

Review of Sustainability Measures and Other Management
Controls for the 2004-05 (01 April) Fishing Year

Final Advice Paper

9 March 2004

Southern Blue Whiting – Campbell Island Rise (SBW 6I)

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INTRODUCTION

- 1 This paper provides you with the Ministry of Fisheries' (MFish) **initial position and final advice and recommendations** on sustainability measures and other management controls for the southern blue whiting stock on the Campbell Island Rise (SBW 6I) that was reviewed for the April 2004 - March 2005 fishing year.
- 2 The paper has been structured so that the **Initial Position Paper (IPP)** is followed immediately by the **Final Advice Paper (FAP)**.

Initial Position Paper

- 3 The IPP was developed for the purpose of consultation as required under the Fisheries Act 1996 and contained MFish's initial position on the sustainability measures for the SBW 6I stock. The IPP contains an analysis of your legislative obligations. MFish emphasised that the views and recommendations outlined in the paper were preliminary and provided as a basis for consultation with stakeholders.

Consultation

- 4 On or about 22 January 2004, MFish provided copies of its IPP to iwi, stakeholders and the previous Minister of Fisheries (Pete Hodgson).
- 5 Stakeholders and iwi were asked to provide written submissions on the proposals being reviewed by 13 February 2004. At the request of industry representatives, an extension until 25 February was provided so that discussions at the working group meeting on 23 February could be incorporated into submissions. A copy of each submission received has been given to you in a separate document.

Final Advice Paper

- 6 This paper contains MFish's final advice and recommendations to you on the review of sustainability measures and other management controls for the SBW 6I stock for the April 2004 – March 2005 fishing year.
- 7 The FAP section contains a summary of the views of stakeholders, MFish discussion and recommendations for the 2004-05 fishing year. MFish recommends that you regard the complete document (comprising both the IPP and FAP sections) as a single advice paper.
- 8 A copy of this advice paper will be forwarded to iwi and stakeholders who have expressed interest in being involved in the consultation process.

Implementation of Decisions

- 9 Following your final decision on any changes to Total Allowable Catch (TAC) and Total Allowable Commercial Catch (TACC) levels for the fishing year beginning on

1 April 2004, officials will provide you with a *Gazette* notice to give effect to your decisions, and a draft letter to stakeholders outlining your decisions and their reasons.

- 10 Providing reasons for your decisions is to satisfy s 12(2) of the Fisheries Act 1996. This section requires that after setting or varying any sustainability measure, you are to, as soon as practicable, write to sector groups advising them of the reasons for your final decisions.

STATUTORY OBLIGATIONS

Introduction

- 1 The following is a guide to the interpretation of relevant sections under the Fisheries Act 1996. The information relates to the legislation as at 1 October 2001. The relevant sections of the Act are provided in Attachment A. Attachment B contains a list of those obligations under the Treaty Of Waitangi (Fisheries Claims) Settlement Act 1992.

Purpose and Obligations

Purpose Statement

- 2 The purpose of the Fisheries Act 1996 is to provide for the utilisation of fisheries resources while ensuring sustainability. It is a statement of the overarching goal for fisheries management against which all decisions under that Act should be measured. Section 8 of the Act does not of itself require any action. The purpose statement provides a guide to the exercise of discretionary decision making powers pursuant to the Act and the interpretation of ambiguous provisions. The deliberate openness of the language illustrates an intention for policy to be applied and developed in a general and broad manner (*New Zealand Rail Ltd v Marlborough District Council* [1994] NZRMA 70, 86 per Grieg J). Rather than rendering “a precise and unique meaning from the words used” in s 8, it should be recognised that the provision is intended to reflect changing societal values and knowledge. Section 8 therefore is to be interpreted not in isolation but in the context of the Fisheries Act as a whole.
- 3 “*Utilisation*” of fisheries resources is defined as conserving, using, enhancing, and developing fisheries resources to enable people to provide for their social, economic, and cultural wellbeing. Within the parameters of these environmental standards, there is a positive obligation to provide for the use of fisheries resources. While the Act does not require the government to promote fishing or maximise the net national interest from fishing, there is a positive obligation to provide a level and quality of access to fisheries resources, thereby enabling people to provide for their social, economic and cultural wellbeing from fishing. Section 8 refers to “*enabling people to provide for their social, economic and cultural wellbeing*”. This implies decisions under the Act should *enable* people to provide for their *own* wellbeing. Decisions should create the opportunities. The government does not need to ensure that people take those opportunities, neither does it need to provide for ‘*wellbeing*’ directly.
- 4 “*Ensuring sustainability*” as defined provides a guide on desirable yields from a fishery. Fisheries resources are to be maintained with the potential to meet the reasonably foreseeable needs of future generations. It is noted that s 13 of the Act specifies an environmental standard or reference point for fishstock management that enables the needs of future generations to be met (the biomass level that can produce the Maximum Sustainable Yield (MSY)). Equally the matters specified s 9 of the Act may be relevant to achieve the obligation to future generations. In addition, the

purpose requires that any adverse effects of fishing on the aquatic environment should be avoided, remedied, or mitigated.

- 5 The relationship between “utilisation” and “ensuring sustainability” is not exact. The two concepts are interlinked by the use of the word “while”. The use of the word “while” in legislation has generated a considerable amount of debate, particularly in the context of the Resource Management Act 1991. The word “while” may be interpreted in either a temporal or causative sense. The Act uses the words “while *ensuring* sustainability”. The term “ensuring sustainability” as a whole is defined in s 8(2). If one meets the obligations contained in s 8(2), then one has ensured sustainability, and no further test is necessary. The Act does provide a number of specific ways of providing for utilisation while ensuring sustainability, for example ss 9, 11, and 13.
- 6 Other sources provide an indication of how the purpose statement ought to be interpreted. The Select Committee in its final report to the House of Representatives on the Fisheries Bill (as it then was) stated that the intention of the Bill was to “facilitate the activity of fishing while having regard to the sustainability of harvests and mitigating the effects of fishing on the environment”. In the High Court decision in *Coromandel Scallops Fishermen’s Association (Inc) v Minister of Fisheries* (Wellington CP 182/99, 13 September 1999) Justice Laurenson noted that “utilisation is subject to the overriding objective of sustainability” (at page 22). In an earlier judgment, Ellis J considered that “when in doubt decision makers must favour conserving the fishing stock”, noting that this was plain from the “international agreements” (see *Roaring Forties Seafoods Limited and Chatham Islands Fishermans Co-operative Co Limited v Minister of Fisheries* (High Court, Wellington CP 64/97, 1 May 1997) at page 9).
- 7 It is the Ministry of Fisheries (MFish’s) view that the purpose statement provides for one purpose that contains the elements of providing for utilisation and ensuring the sustainability of fisheries resources. This does not mean that one arm of the purpose is more important than the other is. Rather, it means that the two arms operate in parallel, and not independently of each other. Both elements need to be fully considered when acting under the Act.
- 8 The extent of management measures required to achieve the purpose of the Act will produce a continuum of potential outcomes. Utilisation may be provided for at different levels and the extent of such use should be considered on a case by case basis. The requirement to ensure sustainability means that restrictions need to be placed on the resource utilisation — such a restriction may include preventing utilisation. For example, at the margin when a stock is depleted — in order to provide for ongoing sustainability there may be limited ability to provide for utilisation in the short term. Where there is a significant threat to the sustainability of a fishstock, the measures enacted to achieve sustainability are likely to be more stringent than where there is a lesser threat. The Act enables specific measures to be implemented to not allow for utilisation.
- 9 The explicit reference in the definition of “*utilisation*” to social, economic, and cultural factors, indicates that all decisions made under the Act should consider these issues. Consideration of social, economic, and cultural wellbeing (in conjunction with other considerations consistent with the purpose and principles of the Act) may alter

how measures to ensure sustainability are implemented. Hence, providing for utilisation while ensuring sustainability may be achieved in different ways, and the objective may be reached over time. Consideration of the purpose of utilisation may be relevant in determining which is the most appropriate approach. In considering a decision to move a fishstock towards a level that could support the MSY, you are advised to consider the costs and benefits of moving towards MSY or the rate at which that should be achieved.

Non-fishing Related Activities

- 10 It is considered the term “utilisation” as defined in s 8(2) of the Act is sufficiently broad in its meaning to include utilisation of a resource for the purposes of obtaining benefit from the natural character values (eg, viewing by divers) or existence values (knowing the resource exists in its own right) of fisheries resources. However, in accordance with accepted rules of statutory interpretation the meaning to be derived from a term which may be ambiguous requires that the term is considered in its statutory context.
- 11 The Act contains no specific reference to intrinsic or aesthetic values of fisheries resources. It is not simply a case that non-extractive uses do not need to be managed by virtue of the fact that they have no adverse impact on the aquatic environment. There is an absence of how such interests are to be recognised and explicitly provided for. The Act clearly identifies the manner in which harvested species are to be managed, ie, the establishment of a target stock size (the biomass that will support the maximum sustainable yield (B_{MSY})), and those interests which are to be taken into account when providing for an allocation of the fishery. There is no mechanism by which the total allowable catch from a fishery is to be discounted to provide for non-extractive uses or future generations. Consultation requirements under the Act refer solely to measures undertaken in respect of authorising or restricting the taking of fish. However, it is recognised that the adoption of such measures, the control of harvests at sustainable levels, and mitigation of adverse effects of fishing on the aquatic environment may by default contribute to non-extractive uses.
- 12 Separate legislation, including the Resource Management Act 1991, the Marine Reserves Act 1971, and the Marine Mammals Protection Act 1978, distinct from the purpose of the Fisheries Act, function to provide general protection for natural resources of the aquatic environment. The Fisheries Act does authorise you to implement emergency measures to address the effects of disease, a serious decline in the abundance or reproductive potential of one or more stocks or species, or a significant adverse change in the aquatic environment. However, such measures relate solely to the taking and subsequent disposal of fish.

Future Generations

- 13 The Act, in its directive to provide for future generations, draws no direct distinction between the next generation and some distant generation in time. No precise determination is possible of where one generation begins and another generation ends. The time scale involved may be dependent upon the interests that are to be taken into account. Logically the time frame relevant to the reasonably foreseeable needs of future generations may be as short as each generation of children or an indefinite time in the future.

- 14 The needs of future generations however are to be considered in the context of the purpose of the Act and the provisions of the Act as a whole. The obligation is not open ended, it is what decision makers can reasonably identify as a need for a particular generation. Future generation objectives are characterised by uncertainty — what level of population will exist in the future; what future preferences will be; what future requirements will be; what the impacts of our present actions will be; and, what technological innovations will allow. But in cases of uncertainty the information principles of the Act (s 10) are to be applied appropriately.
- 15 The Convention on Biodiversity gives one indication of what the obligation to future generations may include in respect of fisheries. It suggests that keeping options open, maintaining the biodiversity of the genetic stock, and the diversity of stocks, populations and ecosystems is at least part of the obligations. Further, establishing the likely preferences of future generations is not something that can be determined, in isolation, by a government department or by a Court. Debate throughout a wide range of New Zealand society is needed to tease out what future needs might be. MFish has not embarked on an exercise of determining what needs of future generations might be as they relate to fisheries resources. Arguably the oceans policy is engaged in such an exercise in relation to the use of oceans generally, which may provide guidance to management of fisheries.
- 16 The objective of the Act is to sustain fisheries resources for future use not to provide for how future generations may desire to use such resources. Uncertainty is therefore to be considered in the context of how current decisions impact on the ability to provide for future use of the resource. Reference to “*maintaining potential*” to meet needs suggests that the crucial requirement in respect of future generation is to ensure the renewability of fisheries resources indefinitely at a quantity that provides for continual utilisation. Hence, the aim of the Act can be seen in part as providing for the extractive use of fisheries resources in the present, whilst maintaining the potential of those fisheries resources to provide for future generations.
- 17 The maintenance of the general functioning of the aquatic environment is intended by the Act only in respect of managing fishing activities. Whereas enhancement of the aquatic environment, beyond that achieved through the avoidance, remedy, or mitigation of adverse effects of fishing, is not. In terms of maintenance of the productivity of natural resources the Act requires that biomass of a fishstock be maintained at a level that is at or above the level required to produce the MSY. MSY is the greatest yield that can be achieved over time while maintaining the stock’s productive capacity. Therefore MSY caters for both maintenance of reproductive potential and ongoing utilisation. For most harvested stocks MSY is a practical means of providing for the reasonably foreseeable needs of future generations. The Act provides some circumstances for departure from this reference point in respect of associated and dependent species (s 9(a)), stocks listed on the Third Schedule of the Act (s 14), and stocks maintained at a level above their long-term viability (s 14A).
- 18 The interests of future generations is described in s 8(2)(a) as relating to “fisheries resources” which are defined as “fish, aquatic life, seaweed”. No express reference is made to the inanimate elements of the aquatic ecosystem. It is considered implicit in the legislation that a sustainable aquatic ecosystem is integral to, or a pre-requisite of, the ability of fisheries resources to meet the reasonably foreseeable needs of future generations. However, in meeting reasonably foreseeable needs of future generations

the scope of the Fisheries Act relates to managing the effects of fishing, not all impacts on the aquatic environment.

