Ministry for Primary Industries
Manatū Ahu Matua

Review of Sustainability measures for southern blue whiting at Campbell Island (SBW6I)
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Final Advice Paper

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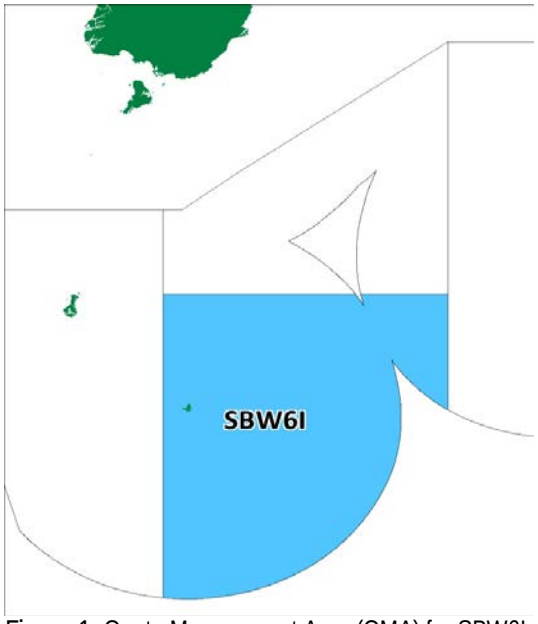

Figure 1: Quota Management Area (QMA) for SBW6I

EXECUTIVE SUMMARY

1 The SBW6I fishery is the largest of four southern blue whiting fisheries and is located around Campbell Island in the sub-Antarctic (Figure 1). Results from the 2014 stock assessment indicated that the SBW6I biomass is approximately 58% of un-fished biomass (B_0) which is above the biomass that will produce the maximum sustainable yield (B_{MSY}), and above the default management target of 40% B_0. Consequently, the Ministry consulted on three options; one to retain the total allowable catch (TAC) and two options for increasing the TAC.

2 Four submissions, two from commercial stakeholders and two from environmental stakeholders, were received on the SBW6I Initial Position Paper (IPP). The commercial fishing industry supports increasing the total allowable catch (TAC) to 40,000 tonnes (Option 3). The environmental conservation groups do not support any increase and support keeping catch levels at the status quo (Option 1).

3 After considering the submissions received, the Ministry recommends Option 3, which would increase the SBW6I TAC from 30,000 tonnes to 40,000 tonnes. This increase would enable industry to utilise, within sustainable limits, the high biomass of southern blue whiting currently present in the SBW6I stock. All three options presented in this paper will bring stock biomass down towards the management target of 40%B_0. Option 3 will achieve this at a faster rate than Option 1 or Option2.

4 The Ministry proposes that a 2% allowance be made within the TAC for other sources of fishing related mortality. There is no known customary Maori or recreational take of southern blue whiting and it is proposed to retain zero allowance for these sectors. The Ministry does not propose any changes to the current deemed values rates for SBW6I.

Summary of Options

5 The three options that were consulted on are summarised below. Option 3, which increases the TAC by 10,000 tonnes, is the Ministry's recommended option (Table 1).

Table 1: Proposed TAC, TACC and allowance options for SBW6I

Option	TAC (t)	TACC (t)	Allowances		
			Māori Customary (t)	Recreational (t)	Other sources of fishing-related mortality (t)
Option 1 (Status Quo)	30,000	29,400	0	0	600
Option 2	35,000	34,300	0	0	700
Option 3 (Preferred Option)	40,000	39,200	0	0	800

BACKGROUND INFORMATION

Biological Characteristics of Southern Blue Whiting

6 Adult southern blue whiting (*Micromesistius australis*) form dense spawning aggregations at four known locations across the sub-Antarctic, at depths of 250-600 metres during July to September. Scientific information shows that these four spawning locations represent four distinct stocks.

7 The stocks are characterised by highly variable recruitment. Years of very strong recruitment are infrequent and are separated by longer periods of average and below-average recruitment.

8 Southern blue whiting exhibits fast growth especially during the juvenile life stage. The species generally matures between the ages of 2 and 4, when they recruit to the spawning grounds (and the commercial fishery) for the first time. The age of first spawning is observed to increase in strong year classes, which is thought to be a density dependent response to high abundance through slower growth and a higher age at maturity.

SBW6I Fishery

9 Southern blue whiting was introduced to the quota management system (QMS) in 1999. Before this, harvests were managed via sub-area catch limits from 1992.

