produce the maximum sustainable yield. The assessment estimates the unfished biomass of the East and South Chatham Rise sub-stock at 320,000 tonnes and the current biomass at 95,000 tonnes.

60 There is little information available on the status of the remainder of the sub-Antarctic stock, as no assessment has been completed for any sub-stock since 1989. This assessment is now considered to be too old to provide a reliable indication of stock status. Catches in the remainder of ORH 3B have been low in recent years as a result of low catch limits and limited fishing effort. MPI considers the status of this portion of the ORH 3B to be very uncertain, but likely to be increasing under the low catch limits currently in place.

61 Combining the best available estimates of biomass for the Northwest Chatham Rise and the East and South Chatham Rise sub-stocks suggests that the current biomass is on the order of 119,400 tonnes. Unfished biomass of the Northwest Chatham Rise and the East and South Chatham Rise sub-stocks suggests that the unfished biomass of the area is on the order of 386,000 tonnes.

62 Based on the estimates of current and unfished biomass for the two main sub-stocks of ORH 3B, the stock as a whole is like to be at approximately 30% B_0. This is above the soft limit of 20%B_0 and above the estimate of deterministic B_{MSY} from the stock assessments of 22-23% B_0. Given the low catches from the remainder of ORH 3B, it is assumed that estimates of current and unfished biomass from these areas would be unlikely to materially affect the status of the stock as a whole.

63 Section 13(2) of the Act requires you to set a TAC that:

a) Maintains the stock at or above a level that can produce a maximum sustainable yield, having regard to the interdependence of stocks;

b) Enables the level of a stock whose current level is below that which can produce the maximum sustainable yield to be altered

i. in a way and at a rate that will result in the stock being restored to at or above a level that can produce the maximum sustainable yield, having regard to the interdependence of stocks; and

ii. within a period appropriate to the stock having regard to the biological characteristics of the stock and any environmental conditions affecting the stock; or

c) Enables the level of any stock whose current level is above that which can produce the maximum sustainable yield to be altered in a way and at a rate that will result in the stock moving towards or above a level that can produce the maximum sustainable yield, having regard to the interdependence of stocks.

64 Given that the Northwest Chatham Rise sub-stock is assessed to be above a level that can produce the maximum sustainable yield, and the overall ORH 3B stock is estimated to be above a level that can produce the maximum sustainable yield, MPI considers that you should set a TAC under section 13(2)(a), having regard to the interdependence of stocks.

65 By-catch species in ORH 3B are predominantly species which are managed in the QMS. This is discussed in more detail below, but MPI considers there is no information to suggest that the interdependence of stocks should affect where the TAC is set for ORH 3B. MPI considers that given the information presented above, your obligations under section 13(2)(c) are met and increasing the TAC from 4,725 to either 4,883 or 5,250 tonnes will ensure the stock remains at or above a level that can produce the maximum sustainable yield.

SECTION 13(3) – RATE OF CHANGE

66 Section 13(3) requires that, in considering the way and the rate that the stock may be moved towards a level that can produce MSY, you shall have regard to such social, cultural and economic factors as you consider relevant.

67 There is no statutory guidance on what an appropriate 'way and rate' might be in any given case for the purposes of applying section 13(2); it is a matter for you to determine having regard to social, cultural and economic factors.

68 The Ministry considers that an increase to the ORH 3B TAC and Northwest Chatham Rise sub-area catch limit is justified given the sub-stock is very likely to be above BMSY. Submissions received indicate support from the commercial sector for increasing the ORH3B TAC and maximising the accompanying economic benefits.

69 Given the lack of recreational and customary catch from ORH 3B, and the retention of the current allowances, MPI considers increasing the TAC and Northwest Chatham Rise catch limit under either of the proposed options will not have an adverse impact on non-commercial fishers.

SECTION 21 – ALLOCATING THE TAC

70 The TAC must be apportioned among the relevant sectors and interests as required under sections 20 and 21 of the Act. Section 21 prescribes that you shall make allowances for Maori customary non-commercial interests, recreational fishing interests, and for any other sources of fishing-related mortality, before setting the TACC.

Recreational and customary allowances

71 Recreational and customary fishers do not target orange roughy as it is a deepwater, offshore fishery and the data on customary and recreational catches of orange roughy is negligible. MPI considers there to be no rationale to change the current recreational or customary allowances of zero tonnes.

Other sources of fishing-related mortality

72 MPI proposes an allowance for other sources of fishing-related mortality of 5% of the TACC. This would be 233 tonnes under Option 2 and 250 tonnes under Option 3. This allowance is required to take account of orange roughy mortality that is not reported such as orange roughy lost due to burst nets or discarding of damaged orange roughy.

SECTION 10 – INFORMATION PRINCIPLES

73 Under section 10 of the Act, you must take into account the following information principles:

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.

74 MPI considers that the best available information has been used as the basis for the recommendations provided. All science information upon which the management options are based has been peer reviewed by one of MPI's Fisheries Assessment Working Groups and the Science Plenary, and meets the Research and Science Information Standard for New Zealand Fisheries.

SECTION 11 CONSIDERATIONS

75 Under section 11 of the Act, before setting or varying any sustainability measure for any stock, you must:

a) Section 11(1)(a): take into account any effects of fishing on any stock and the aquatic environment. No information about any effects of fishing on any stock or on the aquatic environment, additional to that discussed elsewhere in this paper, is considered relevant to the review of sustainability measures for this stock at this time.

b) Section 11(1)(b): take into account any existing controls under the Act that apply to the stock or area concerned. For this stock the measures that apply currently are a TAC, TACC and allowances for customary take, recreational take, and incidental fishing-related mortality. No other controls under the Act specifically apply to this stock.

c) Section 11(1)(c): take into account the natural variability of the stock. This is incorporated into the discussion above on setting the TAC for this stock.

d) Sections 11(2)(a) and (b): have regard to any provisions of any regional policy statement, regional plan, or proposed regional plan under the Resource Management Act 1991 and any management strategy or management plan under the Conservation Act 1987 that apply to the coastal marine area and that the Minister considers relevant. MPI is not aware of any such policy statements, plans or strategies that should be taken into account for this stock.

e) Section 11(2)(c): have regard to sections 7 and 8 of the Hauraki Gulf Marine Park Act 2000 that apply to the coastal marine area and the Minister considers relevant. The boundaries of the ORH 3B QMA do not intersect with the Hauraki Gulf. Therefore, there are no relevant considerations under the Hauraki Gulf Marine Park Act 2000 for this stock.

f) Section 11(2)(d): have regard to any planning document lodged 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 by you to be relevant. The Ministry is not aware that any such planning documents have been lodged at this time.

g) Section 11(2A)(b): take into account any relevant and approved fisheries plans. The application of the National Fisheries Plan for Deepwater and Middle-depth Fisheries and Forum Fisheries Plans is discussed in the following section.

h) Sections 11(2A)(a) and (c): you must take into account any conservation or fisheries services, or any decision not to require such services. MPI does not consider that existing or proposed services materially affect the proposals for these stocks. No decision has been made to not require a service in this fishery at this time.

SECTION 11A – FISHERIES PLANS

76 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 the long-term goals and objectives for deepwater fisheries. Fishery-specific chapters set specific Operational Objectives that will be delivered annually for each key deepwater species, and establish performance indicators to assess if the management objectives have been delivered.

77 The fishery-specific chapter of the National Deepwater Plan for hoki was completed in 2010. You are required to take the National Deepwater Plan into account when making a decision on the management options presented for HOK1. The management options proposed in this FAP are consistent with the dual Outcomes of the National Deepwater Plan:

a) The Use Outcome: Fisheries resources are used in a manner that provides greatest overall economic, social and cultural benefit

b) The Environment Outcome: The capacity and integrity of the aquatic environment, habitats and species are sustained at levels that provide for current and future use.

78 These dual Outcomes are given effect to by 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.

79 MPI considers that the management options presented in this FAP will contribute towards the achievement of these three Management Objectives.