- 19 The approach adopted in respect of issues reviewed in the Final Advice Paper (FAP) has been not to explicitly relate every proposed measure back to the purpose of the Act. The proposed measures have been considered in the context of specific statutory obligations in the Act. By ensuring that the measures are consistent with those provisions the measures can be deemed to be consistent with the purpose of the Act, unless the provision in question is ambiguous as to its intended meaning.

Effects of Fishing

- 20 The obligation to avoid, remedy, or mitigate adverse effects of fishing pursuant to s 8(2)(b) of the Act is the second element of ensuring sustainability. Consideration as to what is adverse may be assessed on scientific knowledge about the environment, but may also utilise traditional knowledge. The obligation to avoid, remedy and mitigate adverse effects is also likely to be influenced by stakeholder/community perceptions as to what is acceptable.
- 21 The obligation is temporal in nature. It imposes a relevant consideration to all decisions made under the Act. The requirement to “remedy” or “mitigate” suggests that such measures may be implemented over a time frame relevant to the circumstances of the individual decision and nature of the activity involved. Equally achievement of this objective will contribute to maintaining the potential of fisheries resources to contribute to the wellbeing of future generations.
- 22 The Act does not define what is an “adverse effect”; rather it defines the term “effect”. The term “effect” has a very broad definition, including effects that are temporary or permanent; past, present, or future; cumulative; any potential effect of high probability; and any potential effect of low probability, which has a high potential impact. No threshold is specified as to the magnitude of any adverse effect required before any measure in response is to be adopted. Hence the measures adopted in response should be commensurate with the nature and extent of the adverse effect. There are a number of other variable factors that will influence whether an effect is considered adverse: characteristics of the aquatic environment; impacts from the removal of fish; the scale, intensity, and duration of effects; scarcity of environment type at local, regional, national, international level; resilience of habitat; the effects of activities other than fishing at a region level, the relationship of fishing effects to this; human perception and values; and the level of information available on any of these.
- 23 The obligation to “avoid” may be defined as to “*keep away or refrain from, escape, or evade*”. The action is to be carried out before any damage (or any further damage) is caused. “*Mitigation*” is “*to make less intense or severe, to moderate*”. Mitigation may be characterised as ongoing or to address the effects being or about to be created.
- 24 To “*remedy*” suggests an obligation to return the situation to what it would have been prior to the occurrence of the adverse effect. In a legal sense to remedy a situation is to redress, rectify, or correct something that has been wrongly done or has caused injury, harm, loss or damage. Redress implies some form of compensation without necessarily returning the situation to its prior state. Compensation may not adequately

address the impact of adverse effects on the aquatic environment. The closure of an area or prohibition of certain fishing methods, are examples of means whereby adverse effects could be remedied over an extended time frame.

- 25 There also does not appear to be any time limitation associated with remedying any adverse effects of fishing on the aquatic environment. Thus imposition of such an obligation does not necessarily need to be linked to plans for future fishing activity, but could be applied to the effects of fishing activity in the past.
- 26 Decision makers are empowered by the Act to take any action in relation to sustainability of the aquatic environment in response to fishing related activity. There is no spatial limitation associated with addressing adverse effects. If a wider point of reference is taken than the exact geographical location where the effect occurs, mitigation in restoring another area may be seen as reducing the severity of the effect. Equally, measures can be taken to address future effects and potential effects of both high and low probability. Accordingly, measures may be taken to avoid potential adverse effects before they occur.
- 27 The Act does not prescribe an order of priority between the obligations to avoid, remedy or mitigate. The onus is on the decision maker to ensure that there is no adverse effect or that any adverse effects can be avoided, remedied, or mitigated. In achieving this obligation, the decision maker can be cautious and/or require information to be provided to assist in his or her determination. The obligation to “avoid, remedy, or mitigate” is not subject to any qualifier to the effect that such measures only need to be undertaken to an agreed standard. The appropriate response must depend on the circumstances of the case, and should be guided by the environmental principles (s 9) and the information principles (s 10) in the Act.
- 28 Decision makers can weigh up all the environmental factors contributing to the effect, along with the possible options available for avoidance; consider relevant social, economic and cultural factors; take into account the environmental and information principles of the Act; and opt for the most appropriate option of either avoid, remedy or mitigate. In some instances, only one response may be effective. Accordingly, completely irreversible effects are to be avoided. In other instances, it may be appropriate to consider a range of options. MFish acknowledges that sustainability is not a purpose to be traded off against utilisation through an analysis of the benefits and costs. However, the Act allows a range of approaches for achieving sustainability, and these may, and indeed should, be compared in terms of benefits and costs.

International Obligations

- 29 The Fisheries Act 1996 shall be interpreted, and all persons exercising or performing functions, duties, or powers under the Act are required to act, in a manner consistent with New Zealand’s international obligations relating to fishing. Those acting pursuant to the Act must understand, and act in a manner consistent with, the international obligations that the New Zealand Government has accepted. A general principle to apply is that where there is a choice in interpretation of the Act or the exercise of discretion, s 5(a) requires that the decision maker choose the option that is consistent with New Zealand’s international obligations relating to fishing. It is MFish’s view that the provisions of the Fisheries Act 1996, and the proposed exercise

of powers under the legislation in respect of Total Allowable Catches (TACs), Total Allowable Commercial Catches (TACCs), and other management controls, are consistent with New Zealand's international obligations relating to fishing.

- 30 It is noted that in some circumstances the provisions of the Fisheries Act 1996 are more specific than the corresponding obligation arising from an international convention or agreement. This is permissible when any country incorporates its obligations into domestic law. However, while the Act has been drafted in order to be generally consistent with New Zealand's international obligations it does not word for word reflect New Zealand's international obligations or duties relating to fishing. MFish considers that as a matter of legal interpretation the provisions of the Fisheries Act provide the primary source of legal obligations in terms of fisheries management. MFish accepts that international law provides an important source of guidance in terms of what the nature of the obligations contained in the Fisheries Act may mean without offering insight as to how those obligations are to be applied in any specific situation. Section 5(a) is also of significance to ensure that future international fisheries obligations are given effect to under the Fisheries Act.
- 31 The extent of the international obligations is not restricted to consideration only of the rights and obligations created by those international instruments to which New Zealand is a party. Article 18 of the Vienna Convention on the Law of Treaties 1969 provides that following signature and before ratification a State "is obliged to refrain from acts which would defeat the object and purpose" of the treaty. There are a number of treaties that New Zealand has signed but not ratified. For such treaties, while the specific obligations or provisions of the treaty are not binding upon New Zealand there is an obligation to not undermine the object and purpose of the treaty.
- 32 In addition to the obligations and duties created by legally binding international instruments to which New Zealand is a party or signatory there are also non-legally binding international instruments. These instruments are sometimes referred to as 'soft law'. They generally consist of instruments that spell out rules of conduct that are not intended to be legally binding. While 'soft law' does not create legal obligations to comply there is strong moral and political pressure to uphold the principles of these declarations, codes or agendas.
- 33 The two key pieces of international law relating to fishing, and to which New Zealand is a Party, are the United Nations Convention on the Law of the Sea, 1982 (UNCLOS) and the United Nations Convention on Biological Diversity 1992 (the Biodiversity Convention). Within the Economic Exclusion Zone (EEZ), UNCLOS imposes an obligation to manage living resources on the basis of sustainable use and optimum utilisation. UNCLOS also creates obligations relating to the protection of the marine environment generally (art. 192, Part XII of the Convention). This general duty applies not only in the EEZ but also with respect to the territorial sea and high seas. This general obligation needs to be balanced against the sovereign right of states to exploit their natural resources pursuant to their national environmental policies (Article 193).
- 34 In large part the provisions of UNCLOS relating to fishing, are reflected directly within the Fisheries Act 1996. However, there are areas under the Fisheries Act where discretion can be exercised and in exercising such discretionary powers the

decision maker needs to be satisfied that the action is consistent with international obligations relating to fishing.

- 35 The Biodiversity Convention was concluded in 1992 and was ratified by New Zealand in December 1993. The aims of the convention are to conserve biological diversity, promote the sustainable use of its components and ensure the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources. States are required to prepare or adapt their own national strategies for the conservation of biodiversity and sustainable use of biological resources, and to integrate sustainable use and conservation of biodiversity into sectoral policies (such as fisheries policy).
- 36 Monitoring and identification requirements associated with the components of biological diversity are a requirement and in particular identification and monitoring of processes or activities which have or are likely to have an adverse impact upon the conservation and sustainable use of biological diversity.
- 37 Development of protected areas or areas where special measures are required in order to conserve biological diversity is a requirement of the in-situ conservation components of the Biodiversity Convention. So too is the requirement to regulate the use of biological resources with a view to ensuring their conservation and sustainable use. The Biodiversity Convention is worded in such a way that while it may be ideal that a Contracting Party implement certain matters there is no strict obligation to do so, rather the obligation is to implement such requirements as appropriate and as far as possible. In this regard the national environmental policies of the Contracting Party are also relevant considerations. While, depending upon circumstances, the Biodiversity Convention may not create strict obligations, the obligations it does create cannot be ignored and a decision maker will need to demonstrate how the general obligations of the Biodiversity Convention have been maintained.
- 38 In large part the framework created under the Biodiversity Convention has been incorporated into the Fisheries Act 1996. Part II (ss 8, 9 and 10) of the Fisheries Act 1996 specifically establish as principles of the Act avoidance or mitigation of any adverse impact of fishing on the aquatic environment and the maintenance of biological diversity and the application of the precautionary approach to decision making.
- 39 New Zealand is a signatory of a range of international obligations relating to fishing. Signature of an agreement or treaty is considered to be a sign of good faith and evidence of an intention to become bound by the treaty. New Zealand signed the Agreement for the Implementation of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks 1995 (commonly referred to as the Fish Stock Agreement, UNFSA, or UNIA) on 4 December 1995. The UNFSA will come into force following ratification or accession by thirty States. The objective of the Agreement is to promote long-term conservation and management of highly migratory and straddling fish stocks (Article 2). The application of the Agreement is in the main limited to the high seas ie, to waters beyond the jurisdiction of any State. However, Article 3 requires coastal States to apply the conservation and management provisions of Part II of the Agreement within their respective EEZs. The Agreement is to be applied in the context of and consistent with UNCLOS.

- 40 Part VIA of the Fisheries Act 1996 provides for the implementation of a high seas permitting regime consistent with New Zealand’s obligations under the Fish Stocks Agreement. In particular Part 6A deals with those obligations relating to the control of vessels and nationals on the high seas. Part 6A also gives effect to a number of general obligations under Part VII of UNCLOS with respect to the activities of New Zealand nationals on the high seas.
- 41 Non-binding instruments do not create obligations to which a state must act in accordance. They do, however, give an indication of ‘best practice’ as accepted by the international community. In this regard they are relevant in providing guidance to decision makers in situations where discretion is exercised. It is, therefore, appropriate that decision making under the Act have regard to the provisions of these instruments. However, the test of consistency contained within s 5(a) does not strictly apply in respect of these instruments.
- 42 The United Nations Food and Agriculture Organisation (FAO) Code of Conduct for Responsible Fishing, 1995 sets out principles and international standards of behaviour for responsible practices with a view to ensuring the effective conservation, management and development of living aquatic resources, with due respect for the ecosystem and biodiversity. The Code negotiated is one primarily focused upon the traditional “input based” forms of fisheries management. There is, therefore, a need to exercise caution in applying the Code as a representation of “best international practice”. The Code gives little or no recognition to the growing international acceptance of output based management frameworks including the use of property rights based access regimes such as the New Zealand Quota Management System (QMS). In addition to the Code itself there are a number of FAO publications entitled “FAO Technical Guidelines for Responsible Fisheries” which support various sections of the Code. One such technical guideline, the “Precautionary Approach to Capture Fisheries and Species Introductions” is discussed under the part of this document relating to the “Information Principles”.

Treaty of Waitangi (Fisheries Claims) Settlement Act Obligations

- 43 The Fisheries Act 1996 shall be interpreted, and all persons exercising or performing functions, duties, or powers under the Act, are required to act in a manner consistent with the provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992. An interpretation of the Fisheries Act 1996 in a manner that is consistent with the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 requires an interpretation that best furthers the agreements expressed in the Deed of Settlement referred to in the Preamble to that Act. A list of those agreements is provided in Attachment B.
- 44 The Ministry is required to act in a manner consistent with the principles of the Treaty at all times. Although s 5(b) of the Act refers only to acting in a manner consistent with the Settlement Act and does not refer directly to Treaty principles, the Settlement Act did not extinguish the duty to act in accordance with the principles of the Treaty in respect of non-commercial Māori fishing rights and interests, and goes as far as specifically requiring this in relation to the obligations under s 10 of the Settlement Act.