10 The fishery operates when the SBW6I stock aggregates to spawn during late August and September. The fishery is purely a commercial fishery, in which between 10 and 14 trawl vessels participate each year.

11 Since 1997/98 the SBW6I fishery has supported a catch limit in excess of 20,000 tonnes. Harvest levels, and the TACC, have fluctuated over the course of the fishery in response to biomass fluctuations that result from variation in recruitment (Figure 2).

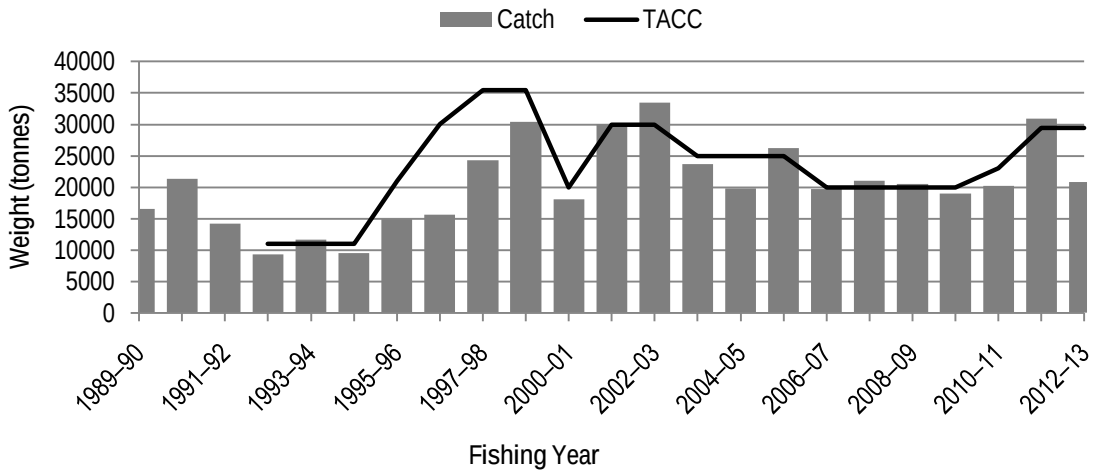

Figure 2: Reported landings and TACC (t) for SBW6I from fishing year 1989/90 to the 2012/13 fishing year.

Consultation

12 Your decision to adjust the TAC for SBW6I is made under section 13(4) of the Fisheries Act 1996 (the Act) and therefore the consultation requirements of section 12 apply. Also, in respect of your decision whether or not to adjust the TACC for SBW6I under section 20(1) of the Act the consultation requirements set out in section 21(2) of the Act apply.

13 Consultation on the Initial Position Paper (IPP) was undertaken with such persons or organisations representative of those having an interest in the stock or the effects of fishing on the aquatic environment in the area concerned. This includes Māori, environmental, and commercial interests.

14 The Ministry followed its standard consultation process for IPPs in the April 2014 sustainability round. This involved posting all IPPs on the Ministry's website and alerting stakeholders to this through a letter sent to approximately 140 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. The Ministry 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.

Submissions Received

16 Submissions were received from the following:

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

b) Sanford Ltd

c) The Deepwater Group Ltd (DWG)

d) World Wildlife Fund (WWF)

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

Summary of Submissions

18 A brief summary of each submission is outlined below. The Ministry's responses to issues raised in the submissions can be found within the relevant later sections of this advice paper.

19 The DWG, which represents 89% of SBW6I quota holders, supports increasing the TAC to 40,000 tonnes (Option 3). Support for this option is contingent on the DWG and the Ministry continuing to work together to achieve the following:

a) Implement an effective mitigation plan to minimise the incidental interactions with New Zealand sea lions

b) Undertake an update of the previous Management Strategy Evaluation (MSE)[1]

c) Use the MSE results to determine the timing of the next biomass survey, as quota owners were keen to see the possibility of the next survey being delayed beyond the current plan of 2015

d) Review the Harvest Strategy and Management Target for this stock

e) Include the results of the above work in the Fishery Plan for SBW6I

f) Based on results from the above, review management measures for SBW6I prior to 2015-16

20 Sanford is represented by DWG, but also chose to make its own submission. Sanford owns approximately 11% of the SBW6I quota and supports DWG's submission, including the provisos, for an increase to the TAC (Option 3).

21 ECO supports Option 1 (status quo), submitting that any increase in catch is likely to result in the increased bycatch of sea lions, as well as the deaths of fur seals and sea birds. ECO also notes that any increase in effort within the fishery will impact the monitoring and gathering of scientific information around sea lion interactions.