80 There are no Forum Fisheries Plans directly relevant to the Northwest Chatham Rise sub-stock. However, the Chatham Islands Fisheries Forum Plan @ 44° includes the Chatham Islands, which are a part of ORH 3B. This Forum Fisheries Plan identified orange roughy as a taonga species. MPI considers that the proposal to increase the catch limit for the Northwest Chatham Rise sub-stock will not be detrimental to the achievement of the Management Objectives included in this Fisheries Plan.

SECTION 9 – ENVIRONMENTAL CONSIDERATIONS

81 Section 9 of the Act sets out the following environmental principles. These principles must be taken into account when implementing management measures under the Act.

a) Sections 9(a) and (b) require all persons exercising or performing functions, duties, or powers under the Act to take into account that associated or dependent species be maintained at or above a level that ensures their long-term viability, and that the biological diversity of the aquatic environment should be maintained.

b) Section 9(c) requires all persons exercising or performing functions, duties, or powers under the Act to take into account the principle that habitat of particular significance for fisheries management should be protected.

82 The Ministry is confident that the proposed options are consistent with the requirements of section 9. Key environmental issues associated with the ORH 3B fishery and how they will be affected by the proposals to increase the TAC are discussed below.

Fish by-catch

83 A number of deepwater species that share similar habitat to orange roughy are taken in the ORH 3B fisheries including oreos, black cardinalfish, and alfonsino. However, between 75-80% of the catch from orange roughy target trawls between 2008-09 and 2011-12 was orange roughy. The species caught in conjunction with orange roughy are largely QMS species that are actively managed.

84 Management of shark species in New Zealand is now driven by the National Plan of Action for Sharks (NPOA-Sharks) 2013. Orange roughy fishing is also known to interact with several species of 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.

85 As part of the implementation of the NPOA-Sharks 2013, a two-stage risk assessment is being completed for all sharks that will guide ongoing management. A preliminary, expert-based assessment should be available in late 2014 and a formal quantitative analysis will be available in 2015 to prioritise actions for species estimated to be at higher risk from fishing activities. Any additional catches of deepwater sharks will be taken into account through the risk assessment process.

86 Another work stream within the NPOA-Sharks 2013 is targeted at better identifying all sharks caught and reducing use of generic codes like ‘other sharks and dogfish’ and ‘deepwater dogfish’. Fishery managers are working with observers and the industry to increase species-specific reporting of these shark catches to better inform their management in conjunction with the risk assessment framework.

87 The changes proposed to the ORH 3B TAC will result in an increase in fishing effort for orange roughy on the Northwest Chatham Rise. MPI will continue to monitor interactions with sharks in orange roughy fisheries and considers that the planned risk assessment and additional management actions under the NPOA-Sharks 2013 will mitigate any risks posed by increased orange roughy fishing effort.

Seabirds

88 Management of seabird interactions with New Zealand’s commercial fisheries is now being driven through the 2013 National Plan of Action to reduce the incidental capture of seabirds in New Zealand fisheries (NPOA-Seabirds). The NPOA-Seabirds has

established a risk-based approach to managing fishing interactions with seabirds, targeting management actions at the species most at risk.

Table 4: Observed and estimated total captures of seabirds in orange roughy fisheries on the Chatham Rise

Year	Seabird captures Observed	Estimated	Total # of tows	Observed tows	% of tows observed
2012-13	2	N/A	1 592	184	11.6
2011-12	0	4	1,588	123	25.8
2010-11	1	6	1,889	124	25.4
2009-10	13	21	2,922	808	53.0
2008-09	6	14	3,544	1,050	50.2
2007-08	2	10	3,689	1,118	49.4

89 The risk based approach that underpins the NPOA-Seabirds has identified the level of risk to individual seabird species, generated by different vessel classes within the commercial fishing fleet, via a comprehensive and hierarchical risk assessment and risk screening approach.

90 Orange roughy fishing effort generally contributes a very low proportion of the total risk score for those seabird species that have been found to be at high or very high risk and this will not be materially affected by the increased fishing effort inherent in the options proposed here.

91 MPI will continue to work with industry stakeholders to further reduce the risk to key seabird species across all deepwater fisheries. A range of measures are currently in place or are under development. Mandatory seabird mitigation measures include the requirement that all trawlers over 28 m in length deploy bird mitigation devices during fishing. Research projects are currently underway that aim to improve the efficacy of these mitigation devices.[19]

92 Non-regulatory measures are also used to reduce the risk of seabird interactions with the orange roughy fleet including use of mitigation devices and offal management procedures. MPI monitors seabird captures and works with the Deepwater Group Ltd. (DWG) where necessary to minimise and mitigate captures. These practices will continue during 2014/15.

93 Proposed Options 2 and 3 would both result in increased orange roughy fishing effort on the Northwest Chatham Rise. MPI is satisfied that existing regulatory and non-regulatory measures are appropriate and that the management proposal should have little additional effect on seabirds.

Marine mammals

94 Orange trawl fisheries rarely interact with marine mammals, with no captures reported in orange roughy fisheries on the Chatham Rise for the past 10 years. MPI considers that the management proposals are unlikely to have any substantive additional effects on New Zealand fur seals, New Zealand sea lions, or any other marine mammals. However, MPI will continue ongoing monitoring of marine mammal interactions in all deepwater fisheries.

[19] More information on these projects can be found at the Department of Conservation's Conservation Services Programme website: www.doc.govt.nz/csp

Benthic impacts

95 Bottom trawling can affect fragile benthic invertebrate communities but adverse effects may be reduced if vessels repeatedly trawl along the same towlines in a fishery. There are cost implications for the industry in terms of lost or damaged gear when fishing in new areas and as a result, fishing effort is likely to continue in areas previously fished.

96 Management measures to address the effects of deepwater trawl activity have focused on 'avoiding' these effects. This has been achieved through closing areas to bottom trawling; first with seamount closures in 2001 (ten of these closures are within the ORH 3B QMA) and then with Benthic Protection Areas (12 of these are within the ORH 3B QMA). In particular, 15 square kilometres in the Northwest Chatham Rise sub-area is closed around the Morgue seamount.

97 The implementation of BPAs in 2007 effectively closed approximately 30% of the New Zealand EEZ to bottom trawling. 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.

98 The trawl footprint of orange roughy fisheries will continue to be monitored regularly.

Other Management Measures

DEEMED VALUES

99 Section 75 of the Act requires that you set deemed value rates for every stock in the QMS. This is to ensure there are appropriate incentives for fishers to acquire or maintain sufficient Annual Catch Entitlement (ACE) so that fishing effort does not result in catch limits being exceeded.

100 The current deemed value rates were revised in 2010 and are set as follows:

a) Annual deemed value rates set at $5.00 per kg

b) Interim deemed value rates set at $2.50 per kg

c) A differential deemed value rate of $6.25 applies to catch in excess of 110% of ACE holdings

101 MPI considers the deemed value rates in this fishery are appropriate and did not consult on any changes. With few vessels operating in this fishery, and monthly catch monitoring arrangements working well, catch has historically been closely aligned with catch limits. MPI is confident this will continue.

102 Fishing activity will continue to be monitored during the 2014-15 fishing year and if there is evidence that fishers are either fishing in excess of the TACC or fishing in excess of their individual ACE holdings then the deemed value rates will be reviewed for the 2014/15 fishing year.

SUB-QMA CATCH SPREADING ARRANGEMENTS

103 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 reduce fishing pressure on individual biological stocks. These limits are monitored by MPI and DWG. MPI continues to support the following catch spreading in the ORH 3B fishery that requires DWG to:

a) Submit monthly monitoring reports to MPI regarding catch levels in all ORH 3B sub-stocks

b) To notify MPI when catch reaches 80% of the catch limit for any sub-stock and also notify MPI when any limit has been reached.

104 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.

COMPLIANCE ISSUES

105 Key offences that may occur in ORH 3B include misreporting of QMS, species and weights; and fishing in closed areas. The significant increase in the TAC under this proposal is likely to reduce the incentive to offend.