- 45 The Crown Law Office has identified three basic requirements that apply to the Crown's obligation to act in accordance with the principles of the Treaty of Waitangi:
- a) that the Crown acts reasonably and in good faith towards its Treaty partner;
 - b) that the Crown makes informed decisions; and
 - c) that the Crown avoids impediments to providing redress, and avoids creating new grievances.
- 46 These principles put an onus on the Ministry to establish structures and work practices that ensure it is capable of meeting its obligations to Māori under fisheries legislation. In *New Zealand Māori Council v Attorney General* [1987] 1 NZLR 641 the Court of Appeal concluded:
- “the responsibility of one treaty partner to act in good faith fairly and reasonably towards the other puts the onus on a partner, here the Crown, when acting within its sphere to make an informed decision, that is a decision where it is sufficiently informed as to the relevant facts and law to be able to say it has had proper regard to the impact of the principles of the Treaty.” (at page 683)
- 47 The principle of partnership and the requirement to act in good faith towards the other Treaty partner extends an obligation on the Crown to also consider and act on any proposals put forward by tangata whenua for the management of their customary fisheries. The principle of avoiding the creation of new grievances is of particular relevance in the fisheries environment now that a full and final settlement has been achieved. Fisheries management decisions seldom impact on one sector group alone, and the risk of such decisions adversely impacting on the secured rights and interests of Māori is a very real one.
- 48 The Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 constituted a final settlement of Māori claims in respect of commercial fishing. The most important on-going obligation on the Crown resulting from the commercial component of the fisheries settlement is the requirement to allocate 20% of quota for fish species to Māori via the Treaty of Waitangi Fisheries Commission, on their introduction to the QMS. The Settlement Act changed the status of Māori non-commercial fishing rights so that they no longer have legal effect except to the extent that they are provided for in regulations. However, Māori non-commercial fishing rights continue to give rise to Treaty obligations on the Crown. Explicit reference to the principles of the Treaty is made in both the preamble and s 10 of the Settlement Act.
- 49 Section 10(b) of the Settlement Act places an obligation on the Minister to consult with tangata whenua about, and develop policies to help recognise, the use and management practices of Māori in the exercise of non-commercial fishing rights. Importantly, the Minister is required to act in accordance with the principles of the Treaty of Waitangi, in carrying out his or her obligations under s 10(b). Any decisions that may have an effect on Māori non-commercial fishing rights should be consulted on with tangata whenua in accordance with the principles of the Treaty.
- 50 Section 10(c) of the Settlement Act provides for the making of regulations to recognise and provide for customary food gathering by Māori and the special relationship between tangata whenua and those places of customary food gathering importance, *to the extent* that such food gathering is neither commercial in any way

nor for pecuniary gain or trade. There is no intention expressed in the Settlement Act, nor any ability, for the Crown to restrict customary take. Rather, the regulations provide a legislative framework for ensuring that customary fishing takes place under the management of kaitiaki who have been properly appointed by, and are accountable to, the tangata whenua. However, the management of customary fishing under the regulations must be consistent with the sustainability of fisheries.

- 51 Two sets of customary fishing regulations have now been made, in consultation with tangata whenua. These regulations devolve the responsibility for managing customary fishing to kaitiaki appointed by the tangata whenua, consistent with the provisions of s 10(c) of the Settlement Act. In areas where kaitiaki have been appointed customary fishing can only take place in accordance with an authorisation issued by the kaitiaki. Information on customary removals and management practices is generated through the regulations and fed back to MFish. MFish then has an obligation to use this information to develop policies that recognise the use and management practices of tangata whenua. Information derived from authorisations issued by kaitiaki under the customary regulations will assist you with your decisions when allocating the TAC between the participants in a fishery. (A summary of your obligations relating to allocation of the TAC is contained in this document under the section relating to “Allocation of TAC Between Stakeholders”).
- 52 In areas where the customary regulations have yet to come into force (i.e. kaitiaki have yet to be appointed, regulation 27 of the Fisheries (Amateur Fishing) Regulations 1986 continues to apply. Under regulation 27, fish, aquatic life, or seaweed may be taken for the purposes of a hui, tangi, or traditional non-commercial fishing use approved by the chief executive.
- 53 It is MFish’s view that the provisions of the Fisheries Act 1996, and the proposed exercise of powers under the legislation in respect of TACs, TACCs, and other management controls, are consistent with the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992.

Environmental Principles

- 54 The Act prescribes three environmental principles that you must take into account when exercising powers in relation to utilisation of fisheries resources and ensuring sustainability. First, associated or dependent species (including non-fish bycatch) should be maintained above a level that ensures their long term viability. Secondly, biological diversity of the aquatic environment (ie, the variability of living organisms, including diversity within species, between species, and of ecosystems) should be maintained. Thirdly, habitat of particular significance for fisheries management should be protected.
- 55 The environmental principles are mandatory requirements derived from our international obligations and are intended to provide further elaboration and guidance to decision makers in achieving the purpose of the Act. The objective is to apply the environmental principles consistently, using the best available information, to “provide for utilisation ... while ensuring sustainability”. A conscious and systematic effort should be made to assess the environmental consequences of choosing between various management options. The environmental principles must

be considered at the inception of a new proposal, and at the outset of any review of current management regimes, when there is a real choice between various courses of action.

- 56 A person with decision making powers under the Fisheries Act is required to “*take into account*” the environmental principles. The decision maker is required to actively consider the matters outlined in s 9 of the Act in terms of the particular decision to be made. Information applicable to consideration of matters referred to in s 9 in respect of each separate decision should be considered in the context of the information principles (s 10 of the Act). All available information is to be considered together with reference to the absence of information relevant to the principles set out in s 9 of the Act.
- 57 Consideration of the environmental principles should be an integral part of the decision-making process through to the actual implementation of a management response. The principles are achieved directly through controls on fishing. A range of measures may be necessary to comply with the environmental principles. You may directly set controls on fishing (ie, sustainability measures) for one or more stocks or areas to avoid, remedy, or mitigate any adverse effects of fishing on the aquatic environment, taking into account these environmental principles.
- 58 Associated or dependent stocks are those stocks that cannot be lawfully targeted but may be lawfully taken as an incidental by-catch of legitimate commercial fishing. Associated or dependent species are to be maintained above a level that ensures their long term viability. The term “long term viability” is defined in the Act as meaning there is a low risk of collapse of the stock or species, and the stock or species has the potential to recover to a higher biomass level. Long-term viability may be considered in the context of the natural dynamics of populations. At one level the concept implies the need to ensure the continuing existence of species in the sense of maintaining populations in a condition that ensures a particular level of reproductive success. At another level, viability implies an ability to maintain populations at a level that ensures the maintenance of biodiversity. Viability could be achieved at very low levels of population size, depending on the risks associated with, for example, recruitment failure at low population sizes. The concept of long-term viability also needs to be considered with respect to utilisation by different sector groups.
- 59 In the case of associated or dependent species that are protected species under the Wildlife Act 1953 or the Marine Mammals Protection Act 1978, the Department of Conservation (DoC) may prepare population management plans. Where such a plan exists, you are required to take all reasonable steps to ensure that the maximum allowable fishing-related mortality level set in the plan is not exceeded. To date, no population management plans are in force. In the absence of a population management plan, you may, after consultation with the Minister of Conservation, take such measures as are necessary to avoid, remedy, or mitigate any adverse effects of fishing on protected species. Such measures may include setting a limit on fishing-related mortality or prohibiting all or any fishing or fishing methods in an area for the purpose of ensuring such a limit is not exceeded.
- 60 Associated or dependent species are a relevant consideration in the setting of target stock levels under s 13, although these associated and dependent species may not fall within the definition of a stock. (A stock is one or more species treated as a unit for

fisheries management purposes. A large number of the organisms in the aquatic environment are not managed for such purposes.) Section 13 does not directly provide for consideration of associated and dependent species in setting the TAC (the provision refers to the interdependence of stocks). However, the purpose and principles in the Act have to be taken into account in all decisions. Therefore, where fishing is affecting the viability of associated and dependent species, there is an obligation to take measures to prevent this, through method restrictions, area closures, and potentially through adjustment to the TAC. A similar approach is relevant to address issues relating to the protection of habitat of significance for fisheries management and maintaining biodiversity.

- 61 The principle that the biological diversity of the aquatic environment should be maintained is derived from the Convention on Biological Diversity, 1992. Biological diversity is the variability that exists among living organisms. The diversity applies within species, between species and of ecosystems. The aquatic environment is a term of wide scope encompassing:
- a) the natural and biological resource comprising any aquatic ecosystem, and
 - b) all aquatic life and all places where aquatic life exists.
- 62 An operational definition of biodiversity is difficult to develop because our understanding of the nature of and operation of aquatic ecosystems is very limited. Fishing activity may impact on biodiversity in a number of ways. A fishstock may comprise one or more genetic stocks or one or more discrete populations. An inevitable effect of fishing may be to reduce the variability found in those stocks or populations. Fishing may also impact on the diversity of aquatic life found in each individual ecosystem. From a theoretical perspective, each ecosystem is potentially unique from any other. The removal of one species from an ecosystem may reduce the variability found in that ecosystem, notwithstanding that the species concerned may be found in another ecosystem. The issue of maintaining biodiversity needs to be considered in the context of the purpose of the Act. The Act contains a presumption that, where possible, a resource should be used to the extent that sustainability is not compromised. The issue of determining the extent of fishing or the impacts of fishing that can occur requires an assessment of the risk that fishing may cause a species extinction or reduce biodiversity. In the absence of complete information to undertake such a detailed assessment, the information principles specified in the Act provide guidance for decision makers on the approach that should be adopted.
- 63 The Act does not expressly define the word “habitat” or provide guidance as to what is “of particular significance for fisheries management purposes”. Habitat can be defined as “the place or type of area in which an organism naturally occurs”(NZ Biodiversity Strategy). A useful starting point for defining habitat of particular significance for fisheries management is the Magnuson-Stevens Fishery Conservation and Management Act (USA) which defines “essential fish habitat” to mean “those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity”. The maintenance of healthy fish stocks requires the mitigation of threats to fish habitat. The source of the threats may not be confined solely to the activity of fishing. A range of terrestrial activities may impact on the fisheries habitats.
- 64 Some habitats are of greater significance for fisheries management than others. For example, MFish considers eel grass to be a habitat of significance given its role as

a nursery ground and accordingly ought not to be subject to damage by specific fishing methods (ie, trawling, dredging, or dragging). Habitats that assist in the reproductive and productive process of a fishery, hence are of special significance, and should be protected. Adverse effects on such areas are to be avoided, remedied, or mitigated. It is also noted that spawning areas of discrete populations should be protected to ensure that the biodiversity of the species is adequately maintained.

- 65 Where there are matters related to the environmental principles associated with the stocks or regulatory issues discussed, or the fisheries and methods used to harvest those stocks, they are discussed in the separate sections following. Similarly any particular concerns in submissions received will be drawn to your attention. However, MFish advises that insufficient information is available to undertake a systematic assessment of biodiversity, other than for some stock assessments, and consideration of incidental by-catch. No ecosystem, population, assemblage assessment has been undertaken in respect of the issues reviewed in the FAP. Further no systematic consideration of method impacts or spatial impacts has been completed. Funding allocated to new work in the biodiversity area will provide additional information to assist you with future fisheries management decisions.

Information Principles

- 66 A person with decision making powers under the Fisheries Act 1996 is required “to take into account” the information principles set out in s 10. The information principles do not of themselves impose any statutory or fiduciary duty on the Crown to actively obtain the information necessary such that the obligations under the Act are able to be discharged. It is accepted that the Act requires that information is obtained and assessed where necessary for effective decisions to be made. That requirement is not enunciated in s 10 as an obligation to obtain the necessary information, rather the information principles provide guidance as to how decisions are to legitimately be made on the basis of the information which is available. This however does not suggest that s 10 may serve as a means of the Crown to avoid the need to obtain such information as is relevant for the purposes of the Act.
- 67 Justice McGechan in the case of *CRA3 Association Industry Association Incorporated v Minister of Fisheries* (High Court, Wellington CP317/99, 24 May 2000) stated that:
- “there is a duty on a Minister charged with exercising a statutory power to inform himself to a reasonable extent commensurate with what he must do and what is at stake. What is “reasonable” will also depend on circumstances prevailing at the time. Matters such as time available, resources to hand, existing knowledge and expertise, and reliability or apparent reliability of sources all can have a bearing, along with all else. In principle exhaustive information of course is desirable. In practice, that happy state is rarely obtainable. Many decisions, and reasonably, must be made on the basis of information to hand or practicably obtainable within an available timeframe.”
- 68 The information principles enable action to be taken and provide guidance as to how decision makers should act. A decision maker is required to take into account the matters outlined rather than simply have some regard to the matter. If a decision is made which does not use the information principles it will be able to be challenged as an unlawful decision. Where information is truly unavailable, provided a decision is

made for the purposes of the Act, that decision would not be called into question on that ground alone.