22 WWF also submits support for Option 1 (status quo) until the Ministry implements the mandatory use of sea lion exclusion devices (SLEDs). WWF advocates for the use of SLEDs by every vessel from the start of the fishery, a period within which the majority of captures have occurred. WWF also highlights the need to address recommendations made by the Marine Stewardship Council (MSC) auditors, given the fishery's MSC Certification.

23 The Ministry has been working with industry to develop operational procedures for vessels operating in this fishery, to reduce the risk of incidental sea lion interactions. DWG highlights within their submission that quota owners have agreed to use SLEDs in the SBW6I fishery for the 2014 season. They also support full independent observer coverage and will continue to work with the Ministry to enable real-time monitoring and management responses as required.

RATIONALE FOR MANAGEMENT INTERVENTION

Management Approach

24 SBW6I is managed within the National Deepwater Plan as a Tier 1 stock. A fisheries-specific southern blue whiting chapter of the National Deepwater Plan was finalised in 2011 and details the management approach and operational objectives for the fishery.

25 At present, the management approach for SBW6I is based on regular stock assessments, which lead to regular TAC and TACC reviews. Stock assessments incorporate all available data from the commercial catch history, from a stock specific research time series of acoustic surveys and from biological sampling of both the commercial and research catch. The biological sampling provides the proportion-at-age data that is used to determine year class strength.

[1] A MSE is a simulation modelling approach for testing the effectiveness of proposed management options and their robustness in meeting management objectives under a range of uncertainties.

Table 2: Southern blue whiting default reference points, and the associated management response.

Reference point	Management response
Management target of 40% B_0	Stock permitted to fluctuate around this management target. TAC changes will be employed to move stock toward or above target.
Soft limit of 20% B_0	A formal time constrained rebuilding plan will be implemented if this limit is reached.
Hard limit of 10% B_0	The limit below which fisheries will be considered for closure.
Harvest control rule	Management actions determined by the results of a series of forward projections under a range of catch assumptions, guided by the biological reference points

26 The TAC reviews are guided primarily by the stock's status in relation to the current management reference points for southern blue whiting. The reference points specified in the southern blue whiting fisheries plan chapter are the default targets and limits set out within the Harvest Strategy Standard for New Zealand Fisheries,[2] listed in Table 2. The management target of 40%B_0 is understood to be a conservative proxy for B_{MSY} for a species with the life history characteristics of southern blue whiting.

27 The submission from DWG noted that quota holders wish to review the harvest strategy and management targets for this stock. Although the default targets and limits are currently used, development of a stock specific harvest strategy for SBW6I is an objective within the southern blue whiting chapter of the National Deepwater Plan. The appropriateness of the default target and limits will therefore be assessed as part of this process, which the Ministry will progress through the Fisheries Planning process.

Previous Assessments

28 The SBW6I stock assessment was previously updated in 2012 following a research survey in 2011. That assessment provided evidence that a strong year class in 2009 had started to recruit to the fishery (adult stock). This was in addition to the strong 2006 year class, which had supported increases to the TAC in 2010 and 2011.

29 Despite the considerable strength of the 2009 year class, and the 2012 estimate of stock status (at 50% B_0) being above the management target of 40% B_0, quota holders preferred to retain the TAC for 2012/13 and 2013/14. This decision was influenced by the relatively small size of fish within the 2009 year class at that time. Also, this year class had only been observed once, during the 2009 survey, so it was uncertain whether the year class would prove to be as strong as estimated in the assessment model.

Current Stock status

30 The SBW6I stock assessment was updated in 2014 with new information from a survey in late 2013 and catch information from the 2013 fishing season. The 2014 assessment was accepted by the Ministry's Deepwater Fisheries Assessment Working Group on 30 January 2014, and indicates the SBW6I stock biomass has continued to increase and the stock status was estimated to be 58% B_0.

31 The survey indicates that this increase in stock biomass is a result of fish from the 2009 year class continuing to recruit into the fishery. This is consistent with the projections made using the 2012 stock assessment and confirms that the 2009 year class is very strong.

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

32 The 2009 year class is now expected to be near-fully recruited to the fishery and has grown to a good harvest size (>35 cm). Stock biomass is therefore unlikely to increase far beyond the current level unless a further strong year class enters the fishery. However, as a significant proportion of this year class was left in the water in 2012/13 and 2013/14, the year class has fully matured and has contributed to the adult spawning stock over this time. The Ministry is of the view that an opportunity now exists to begin to sustainably utilise more of this very strong year class.