106 The ORH 3B fishery is closely managed form an industry perspective with few boats operating in the fishery and approximately 98.0% of the ORH 3B quota owners represented by the DWG. DWG currently monitors adherence to catch spreading arrangements and provides monthly reports to MPI. DWG notifies MPI when catch reaches 80% of the sub-stock limits, and also notifies MPI when any limit has been reached. Observer coverage in the orange roughy trawl fisheries is relatively high with between 11 and 40% of tows observed in recent years.

107 MPI considers that the monitoring arrangements are robust and appropriate. DWG and MPI will continue to monitor this fishery closely to ensure compliance with all management measures.

Conclusions

108 The 2014 stock assessment of the Northwest Chatham Rise sub-stock of ORH 3B estimates the sub-stock to be at 37% B_0 which is above the level that can produce the maximum sustainable yield and near the upper bound of the management target range of 30-40% B_0. MPI considers this indicates additional utilisation opportunities may be available.

109 Of the three Options presented, MPI recommends that you implement Option 3. This Option would increase the ORH 3B TAC by 525 tonnes, and the Northwest Chatham Rise catch limit by 500 tonnes. This option takes full advantage of the utilisation opportunity available and will maintaining the stock at a high biomass level. Projections indicated that the stock would likely be able to support an even larger increase in catch.

Recommendations

110 MPI recommends that you:

Note that the prerequisites for the setting or varying of the TAC, TACC and allowances (which include consultation and the provision of input and participation in the decision making process of tangata whenua with a non-commercial interest in the stock or an interest in the effects of fishing on the aquatic environment in the area concerned) have been complied with.

Noted

AND, Choose either

Option 1 - Status Quo

Agree to retain the TAC for ORH 3B at 4,725 tonnes and within the TAC:

i) Retain the TACC at 4,500 tonnes;
ii) Retain nil allowances for Mäori customary non-commercial and recreational fishing interests;
iii) Retain an allowance of 225 tonnes for other sources of fishing related mortality.

Agreed / Not Agreed

AND

Note that as part of managing the ORH 3B fishery, by way of other non-statutory management measures, MPI will request that Industry implement the following sub-stock catch limits within the TACC of 4,500 tonnes:

iv) Retain a catch limit for the Northwest Chatham Rise sub-stock of 750 tonnes;
v) Retain a catch limit for the sub-Antarctic sub-stock of 500 tonnes;
vi) Retain a catch limit for the East and South Chatham Rise sub-stock of 3,100 tonnes; and
vii) Retain a catch limit for the Puysegur sub-stock of 150 tonnes.

Noted

OR

Option 2

Agree to increase the TAC for ORH 3B from 4,725 tonnes to 4,883 tonnes and within the TAC:

i) Increase the TACC from 4,500 tonnes to 4,650 tonnes;
ii) Retain nil allowances for Mäori customary non-commercial and recreational fishing interests;
iii) Increase the allowance for other sources of fishing related mortality from 225 tonnes to 233 tonnes.

Agreed / Not Agreed

AND

Note that as part of managing the ORH 3B fishery, by way of other non-statutory management measures, MPI will request that Industry implement the following sub-stock catch limits within the TACC of 4,650 tonnes:

iv) Increase the catch limit for the Northwest Chatham Rise sub-stock from 750 tonnes to 900 tonnes
v) Retain catch limits for all other sub-stocks at current levels (as per Option 1)

Noted

OR

Option 3 (MPI Recommended option)

Agree to increase the TAC for ORH 3B from 4,725 tonnes to 5,250 tonnes and within the TAC:

i) Increase the TACC from 4,500 tonnes to 5,000 tonnes;
ii) Retain nil allowances for Mäori customary non-commercial and recreational fishing interests;
iii) Increase the allowance for other sources of fishing related mortality from 225 tonnes to 250 tonnes.

Agreed / Not Agreed

AND

Note that as part of managing the ORH 3B fishery, by way of other non-statutory management measures, MPI will request that Industry implement the following sub-stock catch limits within the TACC of 5,000 tonnes:

iv) Increase the catch limit for the Northwest Chatham Rise sub-stock from 750 tonnes to 1,250 tonnes
v) Retain catch limits for all other sub-stocks at current levels (as per Option 1)

Noted

AND

Agree to request that the Deepwater Group Ltd continue to adhere to the catch spreading and sub-stock catch limits in ORH 3B and the existing reporting arrangements of catch against the sub-stock catch limits

Agreed / Not agreed

Scott Gallacher
Deputy Director-General
Regulation and Assurance
for Director-General

Hon Nathan Guy
Minister for Primary Industries

/ / 2014

ORH 2A, 2B and 3A (ORH MEC) – FINAL ADVICE PAPER

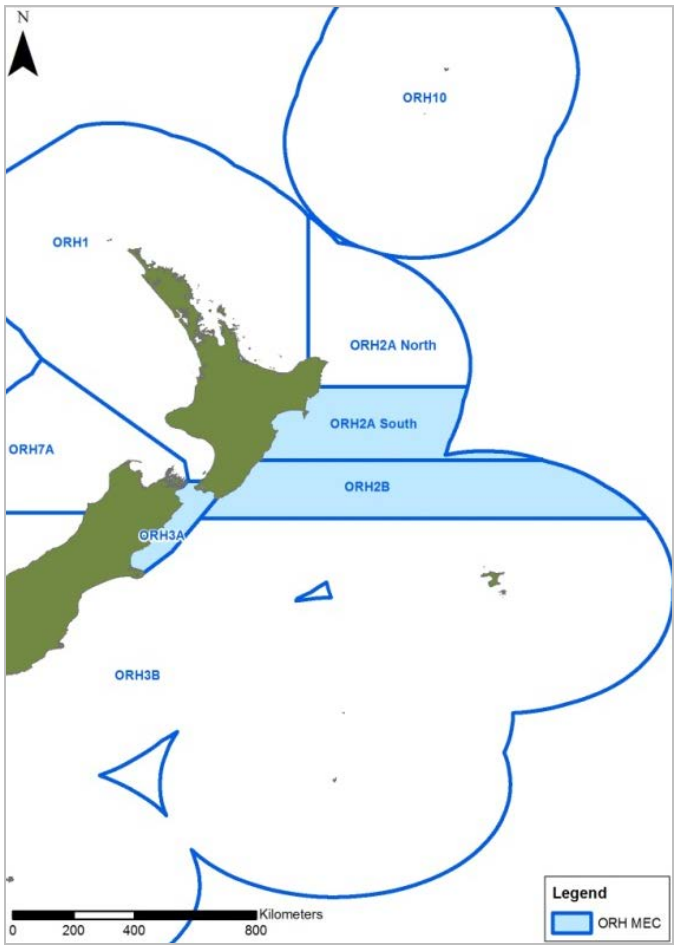

Figure 1: Quota Management Areas and sub-stock boundaries for ORH MEC

Executive Summary

1 Orange roughy within quota management areas (QMAs) ORH 2A, ORH 2B and ORH 3A are managed as two separate biological stocks:[20]

a) ORH 2A North - the East Cape Stock and

b) ORH Mid-East Coast (ORH 2A South, ORH 2B and ORH 3A).

2 The ORH 2A North sub-stock is thought to be increasing with the current catch limit of 200 tonnes. No management action is proposed for the ORH 2A North component of the ORH 2A QMA.

3 The 2014 assessment of the Mid-East Coast orange roughy stock (ORH MEC) estimates current biomass to be below the level that can produce the maximum sustainable yield (B_{MSY}). The stock assessment estimates the current biomass to be 14% of the unfished biomass (B_0), which is below the Soft Limit reference point of 20% B_0.

4 The guidance within the New Zealand Harvest Strategy Standard (the HSS) recommends that if a stock is below the Soft Limit, a time-bound rebuilding plan should be implemented to move the stock back towards the management target. The

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

assessment shows that stock size will increase at the current catch level, but would not reach the lower bound of the management target range within the timeframe recommended in the HSS. That timeframe is twice the time it would take to rebuild the stock in the absence of fishing (2*Tmin).