- 69 Section 10 requires that a cautious approach should be adopted to fisheries management where information is uncertain, unreliable, or inadequate. Due to the nature of the data and assumptions that are used to generate fisheries assessments the results produced contain inherent variation and uncertainty. Decisions should be based on the best information that, in the particular circumstances, is available without unreasonable cost, effort, or time. Decision makers should consider any uncertainty in the information available in any case and be cautious when information is uncertain, unreliable, or inadequate. 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.
- 70 Section 10 provides recognition that when making decisions there is always going to be some level of uncertainty. That uncertainty could be in relation to the information on which the decision is being made, the existence of a risk and/or threat, or as in many cases, uncertainty in both these areas. Decision makers are required to find a balance between not taking appropriate management measures and sustainability not being achieved, and restrictions being placed on fishing activities leading to the utilisation objectives of the Act not being achieved.
- 71 The information principles apply to all scientific, customary Māori, social, and economic information and any analysis of that information. Determination of which of the differing information types available, is the best available information, will depend on the circumstances of the case. In the context of providing utilisation while ensuring sustainability, formally researched information on the biological aspects of the fishery and the aquatic environment is seen to provide an objective basis to the existence and extent of any particular risk to sustainability. An assessment of the 'state' of the information should be made to determine that the best information is being used and where on the information continuum that information falls in order that the decision maker has a guide to the degree of caution required. In specific instances uncertainty can be used to defer decisions in relation to utilisation. This could apply in situations where increasing catch would have uncertain and potentially risky implications for a stock. In that circumstance a decision maker could defer a decision to provide for increased utilisation.
- 72 Decisions are to be made irrespective of absence or uncertainty in information. Total risk avoidance is not an outcome envisaged by the purpose of the Act, rather it is the degree and materiality of the risk concerned which is of significance. Rather the purpose of the Act focuses on extractive use, within the parameters of sustainability. However, the less information there is, or the more uncertain the information, the more cautious or conservative the approach should be when making a decision under the Act. Uncertainty in information must be taken into account, by the decision maker, in relation to the particular decision to be made. The greater the paucity of information the more care that should be taken. In *Greenpeace NZ Inc v Minister of Fisheries* (HC, Wellington CP 492/93, 27/11/95, Gallen J) the Court noted that:
- “...to state that something must be approached with caution means just that. The fact that a dispute exists as to the basic material upon which the decision must rest, does not mean that necessarily the most*

conservative approach must be adopted. The obligation is to consider the material and decide upon the weight which can be given it with such care as the situation requires.” (page 32)

- 73 Where caution is required to be exercised, it is to be exercised in the context of achieving the purpose of the Act. In interpreting these principles, it is MFish’s view that the less information there is the more cautious or conservative the approach should be when making a decision under the Act. Caution is to be exercised in relation to both ensuring sustainability as well as providing for utilisation. A cautious approach would suggest that steps are taken to minimise risks, particularly if stocks are at risk of falling below the environmental standards specified in the Act. The result of applying a cautionary approach might mean a decision is made to obtain further information before a variation of the TAC takes place. Equally, a decision maker needs to be aware of the risk of unnecessarily reducing utilisation or not providing for the full extent of utilisation that is available.
- 74 The information principles are to be distinguished from the “precautionary approach”. The information principles apply to both sustainability and utilisation. The “precautionary approach” as acknowledged in international literature and law, is geared towards cautious management to minimise environmental risks. However, consideration of the precautionary approach offers a useful insight into how the information principles may be put into practice.
- 75 The FAO has issued technical guidelines relating to the “Precautionary Approach to Capture Fisheries and Species Introductions”. The guidelines note that the precautionary approach involves the application of prudent foresight. Taking account of the uncertainties in fisheries systems and the need to take action with incomplete knowledge, it requires, inter alia:
- a) consideration of the needs of future generations and avoidance of changes that are not potentially reversible;
 - b) prior identification of undesirable outcomes and of measures that will avoid them or correct them promptly;
 - c) that any necessary corrective measures are initiated without delay, and that they should achieve their purpose promptly, on a time-scale not exceeding two or three decades; and
 - d) that where the likely impact of resource use is uncertain, priority should be given to conserving the productive capacity of the resource (page 6 of the FAO guidelines).
- 76 The following concepts are also noted in the FAO guidelines in respect of the precautionary approach:
- a) all fishing activities have environmental impacts, and it is not appropriate to assume that these are negligible until proved otherwise;
 - b) although the precautionary approach to fisheries may require cessation of fishing activities that have potentially serious adverse impacts, it does not imply that no fishing can take place until all potential impacts have been assessed and found to be negligible;

- c) the precautionary approach to fisheries requires that all fishing activities be subject to prior review and authorisation; that a management plan be in place that clearly specifies management objectives and how impacts of fishing are to be assessed, monitored and addressed; and that specified interim management measures should apply to all fishing activities until such time as management plan is in place; and
- d) the standard of proof to be used in decisions regarding authorisation of fishing activities should be commensurate with the potential risk to the resource, while also taking into account the expected benefits of the activities (page 7 of the FAO guidelines).

77 Precautionary management is deemed to involve explicit consideration of undesirable and potentially unacceptable outcomes and provides contingency and other plans to avoid or mitigate such outcomes. Undesirable or unacceptable outcomes include overexploitation of resources, over development of harvesting capacity, loss of biodiversity, major physical disturbances of sensitive biotypes, or social or economic dislocations. Undesirable conditions can also arise when a fishery is negatively influenced by other fisheries or other activities and when management fails to take action in the face of shifts in the external conditions affecting, for example, the productivity of the fish stocks (page 8 of the FAO guidelines).

Sustainability Measures

78 The Fisheries Act 1996 provides for the setting of sustainability measures. The Act defines as “sustainability measures” those measures set under Part III of the Act for the purpose of ensuring sustainability. There are a range of measures that can be adopted under Part III, the most identifiable being a TAC for Quota Management System (QMS) stocks and a catch limit for non-QMS stocks.

Types of Sustainability Measures

79 Section 11(1) of the Act allows you to set or vary any TAC and other sustainability measures, for one or more stocks or areas. Setting or varying a sustainability measure for an area is not restrained in the same way. The area could be smaller than a Quota Management Area (QMA) or Fishery Management Area (FMA). This might be applicable for example, in respect of the effects of fishing on the aquatic environment, where a method may be having an adverse effect on an area.

80 There is often debate about whether a measure can be properly categorised as a sustainability measure under s 11. This section provides a non-exclusive list of sustainability measures. There is no implied hierarchy regarding the use of any one sustainability measure. Sustainability measures may relate to one or more of the following:

- a) catch limit (including a commercial catch limit) for any non-QMS stock;
- b) total allowable catch for a QMS stock;
- c) size, sex, or biological state of any fish, aquatic life, or seaweed of any stock that may be taken;
- d) areas from which any fish, aquatic life, or seaweed of any stock may be taken;

- e) fishing methods by which any fish, aquatic life, or seaweed of any stock may be taken or that may be used in any area; and
- f) fishing season for any stock, area, fishing method, or fishing vessels.

- 81 To that list can be added a fisheries plan. Section 11A of the Act provides for you to approve a fisheries plan. Inclusion of that provision within Part III of the Act renders fisheries plans by definition a sustainability measure. In addition, area catch limits within a QMA can be regarded as a sustainability measure where the purpose of the catch limit is directly related to ensuring the sustainability of the stock. Catch limits have been employed in a number of fisheries to ensure that effort is not concentrated in a single area. Catch limits are suited to fisheries where the biological characteristics of the stock mean that the stock is susceptible to overfishing in discrete locations.
- 82 An area closure can be a sustainability measure by, for example, closing an area to all stakeholders or particular methods to allow a population of a species to build. If the purpose of the measure is for sustainability it should generally apply equally to commercial and recreational fishers so that it does not have an allocational effect. The adoption of a method restriction may in practice result in the exclusion of certain fishers. A regulation under s 298 would be used to effect this. An area closure could also be used as an allocative tool by precluding commercial fishing, as provided for, for example, under s 311 of the Act. The closure is not intended as a sustainability measure, rather it reflects a deliberate decision to give preferential fishing rights to one sector over another. A regulation under s 297 would be used to effect this.
- 83 The closing of an area has the potential to impact on the property right of quota holders. The use of regulations under the 1983 Act to restrict fishing within a QMA was the subject of the proceedings in *Sanford (South Island) v Moyle* (High Court, Wellington CP 3/89, 10 November 1989, McGechan J). The general theme of the decision was the need to limit the scope of any restriction on lawful fishing activities within a QMA by use of regulations to a minimum. The Court held that the QMS was not to be dismantled or tinkered with by the Minister nor did the QMS give the Minister any “considerable leeway for adjustment by regulation”. The Court however noted that this restraint was to be reconciled with the potentially conflicting intentions, such as the “conservation conscious” intent of the QMS. Moreover some flexibility was required in the QMS, s 28C(3)(a) of the 1983 Act (now repealed) authorised the setting of separate TACs for separate parts of the QMA. The issue was how far regulations could impinge. The Court considered that regulations could not render ineffective rights enjoyed under the QMS by Individual Transferable Quota (ITQ) holders. The boundary of the QMA could not be affected. Equally a TAC could not be reduced by a regulation, which excluded access to an area within a QMA: a TAC could only be reduced under the appropriate legislative provision.
- 84 The decision in *Sanford (South Island) v Moyle*, while emphasising caution to limit the scope of any restriction on fishing, can be distinguished on a number of grounds. The case did not directly address the issue of setting catch limits within a QMA, an issue not unrelated to the ability to set separate TACs within a QMA which was explicitly authorised at the time of the case by s 28C(3)(a). The case was limited to the issue of closing areas within a QMA to certain forms of commercial fishing.

- 85 More importantly the case was considered in the context of the 1983 Act. Under the 1996 Act the Minister has the authority to set or vary any sustainability measure by regulation (ss 11 and 298). The 1996 Act enables areas within QMAs to be closed or access restricted for a variety of purposes (ss 11(3), 15, 186A, and 311). Section 19(6) specifically states that a regulation made under the 1996 Act is not to be construed as altering a QMA merely because it prohibits, limits, or restricts fishing in a QMA. It is the intention of the 1996 Act that catch limits can be set for areas within the QMA. Where a regulation is enacted for sustainability purposes the Crown is not liable to pay compensation or damages to affected parties (s 308(2)).
- 86 It is sometimes suggested that recreational bag limits are a catch limit and therefore a sustainability measure. Bag limits constrain individual catch, but do not set the total catch (allowance) to be taken by recreational fishers. Bag limits could, however, be set and adjusted retrospectively based on survey information, to maintain recreational catch at the allowance. Therefore, bag limits are not a sustainability measure under s 11 (although they clearly contribute to the purpose of the Act of ensuring sustainability) and would be set by regulation under s 297.

Factors to be taken into account when setting sustainability measures

- 87 Prior to setting or varying a sustainability measure there are a number of factors that you are required to take into account. The purpose and principles of the Act (ie, ss 8–10), together with ss 5 and 12, are applicable to any decision you may make to set or vary a sustainability measure. The Act also requires you to consider the implications for any of your sustainability measures decisions of the management strategy for the coastal marine area in general. Before setting or varying any sustainability measure, pursuant to s 11(2) of the Fisheries Act 1996, you must have regard to any provisions of:
- a) any regional policy statement, regional plan, or proposed regional plan under the Resource Management Act 1991; and
 - b) any management strategy or management plan under the Conservation Act 1987—
- that apply to the coastal marine area and which you consider to be relevant. It should be noted that the coastal marine area extends to the outer boundary of the territorial sea of New Zealand. In the stocks considered in this paper, where there are elements of these plans, statements or strategies that are relevant to varying a sustainability measure, they are discussed with the specific proposal.
- 88 Section 11(1) of the Fisheries Act 1996 provides that you may set or vary any TAC and other sustainability measures, after taking into account:
- a) any effects of fishing on the stock and the aquatic environment;
 - b) any existing controls that apply to the stock or area concerned; and
 - c) the natural variability of the stock concerned.
- 89 Effects is defined to mean the direct or indirect effect of fishing and includes:
- a) any positive or adverse effect;
 - b) any temporary or permanent effect;

- c) any past, present, or future effect; and
- d) any cumulative effect which arises over time or in combination with other effects—

regardless of the scale, intensity, duration, or frequency of the effect; and also includes:

- e) any potential effect of high probability; and
- f) any potential effect of low probability which has a high potential impact.

90 In accordance with achieving the purpose of the Act, any adverse effects of fishing on the aquatic environment should be avoided, remedied, or mitigated. As noted above in the section on environmental obligations, where MFish is aware of issues related to the effects of fishing associated with the stocks discussed, or issues are raised in submissions, they are discussed in the stock sections following.

91 In general, the assessment for a fishstock will take into account the variability of the fishstock, and where it is particularly relevant, that will be drawn to your attention. Although the principal management mechanism for New Zealand's commercial fisheries is a catch limit, this is augmented by a number of other input controls such as gear restrictions, minimum sizes and area closures. The assessment and advice in the sections following take these existing controls into account. Where MFish assesses there are particular points that should be considered, or the consultation process has generated an issue, these are discussed in the applicable sections.

92 The Act (s 11(2A)) also requires that you take into account, before setting or varying any sustainability measure:

- a) any conservation services or fisheries services;
- b) any relevant fisheries plan approved under this Part; and
- c) Any decisions not to require conservation services or fisheries services.

