ORH 3B – FINAL ADVICE PAPER

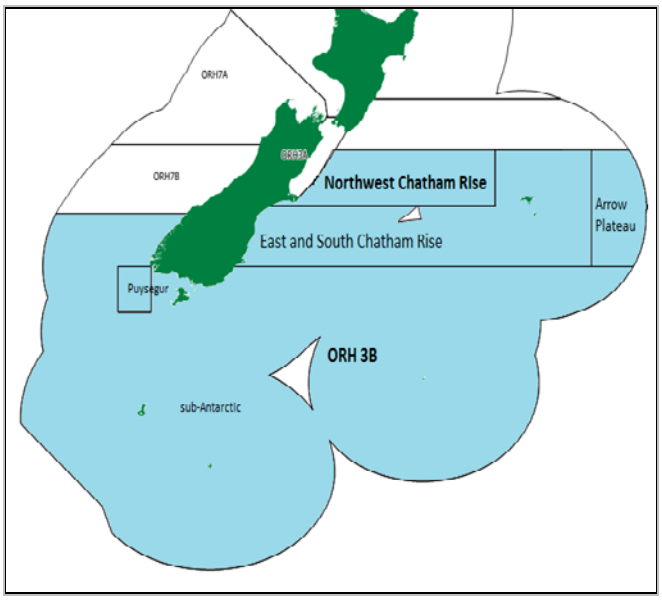

Figure 1: Sub-stock boundaries for the ORH 3B Quota Management Area

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.

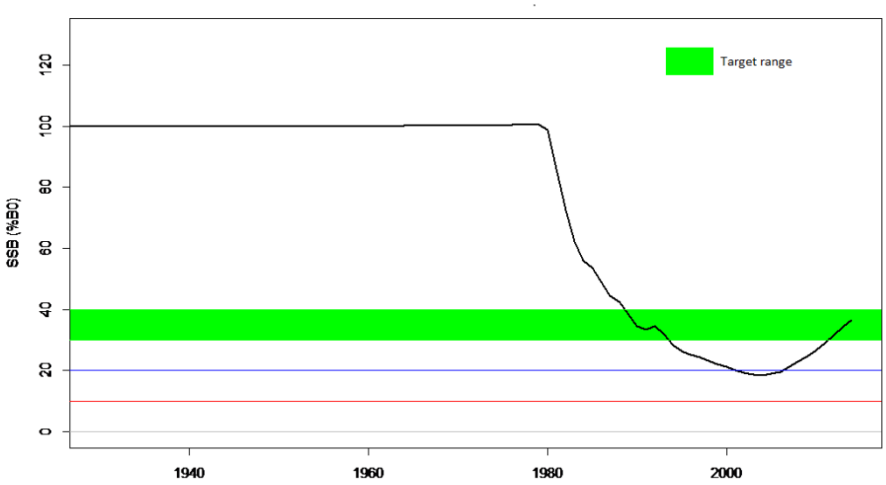

Figure 2: Estimated biomass trajectory for ORH 3B Northwest Chatham Rise

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