5 MPI has consulted on a range of catch limit options (Table 1) for ORH MEC that would rebuild the stock to the target within the recommended 2*Tmin timeframe (42 years). MPI recommends Option 2 which would reduce the ORH MEC catch limit by 705 tonnes from 1,230 tonnes to 525 tonnes and provide sufficient probability that the stock will rebuild within the recommended timeframe.

6 MPI has reviewed annual, interim and differential deemed value rates for ORH 2A, 2B, and 3A and is not proposing that these be changed for the 2014/15 fishing year.

Table 1: Summary of management options proposed for ORH 2A, 2B, and 3A (tonnes). Figures in the shaded cells together make up the ORH MEC commercial catch limit (in bold).

	ORH 2A			ORH 2B		ORH 3A		ORH MEC	Estimated rebuild time
	TAC	TACC		TAC	TACC	TAC	TACC	Commercial Catch limit	
Option 1	693	660 2A North 200	2A South 460	100	95	300	285	840	42 years
Option 2 (Recommended)	512	488 2A North 200	2A South 288	63	60	186	177	525	32 years
Option 3	326	310 2A North 200	2A South 110	27	25	68	65	200	25 years

Background Information

7 Three orange roughy QMAs exist in the middle portion of New Zealand's east coast: ORH 2A, ORH 2B and ORH 3A (Figure 1). The latest information on biological stock structure indicates that two biological stocks exist in this region:

1. ORH 2A North - the East Cape Stock and
2. ORH Mid-East Coast - (ORH 2A South, ORH 2B and ORH 3A).

8 To ensure fishery removals are managed by biological stock, separate catch limits are set for ORH 2A North and ORH MEC. The TAC for ORH 2A is set as a whole, and for the two sub-stocks, Deepwater Group Ltd (DWG), which represents orange roughy quota owners, agrees to adhere to sub-QMA catch limits for the individual sub-stocks (catch limits). Adherence to the sub-QMA catch limits is monitored throughout the fishing year by MPI and DWG.

9 The total catch limit for the ORH MEC stock is the sum of the ORH 2A South catch limit plus the TACCs for ORH 2B and ORH 3A.

10 The ORH 2A North area represents a separate biological stock for which a separate stock assessment is conducted. The most recent assessment of ORH 2A North indicates the current catch limit of 200 tonnes is sustainable. No changes to the current management settings are proposed herein for the ORH 2A North component of the ORH 2A QMA.

11 There is no new information available that would support a change to the accepted stock definition of ORH MEC stock which includes ORH 2A South, ORH 2B and ORH 3A.

Consultation

12 Decisions to vary TACs are made under section 13(4) of the Fisheries Act 1996 (the Act). Therefore, the consultation requirements of section 12(2) apply. Decisions to vary TACCs are made under section 20(2), to which the consultation requirements of section 21(2) apply. These provisions require consultation with such persons or organisations representative of those classes of persons having an interest in the stock or the effects of fishing on the aquatic environment in the area concerned, including Maori, environmental, commercial and recreational interests.

13 MPI consulted on your behalf on the three options set out in Table 1 below. MPI followed its standard consultation process of posting Initial Position Papers (IPPs) on the MPI website and alerting stakeholders to this through a letter sent to approximately 200 companies, organisations and individuals.

14 There is also an obligation to provide for input and participation of tangata whenua and have particular regard to kaitiakitanga. MPI recognises that information on customary harvest is uncertain and invited iwi, Tangata Tiaki/Kaitaiki, and customary permit holders to submit information. However, no additional information was submitted during the consultation process. MPI will continue to work with tangata whenua to improve reporting and information on customary non-commercial catches.

SUBMISSIONS RECEIVED

15 Submissions were received from the following:

a) Deepwater Group Limited (DWG)

b) Environment and Conservation Organisations of NZ Inc. (ECO)

c) Iwi Collective Partnership (ICP)

d) Ngati Porou Seafoods Ltd (Ngati Porou)

e) Our Seas Our Future (OSOF)

f) Sealord Group Limited (Sealord)

g) Te Ohu Kai Moana (Te Ohu)

16 All submissions are attached to this paper for your reference.

SUMMARY OF SUBMISSIONS

17 DWG submits on behalf of its shareholders who participate in New Zealand's major deepwater fisheries and hold around 95% of the entire deepwater quota in New Zealand. DWG indicates unanimous support of its shareholders for Option 1 and notes that a

research survey in 2015 could be completed within the proposed TACC of 840 tonnes. DWG also notes that the 2014 stock assessment was based on a survey that found half as much fish as the previous survey which adds uncertainty to the model. On this premise, DWG proposes that the stock be reviewed again following a survey in 2015 and a stock assessment in 2016.

18 Sealord expressed support for the DWG submission and also its intention to make the necessary technology available for a full survey programme in 2015.

19 The ICP was formed in 2010 to represent the collective fisheries interests of 14 iwi partners located throughout the North Island. The ICP also shares ownership and joint venture interests with other iwi located in the South Island and Chatham Islands. ICP submits in support of Option 1 on the basis that it meets the minimum HSS rebuilding plan guidelines and balances the need for industry to have time to adjust to decreased income from this fishery. They also note that the recent science is not fully certain and consider there to be little difference between taking dramatic action this season versus staging the reduction as further information demonstrates the need for it.

20 Ngati Porou is the commercial asset holding company established under the Maori Fisheries Act settlement process to receive and manage the quota assets allocated to Ngati Porou and is a member of both the ICP and the DWG. Ngati Porou submits in support of Option 1 conditional of it being reviewed after consideration of the results of a further biomass survey in 2015 and stock assessment in 2016, or earlier if new information becomes available. They consider that this should be seen as a first step in a staged reduction if future results indicate that the fishery is not improving.

21 Te Ohu expressed support for the DWG submission and reiterates support for Option 1. They consider that while the other options involved greater reductions, Option 1 still heads in the right direction within the HSS guidance and continues to provide for the stock to increase. Te Ohu also noted the commitment of quota holders to complete another survey in 2015 to inform a stock assessment in 2016.

22 OSOF is a marine conservation group based in New Zealand. OSOF recommends Option 3, considering that it will allow for the fastest rebuild rate of orange roughy and best limit bycatch, interactions with protected marine species, and effects on benthic habitats. OSOF also submits in support of the efforts of MPI to work with industry to reduce risks to seabirds and in support of the monitoring plan for ORH MEC.

23 ECO is a national alliance of 55 groups with a concern for the environment and has been concerned at the state of marine management and the impacts of fishing on threatened species for over 20 years. ECO supports a reduction in the TACC of these stocks to a level which would rebuild the stock within 20 years, noting that the current assessment shows the stock is depleted. ECO considers a rebuild time of 25 years is too long. ECO is also concerned that orange roughy fisheries are managed at levels below what it should be given the biological attributes of orange roughy.

Rationale for Management Intervention

24 The 2014 Fisheries Assessment Plenary (the Plenary) agreed that the 2014 ORH MEC stock assessment was of high quality and met New Zealand's Science and Research Information Standard for New Zealand Fisheries.[21] MPI is therefore confident that the results from the assessment can be accorded a high weight in fisheries management decisions.

25 The assessment model estimates current biomass to be 14% B_0. The Plenary considered that the stock is Likely (> 60% probability) to be below the Soft Limit (20% B_0) and Unlikely (< 40% probability) to be below the Hard Limit (10% B_0). It is also Very Unlikely (< 10% probability) to be at or above the lower end of the management target range (30-40% B_0).

26 Stock status is estimated to have been stable since the mid-1990's at around 10% B_0 with a slight increase in the last three years and is projected to continue increasing at the current catch level. Stock biomass is also projected to increase, but at a slower rate, if catch from the stock was increased.

27 The New Zealand Harvest Strategy Standard (HSS) recommends that stocks estimated to below the Soft Limit should be subject to a formal, time-constrained rebuilding plan. The stock should be rebuilt to at least the target level in a time frame between Tmin and 2*Tmin. 'Rebuilt' is defined in the HSS as the stock status that provides at least a 70% probability that the target has been achieved and at least a 50% probability that the stock is above the Soft Limit.

28 The ORH MEC biological stock has been assessed to be below the Soft Limit, and as a result MPI has proposed management options that will implement a time-constrained rebuilding plan.