93 Fisheries plans will specify a management framework for managing one or more stocks or areas in accordance with the purpose and principles of the Fisheries Act. Fisheries plans allow for explicit trade-offs between services and catch levels to be achieved in a transparent manner. Fisheries plans are being prepared in relation to stocks which are being reviewed this year, Paua 7 and Oreo. Information regarding the fisheries plans for these stocks is discussed in the context of the relevant stock sections following. Explicit decisions may be made not to require services in a fishery. The reason may be based on an undertaking by stakeholders either within or outside a fisheries plan to undertake the services directly. Any relevant sustainability measure should reflect explicit decisions made in relation to services or decisions not to require services.

94 Consideration also needs to be given to how a sustainability measure is to be implemented. In approving the use of a sustainability measure you should consider the most effective way of achieving the desired outcome. You may conclude that a sustainability measure does not need to be formally set. For example, agreements with industry may be taken into account in the management of multi-species stocks within certain parameters. A TAC higher than that justified in terms of s 13 (to

maintain a stock at or above, or move it towards, B_{MSY}) may not be set on the basis of an industry undertaking not to fish the full extent of the TACC. An industry agreement cannot be used as a basis for a TAC that ignores the need for caution when information is uncertain, unreliable, or inadequate. However, an industry agreement to limit catch of a species within a multi-species stock may be taken into account; such an agreement does not impede the proper exercise of your power to set a TAC under s 13. In addition, where the TAC is set in accordance with s 13 you may take into account an agreement to divide fishing effort within a QMA to preclude the overfishing of discrete populations.

- 95 An important factor in supporting the use of non-statutory measures is the degree of support for the measure and the nature of the monitoring and enforcement regime proposed to support the measure. An example of a non-statutory measure is a catch limit for a single species within a multi-species stock, such as oreo, or the use of a catch spreading arrangement for orange roughy on the Chatham Rise. Non-statutory measures may be supported by legally binding contractual arrangements entered into by the fishers concerned. However, as the Crown is not formally a party to such agreements, there is no formal sanction imposed under the Fisheries Act for a breach of a sustainability measure implemented by non-statutory means. The failure to adhere to non-statutory measures has the sanction that the Crown is increasingly unlikely to rely on such measures subsequently.
- 96 Sustainability measures may also be set by statutory means. The Act provides for the use of a regulation or *Gazette* notice to implement a sustainability measure. A *Gazette* notice may provide a more timely and flexible response to particular situations than a regulation response. For example, a *Gazette* notice may be used where a non-statutory implementation of a sustainability measure does not prove effective.

Quota Management Stocks

- 97 It is noted that the introduction of the QMS resulted in a management regime that originally specified the setting of a TACC but not a TAC for QMS species. The Fisheries Act 1996 imposes a statutory requirement for you to set a TAC for each QMS stock (s 13(1)). This requirement is modified by the condition that you are not required to set an initial TAC for any fish stock unless it is proposed to also set or vary the TACC for that stock under s 20 of the Act (s 13(10)). For those fishstocks for which no TAC has been set, MFish proposes that TACs are set and allowances determined progressively as fishstocks are reviewed.

Target Stock Level

- 98 In the case of quota management stocks, s 13(2)(a) of the Fisheries Act 1996 specifies a requirement to maintain a fishstock at a target stock level, being at, or above, a level that can produce the MSY, having regard to the interdependence of stocks. MSY is defined, in relation to any fishstock, as being the greatest yield that can be achieved over time while maintaining the stock's productive capacity, having regard to the population dynamics of the stock and any environmental factors that influence the stock. A requirement to maintain stocks at a level that is capable of producing the MSY is generally recognised internationally as being an appropriate fishstock target,

although there is some international support for MSY representing a minimum fishstock target.

- 99 If the stock is currently below a target stock level, there is a requirement pursuant to s 13(2)(b) to set a TAC that will result in the stock being restored to a target stock level (at or above a biomass that will support MSY) in a way and rate which has regard to the interdependence of stocks and within a period appropriate to the stock, having regard to its biological characteristics and any environmental conditions affecting the stock. If the stock is above a target stock level, there is a requirement to set a TAC that will result in the stock moving towards the target stock level, or alternatively remain above the target stock level, having regard to the interdependence of stocks (s 13(2)(c)). In determining the way in which, and rate at which, a stock is altered to achieve the target stock level, you are to have regard to such social, cultural, and economic factors as you consider relevant (s 13(3)). Section 13(3) makes it explicit that those qualifying factors are relevant in the determination of the way and rate, rather than in the determination of the target stock level. By “having regard” to the relevant factors specified by the Act, you must consciously consider those matters and give due weight to them. However you have the discretion to reject or give such weight to the matters, as you consider appropriate.
- 100 The rate of rebuild to achieve B_{MSY} (the biomass that will produce MSY), and therefore the timeframe adopted to do so, is a matter for your discretion. In this context, you could make a decision that allowed a fish stock to decline away from a level, which would produce the MSY temporarily, provided you have an intention or plan to rebuild the stock to the target level over a reasonable period of time. There is no set time frame within which you must achieve a rebuild or “fishing down” of a stock. Implementation of a phased reduction of the TAC is a legitimate option. Fishers are provided an opportunity to adjust their business activities to mitigate the potential impact of a significant reduction of a TAC. Equally, there is no requirement that you must provide for a phased reduction of the TAC in every instance. You are given discretion under the Act to determine the rate at which the TAC is reduced, subject to consideration of the relevant circumstances on a case by case.
- 101 The Act allows you to manage fisheries above the biomass that will produce MSY (B_{MSY}) on an ongoing basis. In the case of quota management stocks, s 13 of the 1996 Act sets out the requirement to maintain or move fishstocks towards a target stock level, being at, or above, a level that can produce the MSY, having regard to the interdependence of stocks, biological characteristics of the stock, and any environmental conditions affecting the stock.
- 102 The interdependence of stocks (ie, any fish, aquatic life, or seaweed or one or more species that are treated as a unit for the purpose of fisheries management) is a legitimate basis for determining whether a stock is managed at or above a level that can produce the MSY, either temporarily, or on an ongoing basis. The interdependence of stocks may include the relationships among and between harvested species (ie, any fish, aquatic life, or seaweed or one or more species that are treated as a unit for the purpose of fisheries management). MFish interprets interdependence of stocks as a situation where there is a direct trophic (ie, one stock is likely to be directly affected through a predator or prey relationship by the abundance of another stock) or symbiotic relationship between stocks. This is therefore distinct

from the requirement to protect the viability of associated and dependent species expressed in the environmental principles.

- 103 Arguments have been raised to manage stocks above or below B_{MSY} on an ongoing basis for utilisation purposes—for example to manage below B_{MSY} because of the economic implications for industry of a reduction to effect a rebuild, or a higher biomass higher than B_{MSY} to improve catch rates for the recreational sector. In MFish’s view, these utilisation factors could only be used to vary the rate of movement toward B_{MSY} , not to manage a stock below B_{MSY} on an ongoing basis. A further point is that if a stock was to be intentionally managed substantially in excess, or below B_{MSY} , on an ongoing basis, a lower overall yield would be available and either s 13(2)(c) or (b) respectively would apply. The alternative is to manage the stock in accordance with ss 4A-C. These provisions allow for the stock to be maintained above a level that ensures its long term viability, subject to strict qualifying criteria.
- 104 There is scope for a stock to be managed at levels higher than that necessary to produce MSY, but this is limited to considerations that are *intra vires* the Fisheries Act. Such a ‘target level’ may be an appropriate management strategy in order to meet the wider social, cultural or economic goals provided for under s 8 (the purpose) of the Act or due to the interdependence of a second species to the target species. Stocks may also be managed above a level necessary to produce MSY where there is a high degree of consensus amongst stakeholders. There may be an agreed management strategy to improve catch rates or produce large fish.
- 105 Section 13 represents the default management option that is to be applied when setting a TAC, unless the stock qualifies under the criteria for managing under ss 14 or 14A. In accordance with s 10 you are required to evaluate the quality of information in assessing the B_{MSY} for a stock and in determining the degree of caution to be exercised in setting a TAC. Of particular import is that a TAC is to be calculated with reference to known fishstocks. Any decision in respect of the TAC/TACC to be based upon an assessment of the standing stock, that is, the stock targeted by fishers. The potential that there may exist other unknown populations which could justify a higher TAC at some point in the future once discovered is an irrelevant consideration when setting a TAC in any one fishing year.
- 106 The Act specifies that the TAC is the primary tool for moving a stock towards the target stock level. Other measures may be adopted in conjunction with a change in the TAC, however such additional measures should not be relied on in place of the TAC.
- 107 Any TAC that is set or varied has effect on and from the first day of the next fishing year for the stock concerned. An exception applies to those stocks listed on the second schedule to the Fisheries Act 1996 (see heading below).
- 108 Section 13(5) of the Act specifies that you may set a TAC of zero. It may be in situations where there are strong biological reasons for prohibiting all removals from a stock in order to ensure sustainability. The setting of a zero TAC may be part of a specified rebuild strategy to move the stock towards the target stock level. Prior to setting a zero TAC you would need to have regard to the social, cultural and economic costs and benefits associated with such a measure.

In-season Increases to the TAC

- 109 Any TAC that is set or varied has effect on and from the first day of the next fishing year for the stock concerned. An exception applies to those stocks listed on the second schedule to the Fisheries Act 1996. Section 13(9) of the Act enables any stock with a highly variable abundance to be listed on the second schedule. Stocks may be added or omitted from the schedule by Order in Council. The species currently listed on the second schedule are freshwater eel, red cod, flatfish and Coromandel and Northland scallops.
- 110 Section 13(7) provides for an increase to the TAC during the course of the fishing year. In years of high abundance the TAC may be varied in season. At the commencement of the next fishing year the TAC reverts to the level set at the commencement of the previous fishing year. The TAC can only be increased during the fishing year and not decreased.
- 111 An in-season TAC increase is to be allocated after consideration of the matters referred to s 1(1) of the Act (see s 68(1)(a)). The increase may be distributed between commercial, customary and recreational fishers, and an allowance made for other sources of mortality to the stock. In terms of the increase of the TAC allocated to commercial fishers, the increase of the TAC does not result in an increase to the TACC during the fishing year. Additional annual catch entitlement is generated during the fishing year, not individual transferable quota, and allocated in terms of proportional quota share held by each quota owner.

Discussion of MSY

- 112 The TAC is a level of total removals that, with other controls, will allow the fishery to move towards a biomass level that will support the MSY over time. In practical terms MSY cannot be measured directly but must be derived from an assessment of the fishery. The fishery assessment plenary report describes the use of biological reference points to approximate MSY. They embody the concept of MSY, apply to all conditions of stock size, account for stock fluctuations, and are calculable.
- 113 MSY corresponds to the highest or maximum point on a theoretical yield curve of the whole range of stock biomass sizes. B_{MSY} is the stock biomass that will allow this yield to be taken on a sustained basis. For reasons, including uncertainty in the stock assessment and the effect of environmental variability on stock abundance, it is not possible to actually maintain a stock exactly at this optimum biomass. However, the aim of management is to use the assessment to determine stock size relative to B_{MSY} and then adjust catch limits and management controls to achieve the target biomass over time, and thereby achieve the highest sustainable yield.
- 114 The reference points most commonly used are Maximum Constant Yield (MCY) and Current Annual Yield (CAY), which derive from two ways of viewing MSY: a static interpretation and a dynamic interpretation. MCY is based on the idea of taking the same catch from the fishery year after year, despite variation in biomass caused by factors including environmental fluctuations and recruitment. The latter interpretation, from which CAY is derived, recognises that fish populations fluctuate in size from year to year (for environmental and biological reasons, as well as fishery reasons) so that to get the best yield from a fishery it is necessary to alter the catch every year. This leads to the idea of maximum average yield (MAY), which is how fisheries scientists generally interpret MSY.

Alternative Target Stock Levels

- 115 Section 14 of the Fisheries Act 1996 prescribes an exception to the target stock level based on an assessment of MSY in limited circumstances. If:
- a) it is not possible, because of the biological characteristics of the species, to estimate MSY or
 - b) a catch limit for New Zealand has been determined as part of an international agreement or
 - c) the stock is managed on a rotational or enhanced basis—

then you may, after consultation, recommend to the Governor General the adding of the species to the third schedule to the Act. The species currently listed on this schedule are freshwater eel, southern scallops, and squid. In respect of any quota management stock listed on the Third Schedule, you may, pursuant to s 14(1), set a TAC other than in accordance with the requirements in respect of target stock levels stated in s 13 of the Act, if satisfied that an alternative TAC would better achieve the purpose of the Act.

- 116 There are no proposals to either add a new quota management stock to the Third Schedule or in respect of TACs for existing species on the Third Schedule, in this paper.
- 117 A further exception to s 13 is management of a stock under s 14B of the Fisheries Act 1996. An alternative TAC may be set for a stock at a level that is no greater than a level that will allow the TAC and TACC set for another stock to be taken. The alternative TAC must be set at a level that ensures the stock is maintained above the level to ensure its long term viability. There are no proposals to manage a stock in accordance with s 14B in this paper.