MANAGEMENT MEASURES PROPOSED

33 Given the results of the 2014 SBW6I stock assessment, the Ministry considers all three options described below are consistent with the objective of moving the SBW6I towards or above the management target. Each of the proposed options would achieve this objective at different rates.

Option 1 (Status Quo)

34 Under Option 1, the existing TAC, TACC and allowances set in 2011 would be retained for the 2014/15 fishing year. Five year projections using the 2014 assessment model show that if this Option were implemented, stock biomass would be expected to decline gradually from its current peak above the management target, moving the stock towards the target.

35 However, the stock is projected to remain above the management target over the next five years, with only a 37% probability of dropping below the management target in 2018. This indicates that additional utilisation could be provided for, whilst still ensuring the sustainability of the stock.

36 ECO and WWF both support Option 1. Their main concern with any increase to the TAC is the potential for increases in protected species bycatch, particularly New Zealand sea lions. Further detail is provided later in this paper regarding the measures that will be taken to reduce the risk of sea lion interactions in the fishery in 2014. The Ministry is of the view that these measures should minimise the risk of sea lion captures, regardless of the level at which the TAC is set.

Option 2

37 Option 2 proposes:

a) To increase the TAC from 30 000 tonnes to 35 000 tonnes;
b) To increase the TACC from 29 400 tonnes to 34 300 tonnes;
c) To increase the allowance for other sources of fishing-related mortality to 700 tonnes (2% of the proposed TAC)
d) To retain the Maori customary and recreational allowance at zero tonnes.

38 The stock assessment shows the SBW6I stock is highly likely to sustain a higher level of utilisation over the short to medium term. Implementing Option 2 would allow for further utilisation and would move the stock towards the management target at a faster rate than under Option 1.

39 The stock is expected to remain at or above the target for at least the next five years even with this increased level of utilisation. Stock status in 2018 is projected to be $41\%B_0$ under this catch scenario, with a 48% probability of falling below the management target.

40 Based on export figures from 2012 of $0.80/kg greenweight, A TACC increase of 4 900 tonnes may result in approximately $3.8 M in additional export revenue. [3]

41 No submissions were received in favour of Option 2.

[3] This estimate is based on export figure of $0.80 / kg greenweight, from the 2012 calendar year. This uses frozen headed and gutted and frozen other form data to estimate the greenweight export price. These forms accounted for 90% of the total export volume of southern blue whiting during 2012. Precise revenue gain is difficult to estimate and will be influenced by factors such as commodity prices, exchange rate, catching costs and export state.

Option 3 (Preferred Option)

42 Option 3 proposes:

a) To increase the TAC from 30 000 tonnes to 40 000 tonnes
b) To increase the TACC from 29 400 tonnes to 39 200 tonnes
c) To increase the allowance for other sources of fishing related mortality to 800 tonnes (2% of the proposed TAC)
d) To retain the Maori customary and recreational allowance at 0 tonnes.

43 Option 3 would move the stock back towards the management target at the fastest rate. Projections indicate that stock status would remain above the management target, at 42%B_0 in 2017, but would have fallen to 35%B_0 by 2018.

44 The southern blue whiting harvest strategy intends for the stock status to fluctuate around the management target. Although Option 3 is the most aggressive of the three approaches to harvesting the available biomass presented in this paper, it is also unlikely to present a sustainability risk to the stock in the short term, given the current high level of stock biomass. A further research survey and stock assessment will take place before 2018, and the harvest level can then be adjusted to ensure stock size is maintained at about 40%B_0.

45 This option has been given unanimous support from the SBW6I quota holders that are represented by DWG. This support was given with the proviso that MPI and DWG progress a Management Strategy Evaluation to determine the most appropriate timing for the next acoustic biomass survey in SBW6I. Research surveys have previously been carried out every two to three years in this stock. In the SBW6I IPP the Ministry stipulated that if Option 3 were to be implemented, a survey would be required in 2015 given the increased risk of the stock dropping below the management target.

46 The Ministry supports the use of a MSE to better inform the appropriate timing of research surveys and is interested in developing this work with DWG. Should the outcomes of a MSE indicate that it is appropriate to increase the time between surveys at this level of catch, the Ministry would consider alternative dates for the SBW6I survey. This would however, be contingent on both the methodology and results of any MSE being afforded appropriate peer review within the Ministry's Science Working Group process and also meeting the requirements of the Ministry's Research and Science Information Standard for New Zealand Fisheries.