29 No rebuilding plan is currently in place although the stock is estimated to have been below the Soft Limit in previous years. This is a result of previous assessments indicating the stock being above the Soft Limit, however, it is considered that the current assessment is more robust and less uncertain than the previous assessments.

Management Measures Proposed

30 The TAC for the QMAs that make up the ORH MEC stock will be set under section 13(2)(b) of the Act because the stock is estimated to be below B_{MSY}. TAC setting is also guided by the current orange roughy harvest strategy, which requires the stock to fluctuate within the target range of 30-40% B_0. This target was set above deterministic B_{MSY} (22-23% B_0)[22] to increase the likelihood that the stock will remain at or above B_{MSY} once recovered, and can sustain the fishery in the long term.

31 Options for setting the ORH MEC catch limit and subsequent TACs for ORH 2A, 2B, and 3A were informed by the results of the 2014 stock assessment, the guidelines in the HSS, and the projections that investigate the effect of a range of future catch scenarios. MPI considers all options proposed would be consistent with the objective of implementing a rebuilding plan for ORH MEC. All options would rebuild the stock to

[21] Available at: http://www.fish.govt.nz/en-nz/Publications/Research+and+Science+Information+Standard.htm
[22] It is important to note that deterministic estimates of B_{MSY} are not considered to be appropriate as management targets as they rely on perfect information and perfect management outcomes, both of which are unrealistic.

the lower bound of the target range within 2*Tmin with variations in the way and rate at which that rebuild would occur.

32 In accordance with the HSS, the assessment model estimated Tmin for the ORH MEC stock to be 21 years. The model was then used to estimate the catch levels that would allow the stock to rebuild to the lower bound of the management target range (30% B_0) in 2*Tmin (42 years) and also in the shorter timeframes of 32 years (1.5*Tmin) and 25 years (Table 1).

33 Estimates of these rebuild timeframes are based on an assumption that future recruitment of orange roughy to the stock will continue at near-average levels into the future. Predicting future levels of recruitment is highly uncertain, particularly over the significant rebuilding timeframes associated with orange roughy, due to the long-lived and slow growing nature of this species. It remains possible that future recruitment will be lower than that estimated in the stock assessment modelling, which would result in a slower rebuilding rate than projected. This highlights the need for a conservative approach to rebuilding the ORH MEC stock.

OPTION 1

34 If you select Option 1, the TACs for ORH 2A, 2B, and 3A would be reduced on a pro rata basis to give effect to the reduced overall catch limit of 840 tonnes for the ORH MEC fishery (Table 2). Customary and recreational allowances would remain at zero, and the allowance for other sources of fishing related mortality would be retained at 5% of the TACC for each QMA.

Table 2: TACs, allowances and TACCs for 2014-15 for ORH 2A, 2B, and ORH 3A under Option 1

	TAC	Customary allowance	Recreational allowance	Other sources of fishing-related mortality	TACC
ORH 2A	693	0	0	33	660
ORH 2B	100	0	0	5	95
ORH 3A	300	0	0	15	285
Total	1,093	0	0	53	1,040

* The ORH 2A TAC and TACC include a 200 tonne sub-area catch limit for the ORH 2A North portion of that stock

35 This option is supported by DWG, Sealord, ICP, Ngati Porou, and Te Ohu. They consider that implementing this option would meet the minimum guidelines of the HSS and minimise the economic impacts on fishers in the short term. They view this option as a first step in a staged reduction, allowing time for additional research to increase confidence in the estimated status of the stock before more dramatic catch reductions were implemented if necessary.

36 Option 1 is the least conservative of the options proposed. While it is consistent with the guidance in the HSS, the estimated rebuild time of 42 years is the maximum recommended by that policy. If future recruitment was lower than has been modelled, the rebuild would be slower than estimated, and the stock would not successfully rebuild to the target in this time. MPI views this as a risk, given the uncertainty associated with projecting recruitment so far into the future.

37 However, as suggested by some submitters, this option could be viewed as the first step in a staged decrease. Such a staged approach has been applied in other orange roughy fisheries (the East and South Chatham Rise, for example), and would provide more time for industry to adjust their operations to the reductions in catch and consequent revenue.

38 Based on export figures from 2013 of $4.31/kg greenweight, a 390 tonne decrease in the catch limit may result in a loss of $1.7 million in export revenue. [23]

OPTION 2 – RECOMMENDED

39 If you select Option 2, the TACs for ORH 2A, 2B, and 3A would be reduced on a pro rata basis to give effect to a reduction of 705 tonnes to an overall catch limit of 525 tonnes for ORH MEC (Table 3). Customary and recreational allowances would remain at zero, and the allowance for other sources of fishing related mortality would be retained at 5% of the TACC for each QMA.

Table 3: TACs, allowances and TACCs for 2014-15 for ORH 2A, 2B, and ORH 3A under Option 2

	TAC	Customary allowance	Recreational allowance	Other sources of fishing-related mortality	TACC
ORH 2A	512	0	0	24	488
ORH 2B	63	0	0	3	60
ORH 3A	186	0	0	9	177
Total	761	0	0	36	725

40 MPI considers this option to be an appropriate balance between the need to significantly reduce the yield to ensure the stock rebuilds successfully and offering industry continued revenue and an opportunity to redistribute fishing effort.

41 This option indicates a clear commitment to rebuild this stock in a shorter timeframe than the maximum recommended in the HSS. The ORH MEC catch limit of 525 is projected to allow the stock to rebuild in 1.5*Tmin (32 years) as opposed to 2*Tmin (42 years).

42 MPI supports the view presented by several submitters that further research effort is required to improve our understanding of the abundance of this sub-stock of orange roughy. If you were to implement this option, MPI would also recommend that further research surveys and subsequent assessments be scheduled, with all research catch necessary to support survey sampling taken from within the commercial catch limit of 525 tonnes.

43 Based on export figures from 2013 of $4.31/kg greenweight, a 705 tonne decrease in the catch limit may result in a loss of $3.0 million in export revenue.

OPTION 3

44 If you select Option 3, the TACs for ORH 2A, 2B, and 3A would be reduced on a pro rata basis by 1,030 tonnes to give effect to an overall catch limit of 200 tonnes for ORH MEC (Table 4). Customary and recreational allowances remain at zero, and the allowance for other sources of fishing related mortality would be retained at 5% of the TACC for each QMA.

[23] Based on export figures for 2013 calendar year of $4.31 / kg greenweight. This uses frozen fillets to estimate the greenweight export price as this product form accounted for 85% of export earnings and 72% of export volume for orange roughy in the 2013 calendar year.

Table 4: TACs, allowances and TACCs for 2014-15 for ORH 2A, 2B, and ORH 3A under Option 3

	TAC	Customary allowance	Recreational allowance	Other sources of fishing-related mortality	TACC
ORH 2A	326	0	0	16	310
ORH 2B	27	0	0	2	25
ORH 3A	68	0	0	3	65
Total	421	0	0	21	400

45 Option 3 is supported by OSOF, who consider it the option that will allow for the quickest rebuild and limit effects of fishing on bycatch species and the benthic habitat. This option would achieve this, but would also impose significant economic impacts on the industry that are not necessary to rebuild the stock within the recommended timeframe.

46 ECO did not support any proposed options, but recommended a more drastic decrease in the catch limits. ECO considers that the catch limit should allow the stock to rebuild within 20 years. Projections based on the stock assessment indicate that even with a catch limit of zero, the stock would take 21 years to rebuild, therefore a rebuilding timeframe of 20 years, as suggested by ECO, is unrealistic.

47 Option 3 is the most conservative option proposed and is projected to allow the stock to rebuild in 25 years. MPI considers the economic impacts of implementing this option would outweigh the benefits to the stock in the short term. As suggested by some submitters, the previous options may be viewed as initial steps in a staged reduction. This option would preclude a staged reduction and would make a significant change to the way the industry is able to operate with no adjustment period.

48 Based on export figures from 2013 of $4.31/kg greenweight, a 1,030 tonne decrease in the catch limit may result in a loss of $4.4 million in export revenue.