Multi-species stocks

- 118 A particular issue arises in setting the TAC for a stock where that stock includes more than one species. The species within a multi-species stock are collectively to be treated as a unit for the purposes of fisheries management. The TAC must be set in respect of the whole stock, rather than exclusively for a species within that stock. A quota holder may legally target all or any of the species within the limits of their ITQ right. However, you would be entitled, taking into account your obligations to ensure sustainability, to set a catch limit that takes into account the sustainable yield for one or more species in a multi-species stock or where there is a risk to the sustainability of a species within that stock. A catch limit could be implemented either by industry agreement or by a *Gazette* notice. Section 25 of the Fisheries Act 1996 enables multi-species stocks to sub-divided into separate stocks either by the Minister, due to sustainability concerns only, or by industry agreement.

Non-QMS Fishstocks

- 119 The requirements for non-QMS fishstocks are slightly less prescriptive than in the case of quota management stocks. You may set or vary any sustainability measure; s 11 first lists the catch limit, including any commercial catch limit for any stock, and then a number of input controls on fishing.

- 120 When setting or varying a catch limit (including a commercial catch limit) for any non-QMS fishstock, you are required pursuant to s 11(5) of the Fisheries Act 1996 to have regard to the matters in s 13(2) for quota management stocks in respect of maintaining or moving stocks towards a target stock level, being a level at or above that level which can produce the MSY, having regard to the interdependence of stocks. If setting a commercial catch limit, you are required to have regard to s 21(1). This section relates to making an allowance for non-commercial fishing interests in that stock and any other mortality to that stock caused by fishing, before setting a commercial catch limit.
- 121 When considering sustainability measures under s 11 for non-QMS species, the Act does not preclude imposition of controls in respect of catch limits, closures, or methods over an area that might be smaller than the FMA. “*Stock*” is defined as any fish, aquatic life or seaweed of one or more species that are treated as a unit for management purposes of fisheries management. A decision would prudently be based on what area was sensible to manage separately. The biology and distribution of a species would be relevant. Clearly, it would not be sensible to manage a mobile fish species in each harbour, as they freely migrate throughout the FMA. However, it might be sensible to manage a substantial shellfish resource in that harbour separately, because these species are sessile and discrete, except for some larval exchange, from the same shellfish in the next harbour down the coast.
- 122 In determining the areas that would be managed separately, a pragmatic decision would need to be made on the intent to manage the species in discrete areas, and how many areas, taking into account the purposes of the Act. The effect would be to establish the boundaries of stocks (the unit of management). For non-QMS species thought should be given to the likely quota management areas (QMAs) for introduction to the QMS and the subsequent responsibility to manage each stock to B_{MSY} . Other relevant considerations would include the costs of managing discrete areas, and the extent to which local management should be the responsibility of local stakeholders. Alternatively, you could elect to manage a non-QMS species in a wider area (ie, an FMA) and ensure that over the FMA, the species are managed sustainably. Managing over the whole FMA could assure the sustainability of the species overall, but would not deal with local depletion issues. However, the dispute resolution mechanism under the Act has been set up to address this sort of issue.
- 123 The purpose and principles of the Act (ie, ss 8–10), together with ss 5, 11, and 12, are applicable to any decision you may make in respect of non-QMS species.

Allocation of TAC Between Stakeholders

Introduction

- 124 The Fisheries Act requires that a TAC is set in respect of each QMA for each stock subject to the QMS and that certain interests are to be allowed for when setting the TACC. The TAC constitutes primarily a composite of the respective stakeholder sector groups’ catch allocation, plus other fishing mortality related to the exercise of the catch entitlement, in a particular fishery. For non-commercial interests, namely recreational and customary, that interest is specified as an allowance. The commercial entitlement is specified in the form of a TACC. The process by which the allowance

for non-commercial interests in the fishery is apportioned or the allowance is made is undertaken in conjunction with the setting of the TACC.

- 125 However, a clear statement on the extent of the respective allowance for each stakeholding interest or the priority to be accorded to those interests is absent from the Fisheries Act. However, a number of statutory provisions indicate the nature of a stakeholder's right and the manner in which it can be modified¹. To date, a series of court judgments have provided further legal guidance as to the nature of your statutory obligation as Minister, but only in a fragmented and skeletal sense.
- 126 Principles applicable to the allocation of the TAC between stakeholders are an operational requirement under the Fisheries Act. The object of this portion of the Statutory Consideration and Consultation section of the FAP is to:
- a) identify those interests to be allowed for when allocating the TAC;
 - b) provide guidance on the nature of the respective allowances (the TACC, the recreational and customary allowances, and the allowance for all other mortality to the stock caused by fishing) ;
 - c) provide guidance on how the allocation for each interest is quantified in particular where there is an absence of information ;
 - d) identify circumstances in which an allocative decision can be made; and
 - e) identify those factors you may take into account when making an allocative decision.

Legislative Obligations

- 127 The Act itemises the allowances to be provided for. Section 21 states that when setting or varying any TACC you are to have any regard to the TAC for that stock and allow for:

“(a) The following non-commercial fishing interests in that stock, namely—
(i) Māori customary non-commercial fishing interests; and
(ii) Recreational interests; and
(b) All other mortality to that stock caused by fishing.”

- 128 The Act specifies no priority or quantitative measure when allowing for the interests in the fishery or all other mortality to the stock caused by fishing. No reference is made to the foreign allowable catch in s 21. A separate determination is required as to what portion of the TACC is to be made available for foreign fishing vessels (see

¹ Provisions which indicate the manner in which stakeholder's rights can be modified include:

Commercial: s 28B(5) Fisheries Act 1986, legislation required to subdivide QMA; s 25B Fisheries Act 1996, alteration of QMAs without agreement of quota owners; Part VII Dispute Resolution, s 123(3), determination of a dispute may not significantly affect the fishing activities of any current fishing interest; s 311, closure of area to commercial fishing for a stock or prohibit a method of commercial fishing; s 12(1), Minister to consult prior to undertaking actions under certain provisions of Part III; s 21(2) Minister to consult prior to setting or varying a TACC; s 13(3), Minister to have regard to social, cultural, and economic factors as considered relevant; s 8 “utilisation” is directed to enabling people to provide for their social, economic, and cultural well-being.

Māori customary non-commercial interests: s 5(b), Act to be interpreted consistent with provisions of Treaty of Waitangi (Fisheries Claims) Settlement Act 1992; Part IX Taiapure-Local Fisheries and Customary Fishing; s 12(1) & (2); s 13(3); s 21(2); s 8.

Recreational interests: s 311; s 123(3); s 12(1); s 21(2); s13(3); s 8.

paragraph 154 for discussion of this issue). The Act is prescriptive in terms of those interests which are to be recognised in the allocation of the TAC. This is indicative of the fact that the TAC is designed to provide for extractive use of fisheries resources.

- 129 The Act requires that you make certain allowances prior to determining the TACC. The Act imposes an order within the allocative process, but does not in itself imply that there is an inherent priority in terms of the quantity of the TAC allocated to a particular sector.
- 130 The Act provides that under specific circumstances foreign licensed access to a stock is to be provided within the TACC set for a stock. Foreign access is to be provided to that portion of the TACC held by the Crown where the quota is not tendered off and the ACE remains unsold after the Crown has offered the ACE for sale to persons entitled to own quota. MFish intends to undertake formal tenders for any quota and ACE allocated to it post introduction of these species into the QMS. Where a TACC is set in excess of the current commercial catch there is the potential in some stocks for some ACE to remain unsold. Technically this could be made available to foreign vessels through the Minister establishing a foreign allowable catch under s 81 of the Act. Practically, there may be limited interest in fishing small quantities of fish available to foreign vessels.

Nature of Allowances

Mortality to the Stock Caused by Fishing

- 131 Illegal catch (underreporting, poaching, and discards), incidental gear mortality, scientific research, and bycatch may be considered a source of “*all other mortality to that stock caused by fishing*”. Such mortality determines the TAC available for apportionment between other interests. MFish considers that provision for all other mortality to a stock caused by fishing should logically be assigned as a final step when allocating the TAC under the Fisheries Act. The priority attributed to this factor acknowledges that such removals may be an unavoidable component of the utilisation of the resource. However, appropriate action may be possible to reduce or mitigate the level of fishing related mortality. Consideration of the impact of different gear and fishing methods may be relevant to the implementation of measures designed to address fishing related mortality.
- 132 In some instances MFish is able to assess the level of mortality attributable to a particular source. Where information is available that attributes such mortality to the activities of a particular sector then it is deemed equitable that the level of mortality is subtracted from the share of the TAC apportioned to the party responsible.

Māori Customary Catch

- 133 The obligations contained in s 10 of the Treaty of Waitangi (Fisheries Settlement) Act 1992 impact on allocation decisions made under the Fisheries Act 1996. The setting of the customary allowance under s 21 of the Act should account for the extent of customary non-commercial take as authorised under the customary regulations (the Fisheries (South Island Customary Fishing) Regulations 1999, the Fisheries (Kaimoana Customary Fishing) Regulations 1998 and reg 27 of the Fisheries (Amateur Fishing) Regulations 1986. Regulation 27 provides for the taking of fish

for the purposes of a hui, tangi, and other approved traditional non-commercial fishing use. Regulation 27 is in effect in areas where the new customary regulations are not in force. Customary fishing rights were clarified in the Treaty of Waitangi (Fisheries Claims Settlement Act 1992). The Crown undertook to: (1) develop policies to help recognise use and management practices for non-commercial fishing rights; and (2) to recommend the making of regulations to recognise and provide for customary food gathering by Māori and the special relationship between tangata whenua and those places which are of customary food gathering importance, to the extent the food gathering is neither commercial in any way nor for pecuniary gain or trade. The Fisheries (South Island Customary Fishing) Regulations 1999 and the Fisheries (Kaimoana Customary Fishing) Regulations 1998 were promulgated to give effect to the latter undertaking.

- 134 A consideration of foremost importance is the unique nature of the Māori customary non-commercial interest in a fishery. The Fisheries Act 1996 and the customary fishing regulations made pursuant to the Act, do not provide for the Crown to place limitations on customary fishing, apart from ensuring the sustainability of a particular stock. The customary allowance can be capped only where the level of catch is likely to exceed the TAC.
- 135 Taken to its extreme, should the entire TAC of a particular fishery be taken for non-commercial customary use then the Minister would be obliged to ban recreational fishing and set a TACC of zero tonnes, as is currently the case with the toheroa fishery (keeping in mind that the unregulated nature of the recreational sector means it is difficult to apply any limited form of recreational harvest for toheroa without potentially damaging the resource). In such circumstances customary use would be constrained by the need to ensure the sustainability of the resource. There may be compensation issues to consider, should a wholesale reduction in the TACC be required in order to provide for the full extent of customary non-commercial use.
- 136 In practice, the quantity of removals authorised by kaitiaki is dictated not only by the needs of the tangata whenua, but also the availability of fish in their area. The availability of fish is influenced by the total level of removals by all sector groups, including commercial and recreational fishers, and by environmental factors.
- 137 In providing for the Māori customary non-commercial allowance in respect of any stock, you are required to take into account any mātaimai reserve and any area closure or any fishing method restriction or prohibition in the relevant QMA created pursuant to ss 186, 186A, and 186B, respectively (s 21(4) of the 1996 Act). Mataitai and closed areas provide for customary interests in a spatial context.
- 138 Part IX of the Fisheries Act 1996 contains customary fisheries management tools including provisions that are designed to increase the availability of fish for customary food gathering purposes. While application of these tools (taiapure, mātaimai, s 186 regs, s 186A closures and method restrictions) may result in increased levels of customary harvest, the rights and interests of the commercial and recreational fishing sectors must be taken into account. For example, a mātaimai reserve cannot be declared if the establishment of the reserve will prevent commercial fishers from catching their quota entitlement within the wider Quota Management Area.

- 139 Under the current management framework, the setting of the customary allowance by the Minister is a reactive measure in that the allowance *reflects* the level of customary harvest, rather than *directs* it. In the future, there may be benefits for all extractive users of fisheries (commercial, recreational and customary) in moving to a proportional share arrangement for the allocation of shares to the TAC. Any move to proportional shares to a fishery would need to be agreed to by tangata whenua and kaitiaki, taking into account the status of Māori non-commercial fishing rights as provided for by the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992.