47 Based on export figures from 2012 of $0.80/kg greenweight, A TACC increase of 9,800 tonnes could result in approximately $7.8 M in additional export revenue. [3]

48 This is also the Ministry's preferred Option, in that it enables fishers to utilise the 2009 year class at a good harvest size, whilst maintaining the stock biomass within sustainable limits. For the last two years the SBW6I stock biomass has been at a level that could sustainably support an increase to the TAC. This is therefore an appropriate and effective time to increase the TAC and enable fishers to further utilise the strong year classes before they naturally die out of the stock.

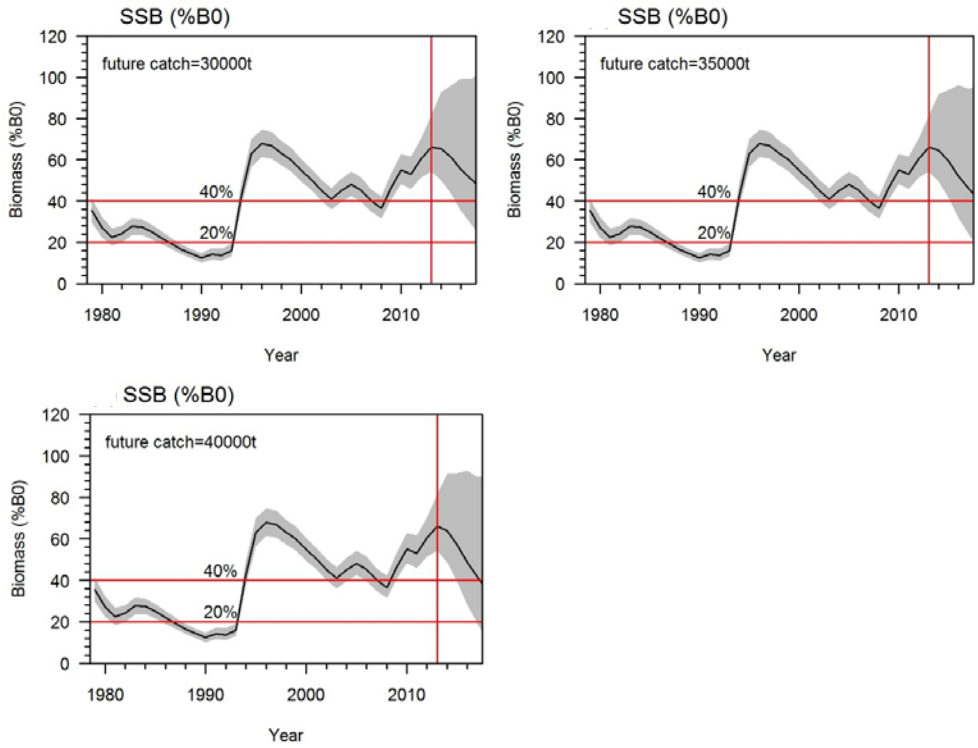

Figure 3: Projected SBW6I spawning stock biomass (SSB) under a range of possible catch limits out to 2018 from the current status (vertical red line). Horizontal red lines represent the management target (40%B_0) and the soft limit (20%B_0).

Table 3: Probabilities that the spawning stock biomass (SSB) will be below the management target of 40%B_0 under the three projected catch levels for the next five years

Proposed Catch (t)	Probability (%) SSB will be below the management target			
	2015	2016	2017	2018
30,000	2	11	24	37
35,000	4	18	34	48
40,000	6	25	46	60

ASSESSMENT OF MANAGEMENT OPTIONS

49 This section describes the management options proposed by the Ministry in terms of how they meet the legislative obligations within the Act. The Ministry considers that all management options proposed here satisfy the purpose of the Act, in that they provide for utilisation of the SBW6I fishery while ensuring sustainability.

Section 13(2) - Setting the TAC

50 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.

51 The 2014 stock assessment for SBW6I has estimated stock status at approximately 58% B_0. This is highly likely to be above B_{MSY} and the Ministry therefore recommends you set the SBW6I TAC under section 13(2)(c) of the Act.

52 Section 13(2)(c) enables you to set the TAC at a level that will move the stock towards or above a level that can produce the maximum sustainable yield (MSY). You are permitted to choose the 'way and rate' at which the stock is moved towards the desired level but you must have regard to the interdependence of stocks. All options presented maintain the stock above B_{MSY} in the short to medium term.

53 The SBW6I fishery catches very low volumes of by-catch - 99% of the total catch is southern blue whiting. There is no information therefore to suggest that increasing the TAC for SBW6I will impact the interdependence of stocks. The Ministry has commenced the development of a risk assessment framework for non-QMS species caught within deepwater fisheries to increase our understanding of non-QMS species and the interdependence stocks.