Assessment of Management Options

49 This section describes the management options available for your consideration in terms of how they will ensure that your relevant statutory obligations are met.

50 Section 8 says that the purpose of the Act is to provide for utilisation while ensuring sustainability. MPI considers that all options presented in this paper satisfy the purpose of the Act in that they provide for utilisation in the ORH MEC fishery while ensuring sustainability. Each management option proposed will ensure the long term sustainability of the stock. Option 1 provides the upper limit on the volume of catch that could be harvested from the ORH MEC stock during the initial stage of the rebuild. Options 2 and 3 provide two additional volumes of catch that would lead to faster rebuild rates for the stock.

SECTION 13 – SETTING THE TAC

51 The best available information estimates that the ORH MEC stock status to be at 14% B_0 which is below the Soft Limit (20% B_0) and below the level which can produce the maximum sustainable yield (B_{MSY}). Accordingly, MPI proposes that the TAC be set under section 13(2)(b) to enable the ORH MEC stock to be restored to or above a level that can produce the maximum sustainable yield.

52 Section 13(2)(b) of the Act requires you to set a TAC that:

a) Enables the level of a stock whose current level is below that which can produce the maximum sustainable yield to be altered -

i. in a way and at a rate that will result in the stock being restored to at or above a level that can produce the maximum sustainable yield, having regard to the interdependence of stocks; and

ii. within a period appropriate to the stock having regard to the biological characteristics of the stock and any environmental conditions affecting the stock; or

53 Section 13(2)(b) contains specific considerations that you must have regard to when setting the TAC:

a) The interdependence of stocks (section 13(2)(b)(i)). There is no information to suggest the interdependence of stocks should affect the level of the TAC for ORH MEC at this time, given that bycatch proportions are low. The interdependence of stocks is discussed further below.

b) Environmental conditions affecting ORH MEC (section 13(2)(b)(ii)). No specific environmental conditions affecting the ORH MEC stock have been identified.

c) The biological characteristics of ORH MEC (section 13(2)(b)(ii)). It is known that orange roughy are very long-lived and late maturing, which are biological characteristics that render them slow to recover from overfishing. These biological characteristics are taken into account in the stock assessment model and the subsequent estimate of T_{min} and projected rebuild times for various levels of catch.

54 Under section 13 you are required to set a TAC for each QMA included in the ORH MEC biological stock. For ORH 2A, this requires the TAC be set as a single unit of management including the portion of the QMA that is not considered to be part of the ORH MEC biological stock.

SECTION 13(2)(B)(I) – RATE OF CHANGE

55 Section 13(2)(b) requires that, in considering the way and the rate that the stock may be moved towards a level that can produce the MSY, you shall have regard to such social, cultural and economic factors as you consider relevant.

56 There is no statutory guidance on what an appropriate ‘way and rate’ might be in any given case for the purposes of applying section 13(3). However, the HSS provides guidance to assist you to determine the most appropriate way and rate by providing that depleted stocks should be rebuilt back to a target based on MSY-compatible reference points or better. The HSS guidance also ensures that the specific rate of rebuilding takes due account of relevant biological and environmental factors.

57 MPI considers that given the information presented above, your obligations under section 13(2)(b) are met and decreasing the ORH 2A, 2B, and 3A TACs to any of the proposed options will enable the level of the stock to be restored to or above BMSY within the time frame suggested in the New Zealand Harvest Strategy Standard. Each option will result in the stock rebuilding at a different way and rate, within the guidance of the HSS.

58 Projections using the stock assessment model indicate that the stock would rebuild in 42 years under Option 1; 32 years under Option 2; and 25 years under Option 3. All options are consistent with the HSS guidance, although Option 1 is less cautious and may be less likely to successfully rebuild the stock within the minimum timeframe suggested by the HSS guidelines. Option 3 is the most cautious and therefore the most certain to rebuild the stock within the suggested timeframe.

59 MPI considers that Option 2 provides the most appropriate rebuild rate for ORH MEC. Option 2 takes into account the uncertainty in long term projections of stock status, but also allows time for the fishing industry to adjust their operations and maintain economic viability.

60 All proposed options will have an economic impact on the fishing industry. Option 1 may result in a potential loss of around $1.7 million, whereas the larger decrease in TACs in option 3 may result in potential losses of around $4.4 million in export value. Option 1 or 2 may be viewed as a first step in a step-wise move to reduce the TACs further, with the delay allowing more time for industry to redistribute fishing capacity and adjust business plans.

61 Given the lack of recreational and customary catch of orange roughy, and the retention of the current allowances, MPI considers decreasing TACs of the stocks that make up the ORH MEC area under any of the proposed options will not have an adverse impact on non-commercial fishers.

ALLOCATING THE TAC

62 The TAC must be apportioned among the relevant sectors and interests as required under sections 20 and 21 of the Act. Section 21 prescribes that you shall make allowances for Maori customary non-commercial interests, recreational fishing interests, and for any other sources of fishing-related mortality, before setting the TACC.

Recreational and customary allowances

63 Recreational and customary fishers do not target orange roughy as it is a deepwater, offshore fishery and the data on customary and recreational catches of orange roughy is negligible. MPI considers there to be no rationale to change the current recreational or customary allowances of zero tonnes.

Other sources of fishing-related mortality

64 MPI proposes an allowance for other sources of fishing-related mortality of 5% of the TACC. This would be a total of 53 tonnes under Option 1 and 21 tonnes under Option 3. This allowance is required to take account of orange roughy mortality that is not reported such as orange roughy lost due to burst nets or discarding of damaged orange roughy.

SECTION 10 – INFORMATION PRINCIPLES

65 Under section 10 of the Act, you must take into account the following information principles:

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.

66 The Ministry considers that the best available information has been used as the basis for the recommendations herein. All science information upon which the management options are based has been peer reviewed by one of the Ministry's Fisheries Assessment Working Groups and the Science Plenary, and meets the Research and Science Information Standard for New Zealand Fisheries.

SECTION 11 CONSIDERATIONS

67 Under section 11 of the Act, before setting or varying any sustainability measure for any stock, you must:

a) Section 11(1)(a): take into account any effects of fishing on any stock and the aquatic environment. No information about any effects of fishing on any stock or on the aquatic environment, additional to that discussed elsewhere in this paper, is considered relevant to the review of sustainability measures for this stock at this time.

b) Section 11(1)(b): take into account any existing controls under the Act that apply to the stock or area concerned. For this stock the measures that apply currently are a TAC, TACC and allowances for customary take, recreational take, and other sources of fishing-related mortality. No other controls under the Act specifically apply to this stock.

c) Section 11(1)(c): take into account the natural variability of the stock. This is incorporated into the discussion above on setting the TAC for this stock.

d) Sections 11(2)(a) and (b): have regard to any provisions of any regional policy statement, regional plan, or proposed regional plan under the Resource Management Act 1991 and any management strategy or management plan under the Conservation Act 1987 that apply to the coastal marine area and that the Minister considers relevant. MPI is not aware of any such policy statements, plans or strategies that should be taken into account for this stock.

e) Section 11(2)(c): have regard to sections 7 and 8 of the Hauraki Gulf Marine Park Act 2000 that apply to the coastal marine area and the Minister considers relevant. The boundaries of the ORH 2A, 2B, or 3A do not intersect with the Hauraki Gulf. Therefore, there are no relevant considerations under the Hauraki Gulf Marine Park Act 2000 for this stock.

f) Section 11(2)(d): have regard to any planning document lodged 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 by you to be relevant. The Ministry is not aware that any such planning documents have been lodged at this time.

g) Section 11(2A)(b): take into account any relevant and approved fisheries plans. The application of the National Fisheries Plan for Deepwater and Middle-depth Fisheries and Forum Fisheries Plans is discussed in the following section.

h) Sections 11(2A)(a) and (c): you must take into account any conservation or fisheries services, or any decision not to require such services. MPI does not consider that

existing or proposed services materially affect the proposals for these stocks. No decision has been made to not require a service in this fishery at this time.