Recreational Interests

- 140 A claim may be sustained under common law principles that every person has a right to be able to fish for recreational purposes. The right to fish in New Zealand for recreational purposes is subject to legislative and regulatory controls.
- 141 The Fisheries Act provides for both commercial and non-commercial fishing. The Fisheries Act affords no legal priority to recreational interests in terms of allocation of TAC for a stock.
- 142 In *Roach v Minister of Fisheries* (HC, Wellington CP715/91, 12/10/92) without determining the issue of whether recreational fishers is accorded any priority under the Act, McGechan J stated that to allow for non-commercial fishing interests, arguably does not necessarily mean that the allowance must fully satisfy estimated non-commercial requirements.
- 143 Where there are competing demands, which will exceed the availability of a resource it could be said that you can allow for recreational use by dispensing less than complete satisfaction, thereby also allowing for commercial users. His Honour concluded that in doing so the Minister would create for recreational users “*not full priority but some degree of shared pain*” (p 16). Justice McGechan subsequently concluded in *New Zealand Federation of Commercial Fishermen (Inc) & Ors v Minister of Fisheries & Ors* (HC, Wellington CP237/95, 24/4/97) that the requirement to “*allow for*” the recreational interest is to be construed as meaning to “*allow for in whole or part*” (page 150).²
- 144 The Fisheries Act does afford you discretion to determine the nature and extent of any priority between recreational and commercial interests on a case by case basis. In respect of making an allowance for non-commercial interests, McGechan J held in *New Zealand Federation of Commercial Fishermen (Inc) & Ors v Minister of Fisheries & Ors* (HC, Wellington CP237/95, 24/4/97) that a TACC could be reduced to serve legitimate conservation purposes or to advantage—deliberately or incidentally—non-commercial fishing interests. His Honour held that:

“It is not outside or against the purposes of the Act to allow a preference to non-commercials to the disadvantage in fact of commercials and their valued ITQ rights, even to the extent of the industry’s worst case of

² MFish considers that the notion of “shared pain” or to “allow for in part” does not apply to the customary allowance given the express requirement to interpret the Fisheries Act in a manner consistent with the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 and the need to recognise the obligations derived from the Treaty itself (see discussion at “Treaty of Waitangi (Fisheries Claims) Settlement Act 1992” above).

a decision designed solely to give recreationalists greater satisfaction. Both are within the Act.” (page 89).

145 This point was also addressed in the Court of Appeal decision where the issue of whether the Act contained an implication of proportionality between commercial and non-commercial sectors was considered (*New Zealand Fishing Industry Association (Inc) and Ors v Minister of Fisheries and Ors* (CA82/97, 22/7/97, judgment of the Court delivered by Tipping J). In this judgment the Court of Appeal held that:

“We can see no reason why either as his primary purpose or as a consequence of some other purpose the Minister should not be able to vary the ratio between commercial and recreational interests.” (pages 17–18) and

“If over time a greater recreational demand arises it would be strange if the Minister was precluded by some proportional rule from giving some extra allowance to cover it, subject always to his obligation to carefully weigh all the competing demands on the TAC before deciding how much should be allocated to each interest group.” (page 18)

146 The Court held that there was no implied duty for you to fix or vary the recreational allowance at any particular proportion of the TACC or the TAC. The appropriate allocation is a matter for your assessment bearing in mind all relevant considerations on each occasion you revisit the issue (pages 18–19, Tipping J).

147 While the imprecision of the recreational catch may preclude strict proportionality (page 18, Tipping J), it is MFish’s view that, when a TAC is set, you have an obligation to consider controls to constrain recreational fishing within that allowance. Ancillary management measures (eg, daily bag limits, minimum legal sizes) will need to be considered to ensure they are consistent with the TAC/TACC/allowance decision.

148 It is noted that in providing for this allowance in respect of any stock you are required to take into account any area in a QMA closed to commercial fishing (s 21(5) of the 1996 Act). Closed areas are of particular relevance when you are considering a reduction in the recreational catch or a reallocation of the recreational allowance to customary or commercial interests.

Total Allowable Commercial Catch

149 The TACC creates a property right for individuals who hold individual transferable quota in a QMS stock. That property right is not absolute in that it is expressly subservient to the exercise of your powers as Minister under the Act. A decision you make which impacts adversely on ITQ owners that advantaged — deliberately or incidentally — non-commercial interests, does not in itself imply an improper purpose (*New Zealand Federation of Commercial Fishermen (Inc) & Ors v Minister of Fisheries & Ors* (HC, Wellington CP237/95, 24/4/97, McGechan J) at page 89). It is an inherent element of the QMS that the TACC can be reduced, with a consequential reduction in quota. In considering a reduction of the TACC, you must weigh the economic impact of your proposed course of action on individual quota holders and on the QMS generally (*New Zealand Fishing Industry Association (Inc) and Ors v*

Minister of Fisheries and Ors (Court of Appeal, CA82/97, 22/7/97, judgment of the Court delivered by Tipping J, at page 16).

- 150 The Court of Appeal in *New Zealand Fishing Industry Association (Inc) and Ors v Minister of Fisheries and Ors* (CA82/97, 22/7/97) held that it was within the powers of the Minister to vary the ratio between the commercial and recreational interests once the initial allocation had been made. The Court discounted any requirement that once the ratio had been fixed there could be no change to the ratio except upon an increase in biomass (page 17). No implied obligation to attain proportionality between commercial and recreational catch arises from the legislation.
- 151 Justice McGechan in *New Zealand Federation of Commercial Fishermen (Inc) & Ors v Minister of Fisheries & Ors* (HC, Wellington CP237/95, 24/4/97) noted that a conscious transfer of catch between interests is a legitimate activity within the context of the Act (page 122).
- 152 A reduction of TACC for the purposes of ensuring sustainability (ie, consequential to a reduction on the TAC) is not liable to compensation. A reallocation between commercial and non-commercial interests, on a case by case basis, may lead to consideration of compensation to commercial interests for any consequential reduction in TACC.

Calculation of Stakeholder Interest

- 153 The primary method by which the extent of an interest in a fishstock is proposed to be assessed is by a measure of the existing utilisation of a fishstock by each sector group. The TAC is a measure of the sustainable level of utilisation of a stock. The sum total of the TACC and the remaining allowances must not exceed the TAC. As an absolute measure the TACC or an allowance for either the recreational or Māori customary non-commercial catch may be set at zero or 100% of the TAC for any one stock; within that range the TAC may be apportioned between the separate interests according to an appropriate ratio for that stock.
- 154 The manner of calculation of that interest may vary depending upon the level of information available. In terms of the commercial fishing sector, reported catch for existing QMS species plus any information on all other mortality to a stock caused by fishing are considered to be an accurate record of commercial utilisation of the fishstock. Information detailing the extent of catch levels for sectors other than commercial fishing interests and the extent of all other sources of fishing related mortality may not be equally comprehensive. Rather than relying on precise data, certain assumptions regarding the extent of utilisation are made.
- 155 MFish considers that in the absence of precise information it is appropriate to use the best information available. This approach is consistent with the information principles specified in s 10 of the Fisheries Act 1996. 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 1996 Act — this includes apportioning the TAC between sector groups and all other sources of fishing related mortality. Further, MFish notes that in the absence of precise information you have the discretion to determine a “*best estimate*” of that catch when determining an

allowance (*Roach v Minister of Fisheries* (HC, Wellington CP715/91, 12/10/92, McGechan J) at page 15).

- 156 It is noted that information presented to the fishery assessment plenary may not in every instance be accepted by that body. For stock assessment purposes, MFish considers that it is appropriate to use only that information accepted by the fishery assessment plenary. Information used for stock assessment purposes is subject to rigorous scientific scrutiny. MFish considers that the best information available to determine the extent of existing utilisation of a fishstock by each sector group is relevant for stock assessment purposes. The calculation of stakeholder interest in a fishstock is also relevant for the purposes for management decisions as to the allocation of the TAC between sector groups. It is noted that allocative decisions are a separate process from undertaking a stock assessment of the status of that stock.

Commercial Catch

- 157 **Current QMS fishstocks:** Reporting systems under the Fisheries Act ensure that the commercial catch levels for fishstocks managed under the QMS are accurately monitored. A record of current catch levels and monitoring of this catch, however, should not be taken as implying that an assessment of the status of the stock is available.
- 158 **New QMS fishstocks:** In respect of new species introduced into the QMS, there is usually less information on the status of the stock relative to B_{MSY} or on the current or predicted trend in the biomass level at the estimated level of current total removals.
- 159 Information is available detailing historical commercial catch for non-QMS species. This may be inaccurate, due to mis-reporting or no legal requirement to report. The discarding of a non-QMS species is not an offence. In general TACCs are set at levels based on reported landings in the absence of alternative stock assessment information. In utilising catch histories, in accordance with the information principles, a cautious approach to the setting of TACCs is to be exercised.
- 160 In setting a TACC for each new QMS fishstock, it is appropriate to apply separate criteria to stable and developing fisheries. MFish considers a fishery to be developing where a significant increase in recent catch has been recorded. Where this has occurred the average total landings, available from the plenary report, over the last three completed fishing years have been used as a basis for determining the TACC. A fishery is considered to be stable when reported catches have remained relatively constant over an extended period of time (ie, in excess of three years). In respect of stable or fluctuating fishstocks, the TACC has been determined using the average total landings over the total period of time for which catch landings are available from the plenary report (ie, 1982–83 to 1996–97). As a general rule, information relating to total landings reported in the plenary report has been used in the first instance. Where information is not available for the most recent fishing years in the plenary report, information from MFish databases has been extracted.

Recreational Catch

- 161 The level of recreational catch for a fishstock may not be known. In such instances an estimate of the recreational take is made on the best available information.

You should also take into account all available information relating to the availability of a particular species for recreational purposes when making an allowance for recreational fishing. In this process you could anticipate changes in customary take. In instances where information relating to the level of catch from surveys is available this information is to be used as a means of determining current catch levels and used when providing for an allowance. Where information relating to catch is available for the species in a separate QMA, this would be relevant in estimating an amount when providing for an allowance for recreational interests for a fishstock. Where estimates are not available but there is known to be recreational catch of a minimal nature it is considered appropriate to provide for a nominal allowance. For some species and stocks, in particular deepwater species, there may be no or negligible recreational catch. In this instance a zero allowance is to be set.

- 162 The recreational interest in each fishery as a matter of law is to be taken into account allocating the TAC between those interests specified in s 21 of the Act. MFish, however, does not consider that a recreational allowance, nominal or otherwise, should be set for all fishstocks. Information of historical catch in a fishery is one factor to be considered but a previous lack of participation is not in itself determinative of the allocation to be provided for. The recreational allowance is to be considered in the context of an assessment of the nature of the fishery. This necessitates practical reasons of significance to the fishery concerned for not allocating access to that fishery, such as the suitability of the fishery for recreational purposes (ie, the depth of the species and the methods available to recreational fishers). Based on the facts relating to a fishery to date, it may be determined that no allocation is necessary.
- 163 It is noted that a previous lack of participation in a fishery does not create a presumption against providing for an allocation in the future. However, MFish does not interpret s 21 of the 1996 Act as requiring that you make a nominal allowance for every fishstock to allow for the possible future development of a recreational fishery. Existing allowances may be subject to review based upon any new information available to take into account any subsequent or increased participation in a fishery.

Customary Māori Catch

- 164 The level of customary catch for a fishstock may not be known. In such instances an estimate of take is made on the best available information. In the future there will be information relating to the level of catch from customary fishing authorisations. Increased use of the customary regulations throughout the country will result in the information regarding customary catch being more complete and accurate. Where information relating to catch is available for the species in a separate QMA it is appropriate to take that information into account when providing for customary Māori interests for that fishstock. For some species and stocks, in particular deepwater species, there may not be any Māori customary catch. In this instance a zero allowance would be provided.

- 165 The consultation process for the sustainability measures round involves sending copies of all proposals to over 80 iwi and hapū throughout New Zealand. Where they have provided any information of the extent on customary Māori take, this has been used. Other rationale could be considered on a case by case basis including:
- a) where a species is known to be of importance to Māori, but no information is available, an allowance similar to the known recreational catch is recommended;
 - b) where a species is not of particular importance to Māori, but it is thought there may be some take, 50% of the recreational catch estimate is recommended (rounded to the nearest tonne); and
 - c) where it is considered unlikely that there is or has been any customary Māori catch in a particular fishstock then a zero allowance is recommended.
- 166 The customary Māori interest in each fishery as a matter of law is to be taken into account allocating the TAC between those interests specified in s 21 of the Act. MFish, however, does not consider that a customary allowance, nominal or otherwise, should be set for all fishstocks. Information of historical catch in a fishery is one factor to be considered but a previous lack of participation is not in itself determinative of the allocation to be provided for. The customary allowance is to be considered in the context of an assessment of the nature of the fishery (ie, the depth of the species and the methods available to customary fishers). Based on the facts relating to a fishery to date, it may be determined that no allocation is necessary.
- 167 It is noted that a previous lack of participation in a fishery does not create a presumption against providing for an allocation in the future. In respect of customary take it is acknowledged that there is no restriction as to the type of fisheries to which kaitiaki may grant access. Accordingly it is possible that vessels will be granted permits to undertake legitimate customary fishing activities in deepwater fisheries. However, MFish does not interpret s 21 of the 1996 Act as requiring that you make a nominal allowance for every fishstock to allow for the possible future development of a customary fishery. Existing allowances may be subject to review based upon any new information available to take into account any subsequent or increased participation in a fishery.
- 168 MFish notes that the implementation of customary regulations under s 186 will provide better information, via the issuing of permits, as to the level of customary take. The Māori customary non-commercial allowance is a combination of the catch levels reported under the permit system, catch within mātaimai reserves, plus all other mortality to a stock attributed to Māori customary non-commercial interests. That allowance will generally be allowed for on a retrospective basis, meaning that if customary harvest levels exceeded the allowance for any given fishing year, then the allowance would need to be raised the following fishing year to accommodate the increased customary fishing activity.
- 169 Further, it is noted that while the customary allowance should reflect the extent of Māori non-commercial fishing extractions, the level of customary take may be low due to the localised depletion of the resource. Māori may well stop fishing a particular species altogether in order to ensure sustainability. If there is complete reliance on information from customary fishing authorisations then the allowance for

customary fishing will not always reflect the customary requirements of the tangata whenua. There are a number of management tools designed to ensure that the use and management practices of Māori are provided for (mātaitai reserves, Taiapure, s 186A closures). These mechanisms could be used to improve availability over time. You should also take into account all available information relating to the availability of a particular species for customary purposes when making an allowance for Māori non-commercial customary fishing and in particular in determining the extent of customary take, you are required to provide for the input and participation of tangata whenua and are to have particular regard to kaitiakitanga (s 12(1)(b)).