Section 13(3) – Rate of change

54 Section 13(3) 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.

55 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 that you consider relevant. The expected rate of change in SBW6I biomass is presented in Table 3 and Figure 3, and is discussed above with reference to each of the proposed Options.

56 The Ministry considers that the proposals to increase the SBW6I TAC are justified given the stock is highly likely to be above B_{MSY}. Both submissions received from the commercial sector stated support for increasing the TAC under Option 3 and realising the accompanying economic benefits.

57 Given the lack of recreational and customary catch from SBW6I and the retention of the current nil allowances, the Ministry considers increasing the TAC under any of the proposed options will not have an adverse impact on non-commercial fishers.

Sections 20 and 21 – Allocating the TAC

58 The TAC must be apportioned between the relevant sectors and interests set out under the provisions of sections 20 and 21 of the Act. Section 21 requires that allowances be made for Maori customary non-commercial interests, recreational fishing interests and for any other sources of fishing related mortality, before a TACC is set.

59 There are no known Maori customary or recreational fisheries for southern blue whiting and the Ministry proposes to retain nil allowances for these sectors.

60 An existing allowance for other sources of fishing related mortality is set at 2% of the TAC. There is no additional information at this time that would warrant the Ministry recommending that you

change the allowance for other sources of fishing related mortality. The Ministry recommends you retain the current allowance of 2% of the TAC.

Section 10 – Information Principles

61 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.

62 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 meets the Research and Science Information Standard for New Zealand Fisheries.

Section 11 Considerations

63 Under section 11 of the Act, before varying any sustainability measure for the SBW6I 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 SBW6I 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 SBW6I, the measures that apply currently are a TAC, TACC and an allowance for other sources of fishing related mortality. No other controls under the Act specifically apply to SBW6I.

c) Section 11(1)(c): take into account the natural variability of the stock. The SBW6I stock assessment model incorporates all available information on the biological characteristics of southern blue whiting and therefore takes into account the factors that drive the natural variability of the 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 you consider relevant. A proposed regional coastal plan exists for the Kermadec and Subantarctic Islands. The Ministry is satisfied that no provisions within this plan are relevant to your decision.

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 are considered relevant by you. The boundaries of the SBW6I QMA do not overlap with the Hauraki Gulf. Therefore, the Ministry considers there are no relevant considerations under the Hauraki Gulf Marine Park Act 2000.

f) Section 11(2)(ca): have regard to regulations made under the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012. These regulations do not affect the lawful taking of wild fish under the Fisheries Act.

g) 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 of any planning documents under the Marine and Coastal Area (Takutai Moana) Act 2011 that are relevant to the setting of the SBW6I TAC.

h) Section 11(2A)(b): take into account any relevant and approved fisheries plans. The application of the National Deepwater Plan is discussed in the following section.

i) Section 11(2A)(a) and (c): take into account any conservation or fisheries services, or any decision not to require such services. The Ministry does not consider that existing or proposed services materially affect the proposals for SBW6I. No decision has been made to not require a service in this fishery at this time.

Section 11A – Fisheries Plans

64 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. 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.

65 The fishery-specific chapter of the National Deepwater Plan for southern blue whiting was completed in 2011. You are required to take the National Deepwater Plan into account when making a decision on the management options presented for SBW6I. 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.

66 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 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.

67 The Ministry considers that the management options proposed in this paper will contribute to and not impede the Ministry from achieving these two Management Options.

Section 9 – Environmental Considerations

68 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.

69 The Ministry is confident that the proposed options are consistent with the requirements of section 9. The key environmental interactions associated with the SBW6I fishery are discussed below with reference to the likely impacts of the proposed management options.

Marine Mammals

70 One of the two stronghold breeding populations of New Zealand sea lions is located on Campbell Island. Data collected during sea lion pup counts at Campbell Island in 2003, 2007 and 2009 indicates that pup production in this population could be increasing.

71 The SBW6I fishery operates approximately 60 to 100 nautical miles offshore from Campbell Island, and overlaps somewhat with the foraging range of the larger male New Zealand sea lions. Interactions between the SBW6I fishery and New Zealand sea lions are known to occur, and these interactions have shown an increasing trend in recent years. During the most recent year a total of 21 incidental sea lion captures occurred.[4] All vessels that operated in SBW6I during 2013 had at least one Ministry observer on board.