SECTION 11A – FISHERIES PLANS

68 MPI, 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 the long-term goals and objectives for deepwater fisheries. Fishery-specific chapters set specific Operational Objectives that will be delivered annually for each key deepwater species, and establish performance indicators to assess if the management objectives have been delivered.

69 The fishery-specific chapter of the National Deepwater Plan for orange roughy was completed in 2010. You are required to take the National Deepwater Plan into account when making a decision on the management options presented for ORH 2A, 2B, and 3A. The management options proposed in this FAP are consistent with the dual Outcomes of the National Deepwater Plan:

a) The Use Outcome: Fisheries resources are used in a manner that provides greatest overall economic, social and cultural benefit

b) The Environment Outcome: The capacity and integrity of the aquatic environment, habitats and species are sustained at levels that provide for current and future use.

70 These dual Outcomes are given effect to by 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.

71 MPI considers that the management options presented in this FAP will contribute towards the achievement of these three Management Objectives.

72 There is one Forum Fisheries Plan relevant to the ORH MEC fishery area. The Te Waka a Maui me ona Toka Iwi Forum has produced the Te Waipounamu Iwi Forum Fisheries Plan. This Plan covers ORH 3A and identifies orange roughy as a taonga species. The Te Waipounamu Iwi Form Fisheries Plan contains six Management Objectives, two of which are relevant to the management of ORH 3A:

a) Management Objective 3: To develop environmentally responsible, productive, sustainable and culturally appropriate commercial fisheries that create long-term commercial benefits and economic develop opportunities for South Island Iwi

b) Management Objective 5: To restore, maintain and enhance the mauri and wairua of fisheries throughout the South Island.

73 MPI considers that the management options presented in this advice paper will contribute towards the achievement of these two Management Objectives in ensuring that the fishery remains sustainable and that environmental impacts are minimised.

SECTION 9 – ENVIRONMENTAL CONSIDERATIONS

74 Section 9 of the Act sets out the following environmental principles. These principles must be taken into account when implementing management measures under the Act.

a) Sections 9(a) and (b) require all persons exercising or performing functions, duties, or powers under the Act to take into account that associated or dependent species be maintained at or above a level that ensures their long-term viability, and that the biological diversity of the aquatic environment should be maintained.

b) Section 9(c) requires all persons exercising or performing functions, duties, or powers under the Act to take into account the principle that habitat of particular significance for fisheries management should be protected.

75 The Ministry is confident that the proposed options are consistent with the requirements of section 9. Key environmental issues associated with the ORH MEC fishery and how they will be affected by the proposals to increase the TAC are discussed below.

Seabirds

76 Management of seabird interactions with New Zealand's commercial fisheries is now being driven through the 2013 National Plan of Action to reduce the incidental capture of seabirds in New Zealand fisheries (NPOA-Seabirds). The NPOA-Seabirds has established a risk-based approach to managing fishing interactions with seabirds, targeting management actions at the species most at risk.

Table 5: Observed and estimated total captures of seabirds in all orange roughy fisheries

	Seabirds Observed captures	Estimated total captures	Total # of tows	Observed tows	% of tows observed
2011-12	0	6	1,588	437	27.2
2010-11	2	10	1,889	795	26.2
2009-10	13	27	2,922	1,139	39.0
2008-09	6	16	3,544	1,435	40.5
2007-08	2	12	3,689	1,618	43.9

77 The risk based approach that underpins the NPOA-Seabirds has identified the level of risk to individual seabird species, generated by different vessel classes within the commercial fishing fleet, via a comprehensive and hierarchical risk assessment and risk screening approach.

78 Orange roughy fishing effort generally contributes a very low proportion of the total risk score for all seabird species, including those that have been found to be at high or very high risk.

79 MPI will continue to work with industry stakeholders to reduce the risk to key seabird species across all deepwater fisheries. A range of measures are currently in place or are under development. Mandatory seabird mitigation measures include the requirement that all trawlers over 28 m in length deploy bird mitigation devices during fishing. Research projects are currently underway that aim to improve the efficacy of these mitigation devices.[24]

[24] More information on these projects can be found at the Department of Conservation's Conservation Services Programme website: www.doc.govt.nz/csp

80 Non-regulatory measures are also used to reduce the risk of seabird interactions with the orange roughy fleet including use of mitigation devices and offal management procedures. MPI monitors seabird captures and works with the Deepwater Group Ltd. (DWG) where necessary to minimise and mitigate captures. These practices will continue during 2014/15.

81 All options result in decreased orange roughy fishing effort in the ORH MEC area. MPI is satisfied that existing regulatory and non-regulatory measures are appropriate and that the management proposals should have no additional effects on seabirds as no increases in catch limits of TACs are proposed.

Fish by-catch

82 A number of deepwater species that share similar habitat to orange roughy are taken in the ORH MEC fishery including oreos, black cardinalfish and alfonsino. However, about 80% of the catch from orange roughy target trawls between 2008-09 and 2011-12 was orange roughy. The species caught in conjunction with orange roughy are largely QMS species that are actively managed. Fish bycatch will be monitored as part of the usual reporting process and managed accordingly.

83 Management of shark species in New Zealand is now driven by the National Plan of Action for Sharks (NPOA-Sharks) 2013. Orange roughy fishing is also known to interact with several species of 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 fishing.

84 As part of the implementation of the NPOA-Sharks 2013, a risk assessment is being completed for all sharks that will guide ongoing management, prioritizing species deemed to be at higher risk from fishing activities. Any additional catches of deepwater sharks will be taken into account through the risk assessment process.

85 Another work stream of the NPOA-Sharks 2013 is targeted at better identifying all sharks caught and reducing use of generic codes like ‘other sharks and dogfish’ and ‘deepwater dogfish’. Fisheries managers are working with MPI observers and the industry to increase species-specific reporting of these shark catches to better inform their management in conjunction with the risk assessment framework.

86 All proposed options would result in a decrease in orange roughy fishing effort and are therefore likely to reduce impacts on any bycatch species in these orange roughy fisheries.

Marine mammals

87 Orange roughy trawl fisheries rarely interact with marine mammals. MPI considers that all options proposed are unlikely to have any additional effects on New Zealand fur seals, New Zealand sea lions or any other marine mammals and impacts on marine mammals will probably decline. However, MPI will continue ongoing monitoring of marine mammal interactions in all deepwater fisheries.

Benthic impacts

88 Bottom trawling can affect fragile benthic invertebrate communities but adverse effects may be reduced if vessels repeatedly trawl along the same towlines in a fishery. There

are cost implications for the industry in terms of lost or damaged gear when fishing in new areas and as a result, fishing effort is likely to continue in areas previously fished.

89 Management measures to address the effects of deepwater trawl activity have focused on 'avoiding' these effects. This has been achieved through closing areas to bottom trawling; first with seamount closures in 2001 (two of these are within the ORH 2A QMA) and then with Benthic Protection Areas (three of these are within the ORH MEC fishery area).

90 The implementation of BPAs in 2007 effectively closed approximately 30% of the New Zealand EEZ to bottom trawling. A monitoring regime to ensure these closures are adhered to is in place.

91 The trawl footprint of orange roughy fisheries will continue to be monitored regularly.

DEEMED VALUES

92 Section 75 of the Act requires that you set deemed value rates for every stock in the QMS. This is to ensure there are appropriate incentives for fishers to acquire or maintain sufficient Annual Catch Entitlement (ACE) so that fishing effort does not result in catch limits being exceeded.

93 MPI considers the deemed value rates in this fishery are appropriate and did not consult on any changes. With few vessels operating in this fishery, and monthly catch monitoring arrangements working well, catch has historically been closely aligned with catch limits. MPI is confident this will continue.

94 Fishing activity will continue to be monitored during the 2014-15 fishing year and if there is evidence that fishers are either fishing in excess of the TACC or fishing in excess of their individual ACE holdings then the deemed value rates will be reviewed for the 2014/15 fishing year.