72 Work is ongoing to determine whether these interactions are occurring at a frequency that would cause the New Zealand sea lion population at Campbell Island to decline below the level that ensures their long-term viability. This includes the ongoing development of a semi-quantitative marine mammal risk assessment, and an additional DWG funded project to determine the potential biological removals (PBR) from the Campbell Island population.[5] The PBR project is progressing well and has recently been initially peer reviewed by the Ministry's Aquatic Environment Working Group.

73 Regardless of the outcome of this work, the increasing number of incidental sea lion captures has highlighted that further management measures are required to achieve the Ministry and DWGs objectives related to sea lion interactions in SBW6I. It is the Ministry's intention that incidental sea lion interactions are minimised to the extent practicable, in accordance with Operational Objective 2.2 in the southern blue whiting chapter of the National Deepwater Plan. [6] DWG has also signalled its objective that sea lion captures in SBW6I be reduced to zero.

74 Following the high number of captures during 2013 you and the Minister of Conservation requested that sea lion exclusion devices (SLEDs) be deployed in the fishery for the first time. Research has shown that SLEDs are an effective mitigation tool and have reduced the risk of sea lion mortalities resulting from interactions with trawl gear in the southern squid fishery. The trials in SBW6I were deemed to be generally successful, in that the majority of the fleet was able to deploy SLEDs successfully without significant operational problems.

75 Since the 2013 season concluded the Ministry has been working with stakeholders to develop fishery specific operational procedures that will reduce the risk of future sea lion interactions. These measures will be finalised and provided to you well in advance of the 2014 SBW6I fishing season, following further stakeholder engagement.

76 The submission from DWG, quota owners have committed to continuing to work closely with the Ministry to finalise these operational procedures. Quota owners have shown support for the use of SLEDs by every vessel from the start of the fishery, that at least one Ministry observer will be on board each vessel in the fishery, allowing for real-time in season management responses as

[4] These capture figures have not yet been officially collated and reported back to the Ministry's Aquatic Environment Working Group; captures include animals that were killed and released alive

[5] The term 'potential biological removal' means the number of animals that can be removed from the population without impacting the long term survivability of the population

[6] Objective 2.2 of the southern blue whiting chapter states that the Ministry will work to ensure that incidental sea lion mortalities do not impact the long term viability of the sea lion population and that captures are minimised through good operational practices.

required between the Ministry, the DWG, and the fleet. The Ministry also intends to work with a group of technical experts over the coming months to develop an agreed, standardised observation and sampling protocol specifically geared to collecting information that can assist with the future management of interactions with the fishery.

77 WWF submitted that it cannot support the proposal to increase the TAC for SBW6I until the industry commit to making the use of SLEDs on board commercial trawlers in the SBW6I fishery mandatory from the beginning of the season. The Ministry notes that DWG have now made a commitment to use SLEDs. The Ministry is confident that it is unnecessary at this time to require mandatory use of SLEDs given the current level of support for this measure.

78 The Ministry has also been working in conjunction with the industry to increase awareness amongst the fleet of the increased risk of interactions, and re-emphasising the importance of adherence to the existing marine mammal operational procedures (MMOP). The MMOP requires that vessels minimise the length of time the fishing gear is on the surface, remove all stickers from the net before shooting the gear, steam away from any congregations of marine mammals before shooting the gear and to appoint a crew member to watch for marine mammal interactions every time the gear is shot or hauled.

79 Given the breadth of work that is underway to ensure interactions with all marine mammals are reduced and the collaborative method with which procedures are being developed, the Ministry is confident that the options within this paper will not increase the potential risk to marine mammals.

Seabirds

80 Seabird interactions with SBW6I generally occurred at low rates, although a small number of interactions are known to occur. The population implications of these seabird interactions have recently been elucidated through the Ministry's comprehensive seabird risk assessment. [7] The risk to 70 seabird species from all New Zealand's commercial fisheries was assessed. The southern blue whiting fisheries overall were assessed to contribute only very low levels of risk to a small number of seabird species.

81 Mandatory measures are in place across the deepwater fleet to address seabird captures, including the requirement that all trawlers deploy bird mitigation devices when fishing gear is in use. In addition, non-regulatory management includes vessel-specific measures known as vessel management plans (VMPs), which set out the onboard practices that vessels must follow to avoid seabird interactions, including offal management and good factory cleanliness. The Ministry currently monitors vessel performance against VMPs and works in collaboration with DWG to rectify any issues that arise during the fishing season. This practice will continue during the 2014-15 fishing year.