Other Management Measures

SUB-QMA CATCH SPREADING ARRANGEMENTS

95 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 reduce fishing pressure on individual biological stocks. These limits are monitored by MPI and DWG. MPI continues to support the following catch spreading in the ORH 2A fishery that requires DWG to:

a) Submit monthly monitoring reports to MPI regarding catch levels in ORH 2A North and ORH 2A South

b) To notify MPI when catch reaches 80% of the catch limit for either sub-stock and also notify MPI when any limit has been reached.

96 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.

COMPLIANCE ISSUES

97 Key offences that may occur in ORH MEC include misreporting of QMA, species and weights, and fishing in closed areas. Any reduction in TACs may increase the incentive to offend.

98 However, the ORH 2A, ORH 2B, and ORH 3A fisheries are closely managed from an industry perspective with few vessels operating in the fishery and regular reporting requirements in place. Observer coverage in the orange roughy fisheries is relatively high with 12-40% of tows observed in the most recent five years.

99 MPI considers that the monitoring arrangements in place are robust and appropriate. DWG and MPI will continue to actively monitor this fishery closely to ensure compliance with catch limits and all management arrangements.

Conclusions

100 The 2014 assessment of the ORH MEC stock estimates current biomass to be below the level that can produce the maximum sustainable yield and to be below the Soft Limit reference point.

101 The guidance within the New Zealand Harvest Strategy Standard recommends that if a stock is below the Soft Limit, a time-bound rebuilding plan should be implemented to move the stock back towards the management target.

102 MPI has proposed three options to implement a rebuilding plan for the ORH MEC stock.

103 Option 1 proposes a catch level that is projected to allow the stock to rebuild in the minimum timeframe recommended in the HSS of 42 years. This option is the least conservative and may not address all risks associated with the future projections. It does allow the industry to maintain a level of catch, and may be seen as a first step in a staged reduction of the catch limits.

104 Option 2 proposes a catch level that is projected to allow the stock to rebuild in 32 years. This catch level is more cautious and provides more confidence that the stock will rebuild within the recommended timeframe while still providing the industry with some catch.

105 Option 3 is the most conservative and is projected to allow the stock to rebuild in 25 years. This option does not provide much catch for the industry and any research surveys would likely require a special permit to be completed.

106 MPI recommends that you choose to implement Option 2. This Option provides sufficient confidence that the stock will meet the timeline for rebuilding provided in the HSS. It will also continue to allow industry to harvest some catch from the fishery during the rebuild. MPI will continue to monitor the stock to ensure that the management settings you choose do result in the stock rebuilding towards the management target range.

Recommendations

107 MPI recommends that you:

Note that the prerequisites for the setting or varying of the TAC, TACC and allowances (which include consultation and the provision of input and participation in the decision making process of tangata whenua with a non-commercial interest in the stock or an interest in the effects of fishing on the aquatic environment in the area concerned) have been complied with.

Noted

AND

a) For ORH 2A you select one of the following three options:

Option 1

Agree to decrease the TAC for ORH 2A from 919 tonnes to 693 tonnes and within the TAC:

i) Decrease the TACC from 875 tonnes to 660 tonnes;
ii) Retain nil allowances for Mäori customary non-commercial and recreational fishing interests; and
iii) Decrease the allowance for other sources of fishing related mortality from 44 tonnes to 33 tonnes.

Agreed / Not Agreed

AND

Note that as part of managing the ORH 2A fishery, by way of other non-statutory management measures, MPI will request that Industry implement the following sub-stock catch limits within the TACC of 660 tonnes:

iv) Retain the catch limit for the ORH 2A North sub-stock at 200 tonnes;
v) Decrease the catch limit for the ORH 2A South sub-stock from 675 tonnes to 460 tonnes.

Noted

OR

Option 2 (recommended option)

Agree to decrease the TAC for ORH 2A from 919 tonnes to 512 tonnes and within the TAC:

i) Decrease the TACC from 875 tonnes to 488 tonnes;
ii) Retain nil allowances for Mäori customary non-commercial and recreational fishing interests; and
iii) Decrease the allowance for other sources of fishing related mortality from 44 tonnes to 24 tonnes.

Agreed / Not Agreed

AND

Note that as part of managing the ORH 2A fishery, by way of other non-statutory management measures, MPI will request that Industry implement the following sub-stock

catch limits within the TACC of 660 tonnes:

iv) Retain the catch limit for the ORH 2A North sub-stock at 200 tonnes;
v) Decrease the catch limit for the ORH 2A South sub-stock from 675 tonnes to 288 tonnes.

Noted

OR

Option 3

Agree to decrease the TAC for ORH 2A from 919 tonnes to 326 tonnes and within the TAC:

i) Decrease the TACC from 875 tonnes to 310 tonnes;
ii) Retain nil allowances for Mäori customary non-commercial and recreational fishing interests;
iii) Decrease the allowance for other sources of fishing related mortality from 44 tonnes to 16 tonnes.

Agreed / Not Agreed

AND

Note that as part of managing the ORH 2A fishery, by way of other non-statutory management measures, MPI will request that Industry implement the following sub-stock catch limits within the TACC of 660 tonnes:

iv) Retain the catch limit for the ORH 2A North sub-stock at 200 tonnes
v) Decrease the catch limit for the ORH 2A South sub-stock from 675 tonnes to 110 tonnes

Noted

AND

Agree to request that the Deepwater Group Ltd continue to adhere to the catch spreading and sub-stock catch limits in ORH 2A and the existing reporting arrangements of catch against the sub-stock catch limits

Agreed / Not agreed

b) For ORH 2B you select one of the following three options:

Option 1

Agree to decrease the TAC for ORH 2B from 147 tonnes to 100 tonnes and within the TAC:

i) Decrease the TACC from 140 tonnes to 95 tonnes;
ii) Retain nil allowances for Mäori customary non-commercial and recreational fishing interests; and
iii) Decrease the allowance for other sources of fishing related mortality from 7 tonnes to 5 tonnes.

Agreed / Not agreed

OR

Option 2 (recommended option)

Agree to decrease the TAC for ORH 2B from 147 tonnes to 63 tonnes and within the TAC:

i) Decrease the TACC from 140 tonnes to 60 tonnes;
ii) Retain nil allowances for Mäori customary non-commercial and recreational fishing interests; and
iii) Decrease the allowance for other sources of fishing related mortality from 7 tonnes to 3 tonnes.

Agreed / Not agreed

OR

Option 3

Agree to decrease the TAC for ORH 2B from 147 tonnes to 27 tonnes and within the TAC:

i) Decrease the TACC from 140 tonnes to 25 tonnes;
ii) Retain nil allowances for Mäori customary non-commercial and recreational fishing interests; and
iii) Decrease the allowance for other sources of fishing related mortality from 7 tonnes to 2 tonnes.

Agreed / Not Agreed

c) For ORH 3A you select one of the following three options:

Option 1

Agree to decrease the TAC for ORH 3A from 436 tonnes to 300 tonnes and within the TAC:

i) Decrease the TACC from 415 tonnes to 285 tonnes;
ii) Retain nil allowances for Mäori customary non-commercial and recreational fishing interests; and
iii) Decrease the allowance for other sources of fishing related mortality from 21 tonnes to 15 tonnes.

Agreed / Not Agreed

OR

Option 2 (recommended option)

Agree to decrease the TAC for ORH 3A from 436 tonnes to 186 tonnes and within the TAC:

i) Decrease the TACC from 415 tonnes to 177 tonnes;
ii) Retain nil allowances for Mäori customary non-commercial and recreational fishing interests; and
iii) Decrease the allowance for other sources of fishing related mortality from 21 tonnes to 9 tonnes.

Agreed / Not Agreed

OR

Option 3

Agree to decrease the TAC for ORH 3A from 436 tonnes to 68 tonnes and within the TAC:

i) Decrease the TACC from 415 tonnes to 65 tonnes;
ii) Retain nil allowances for Mäori customary non-commercial and recreational fishing interests; and
iii) Decrease the allowance for other sources of fishing related mortality from 21 tonnes to 3 tonnes.

Agreed / Not Agreed

Scott Gallacher
Deputy Director-General
Regulation and Assurance
for Director-General

Hon Nathan Guy
Minister for Primary Industries

/ / 2014