Fish by-catch

82 Total fish bycatch in the southern blue whiting fisheries is estimated to be <1% of the total catch from the fishery. The fishery targets single species schools of southern blue whiting and as a result takes minimal bycatch.

Benthic impacts

83 Southern blue whiting are generally fished using mid-water trawl gear near or on the seabed, as this is where the fish aggregate. The gear is generally not fished hard down on the seabed, which will reduce the severity of any benthic impact. SBW6I also operates over a relatively short temporal scale, and the fished area is relatively restricted and changes very little from year to year.

[7] http://www.mpi.govt.nz/Default.aspx?TabId=126&id=1758

84 Research has been reported to characterise both New Zealand's benthic environment and the level of benthic impact from fisheries activity. [8] This work, which produced a benthic-optimised marine environmental classification (BOMEC) of New Zealand's exclusive economic zone (EEZ), is not specific to SBW6I but identifies that all SBW6I fishing activity occurs over one of the 15 BOMEC habitat classes - BOMEC class L. The total area of the SBW6I footprint is 11,485km^2,[9] which equates to 6% of the total area of BOMEC class L. MPI acknowledges that the total trawl footprint on BOMEC class L is estimated at 24% of the total area. This includes trawl effort from all deepwater and middle-depth fisheries, not solely SBW6I.

85 Although the options proposed may result in increased fishing effort within SBW6I, the spawning aggregations generally occur in the same area, so any additional effort will likely occur over ground that has been trawled previously.

Deemed values

86 Section 75 of the Act requires you to 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.

87 The Ministry is not proposing any changes to the SBW6I deemed value rates. Current economic factors indicate that the current deemed value rates are likely to provide the appropriate financial incentives to encourage fishers to remain within their ACE.

88 The current deemed value rates for SBW6I are as follows:

a) The annual deemed value rate is $0.46 per kg
b) The interim deemed value rate is $0.41 per kg
c) The differential deemed value rates are increased according to the proportion by which ACE holdings have been exceeded (Table 4)

Table 4: Current differential deemed value rates for SBW6I

Catch in excess of ACE Holdings (%)	Deemed Value rate
100-102%	$0.46
102-105%	$0.60
105% +	$0.92

[8] Leathwick, J.R., Rowden, A., Nodder, S., Gorman, R., Bardsley, S., Pinkerton, M., Baird, S.J., Hadfield, M., Currie, K., Goh, A., 2010. Benthic-Optimised Marine Environment Classification (BOMEC) for New Zealand waters. Final Research Report for BEN2006-01 Objective 5. 52pp.

[9] Black, J. & Wood, R. (2010) Analysis of New Zealand's Trawl Grounds for Key Middle Depths and Deepwater Tier 1 Fisheries. GNS Science Consultancy Report 2010/67

RECOMMENDATIONS

89 The Ministry recommends that you:

EITHER

Option 1 (Status quo)

a) **Agree** to retain the SBW6I TAC at 30 000 tonnes, and within the TAC:

i. retain a nil allowance for Māori customary non-commercial fishing interests;

ii. retain a nil allowance for recreational interests;

iii. retain the allowance for other sources of fishing- related mortality at 600 tonnes;

iv. retain the TACC of 29 400 tonnes.

Yes / No

OR

Option 2

b) **Agree** to increase the SBW6I TAC from 30 000 tonnes to 35 000 tonnes, and within the TAC:

i. retain a nil allowance for Māori customary non-commercial fishing interests;

ii. retain a nil allowance for recreational interests;

iii. increase the allowance for other sources of fishing-related mortality to 700 tonnes;

iv. increase the TACC from 29 400 tonnes to 34 300 tonnes.

Yes / No

OR

Option 3 (Ministry's preferred option)

c) **Agree** to increase the SBW6I TAC from 30 000 tonnes to 40 000 tonnes and within the TAC:

i. retain a nil allowance for Māori customary non-commercial fishing interests;

ii. retain a nil allowance for recreational interests;

iii. increase the allowance for other sources of fishing-related mortality to 800 tonnes;

iv. increase the TACC from 29 400 tonnes to 39 200 tonnes.

Yes / No

AGREED / AGREED AS AMENDED / NOT AGREED

Scott Gallacher
Deputy Director-General
Resource Management and Programmes
/Standards
On behalf of Director-General

Hon Nathan Guy
Minister for Primary Industries

/ / 2014

APPENDIX 1: SUBMISSIONS

Attached below are submissions received on the Initial Position Paper review of sustainability measures for southern blue whiting at Campbell Island document.