- 170 In this process of determining the extent of customary take you could anticipate changes in customary take. MFish notes that customary fishing under reg 27 is restricted to certain approved purposes. A large number of Māori may be legitimately fishing as recreational fishers. Adoption of the new customary regulations may result in greater amount of catch being recorded in the future as customary catch.

Other Sources of Fishing Related Mortality

- 171 Where a TAC is set for a stock, an allowance may be made for all mortality to a fishstock caused by fishing. As a general principle, all mortality to a fishstock caused by fishing, other than provided by the TACC or a non-commercial allowance, is to be attributed to the source of the mortality where relevant information is available. It is noted that in some instances the modelling used to assess the status of a stock incorporates all other mortality caused by fishing.
- 172 MFish considers that it is not practical nor necessary to set a generic allowance for all stocks. All other mortality to a stock caused by fishing is typically species, method, gear, and potentially even vessel specific. For most species no allowance is made for unrecorded fishing mortality. Unrecorded mortality will not affect the estimate of the sustainable yield for a stock, if the level of mortality has remained relatively constant over time. It is accepted that the level of illegal catch and discards and underreporting may be subject to variation. If an “*index*” (the measure of assessing a stock) indicates a decline in the stock and the index has not incorporated unrecorded mortality, due to the unavailability of such information, generally this will indicate that the stock is more robust or productive than is currently being assessed on the basis of the available information.

Allocative Process

- 173 Section 21 of the Fisheries Act 1996 requires that allowance for certain interests (the allowance) is provided for when a TACC is set or varied. The legislation indicates that that allowance is to be provided for either when a TACC is initially set or on each occasion that the TACC is varied. The Act implies that an allocation is made only where the TACC is set or varied.
- 174 In practice the Act stipulates an allocative process which involves three distinct steps — the setting or varying of a TAC; the provision of an allowance for specified interests (referred to in the Act as the matters to be taken into account when setting a TACC); and the setting or varying of a TACC. The three tools are interrelated but may operate independently of each other. The TAC may be varied without affecting the TACC. An allowance may be redistributed independently of the TAC or TACC.

The exception is that the allowance must be taken into account when setting or varying the TACC. However, this does not imply that the allowance must be varied as a result of any variation of the TACC. It is noted that a stakeholder group may have no initial catch in a species. Where a catch of that species is subsequently developed then the issue of allocation of catch entitlement between sectors would need to be addressed in the TAC/TACC/allocative process.

- 175 The non-commercial interest in a fishery is a quantitative allowance, but by its very nature the quantification of that allowance is not as precise as the TACC. Monitoring of non-commercial interests occurs retrospectively through recreational surveys and liaison with tangata whenua. MFish notes that, increasingly in the future, information of Māori customary take will be provided through reporting mechanisms under customary regulations.

Factors Determining Allocation

- 176 The Fisheries Act does not expressly state the manner in which, or the factors to be taken into account, when you allow for non-commercial interests in a fishery and apportion the TAC between stakeholders. The allocation of the TAC is a matter for your assessment taking into account all relevant considerations.
- 177 The Fisheries Act stipulates a process by which the TAC for any one stock is to be allocated. No explicit statutory mechanism provides guidance as to the apportionment of the TAC between sector groups either in terms of a quantitative measure or prioritisation of allocation. MFish considers that a number of provisions in the Fisheries Act provide some guidance on allocation of the TAC between the respective interests to be allowed for.
- 178 In terms of those considerations you are to take into account, MFish notes that s 8 of the Fisheries Act 1996, in the context of utilisation of fisheries resources, refers explicitly to the Act enabling people to provide for their social, economic, and cultural wellbeing. Further, s 13(3) states that you are to have regard to such social, economic, and cultural factors as you consider relevant when considering the way and rate at which a stock is moved towards, or above, a level that can produce the MSY. It is implicit that in considering such factors when setting or varying a TAC in accordance with s 13(3), such factors are also integral to the decision of apportioning allocation of a stock between stakeholders.
- 179 MFish considers that those factors which may be relevant to the exercise of your discretion, in addition to the principles specified in s 5 (international law and Settlement Act obligations), s 8 (purpose statement), s 9 (environmental principles), and s 10 (information principles) of the Act, include:
- a) current status of stock;
 - b) existing allocations;
 - c) current catch levels;
 - d) previous decisions;
 - e) equity of allocation – notion of “shared pain” when stock declines / “shared benefit” when stock rebuilds;

- f) participation levels and importance of the resource, including customary values;
 - g) population trends;
 - h) assessment of relative value of resource to respective sectors;
 - i) current and past fishing practices (including overfishing, voluntary shelving or closures by a stakeholder);
 - j) investment and initiatives undertaken to develop or enhance the resource;
 - k) impact on ability of sector to take allocation provided;
 - l) economic impact of allocative decisions; and
 - m) social and cultural impact of decisions.
- 180 Information about the current status of the stock relative to the statutory target level, existing catch levels, existing allowances and catch levels, plus previous decisions may be informative of the actions that need to be taken.
- 181 The Fisheries Act 1996 and the customary fishing regulations made pursuant to the Act, do not provide for the Crown to place limitations on customary fishing, apart from ensuring the sustainability of a particular stock. Customary take is regulated through the authorisation system in the customary regulations which require that all customary fishing is to be undertaken in accordance with tikanga and the overall sustainability of the fishery. The customary allowance can be capped only where the level of catch is likely to exceed the TAC. In determining the extent of customary take, you are required to provide for the input and participation of tangata whenua and are to have particular regard to kaitiakitanga (s 12(1)(b)).
- 182 Where the TACC is reduced for sustainability/conservation purposes there is a direct relationship between managing recreational catch and reducing a TACC, and vice versa. From a purely legal perspective there is no obligation to undertake a proportional reduction between recreational and commercial interests where the TAC or an individual stakeholder allocation is reduced for conservation/sustainability purposes. Both law and common sense dictate that you should not reduce the TACC for conservation reasons unless able to take, and taking, reasonable steps to avoid the reduction being rendered futile through increased recreational fishing.
- 183 However, subject to this consideration, there is no legal requirement that a decrease or increase in the allocation of the recreational allocation is to result in a corresponding proportional adjustment of the TACC, and vice versa. MFish notes that the Fisheries Act assigns no priority between commercial and recreational interests. The Act is directed at both commercial and non-commercial fishing. Within that duality the Act permits the preference of one sector to the disadvantage of another; for example to provide for greater allowance for recreational interests in proportion to the commercial allocation. Any reallocation of catch from the commercial fishers to non-commercial may be subject to payment of compensation to commercial fishers under s 308 of the Act.
- 184 Notwithstanding your discretion to allocate catch, case law also considers that it is not unreasonable for commercial and recreational fishers to share some of the “pain” from a reduction in the TAC. There is no requirement that the interests of recreational or

commercial fishers must be fully provided for. MFish considers in situations where there is an absence of information about the relative benefits to be derived from allocating a stock to one or other sector then it is equitable for both commercial and recreational fishers to ensure the sustainability of the stock through a reduction in the TACC and recreational allowance (along with the implementation of commensurate to effect a reduction in catch – such as bag limit reductions). Equally, commercial and recreational fishers should derive shared benefit from the rebuild of a fishery in terms of the allocation provided to the respective sectors, all other things being equal.

- 185 Consideration should also be given to the ability of a sector to take the allocation provided. Impediments may exist that preclude the sector from exercising the full extent of their entitlement. Tools are available in the Act that enhance the ability of different sectors to exercise their right to fish. As well as implementing specific measures in support of allocative decisions, caution should be taken to ensure that a decision does result in a sector being precluded from being able to take the allowance allocated.
- 186 Logically those parties who are responsible for the enhancement of a resource should receive the benefit of the activity. However, the ability to ascertain the increased yield from a fishery as a result of enhancement activities and hence the extent of the allocation provided to the sector is problematic. The development of a fishery resource involves demonstrating through research and/or monitoring that an increase of catch from existing and new fisheries is sustainable. It is generally assumed that the development will occur as a result of a structured deliberate initiative. Arguably any one sector could seek to develop a fishery. It is arguable that the sector that undertakes the development of a fishery should be entitled to be allocated the benefits of that development.
- 187 Population trends are reflected in the level of recreational fishing undertaken, both on a national and regional context. The growth of urban centres, in particular Auckland, have a significant impact on particular fisheries. An allowance for the recreational interest and the corresponding management controls for a stock could take into account existing population distribution and growth. Hence where a greater recreational demand arises you are not precluded by any proportional rule from providing an increased allowance to the recreational entitlement subject to weighing all competing demands on the TAC (see *New Zealand Fishing Industry Association (Inc) and Ors v Minister of Fisheries and Ors* (CA82/97, 22/7/97) page 18).
- 188 Certain fisheries are considered to be of particular importance to fishers. In considering the extent of the recreational and Māori customary allowance it is appropriate to consider the nature of the species and the importance of the species to fishers. The value attributed to a resource is not limited solely to economic value but may also include the aesthetic value and non-market value. For example, while snapper is a medium to high value fish species, it is also an important recreational target species. Certain species may be valuable to particular sector groups, for example, charter boats, and may have significance for tourism by contributing to New Zealand's popularity as a tourist destination. The abundance of a species and the availability of particular size fish for a specific stakeholder group may be factors relevant to your decision.

- 189 Overfishing of a TAC may result in the subsequent reduction of that TAC. Reported overfishing by individual commercial fishers is subject to existing controls under the Fisheries Act. The consistent overfishing of the TACC or an allowance, which results in the reduction of the TAC, as a general principle, ought to be attributed to the stakeholder group responsible for the overfishing.
- 190 Stakeholders may elect to exercise their fishing rights in a manner, which results in their allocation in a fishery being undercaught. Voluntary closures and shelving of allocation may be undertaken as a means of improving the abundance of a species and the availability of certain sized fish. Such methods may improve recruitment. In the absence of explicit shares in a fishery, any subsequent increase in the TAC as a result of such methods would be available to all stakeholders. Stakeholders are not immune from any subsequent decrease in the TAC for sustainability purposes simply on the basis of the previous undercatch of their allowance.
- 191 The Act does explicitly recognise underfishing rights of commercial fishers. Where the person holding annual catch entitlement for a stock (not the owner of the ITQ) undercatches the extent of their entitlement, the person may carry forward the extent of the undercatch to the second fishing year up to a maximum of 10% of the total Annual Catch Entitlement (ACE) they held in the first fishing year. The carry forward of underfishing rights does not apply when the TACC is reduced in the second fishing year (s 67A(2)(b)).
- 192 A variation of the TAC and the manner in which the TAC is allocated may have significant social, cultural, and economic implications for stakeholders and consequential downstream economic activity. In *New Zealand Fishing Industry Association (Inc) and Ors v Minister of Fisheries and Ors* (CA82/97, 22/7/97) it was held that you had a clear obligation to move a stock towards MSY and when deciding upon the time frame and the ways to achieve that statutory objective you are to consider all relevant social, cultural and economic factors.
- 193 The Court of Appeal suggested that a careful cost-benefit analysis needs to be undertaken to support a particular decision to reduce the TACC and in respect of a reasonable range of options available to the Minister in moving a fishery toward MSY. The Court considered that it was prudent for you to expressly refer to the social, cultural, and economic factors which you considered relevant to your decision and those factors which were considered not to be relevant. Where a decision with major economic impact is considered necessary the rationale for that decision should be clearly transparent. Those affected ought to be able to establish that all other reasonable possibilities were analysed and that the decision adopted was the preferable option.
- 194 The economic factors referred to in s 13(3) need not be confined to matters directly affecting the fishing industry. Wider considerations affecting the national economic interest are capable of being regarded as relevant. MSY can be interpreted as being directed at the national interests as well as sectional interests (see *New Zealand Fishing Industry Association (Inc) and Ors v Minister of Fisheries and Ors* (CA82/97, 22/7/97) p 15).
- 195 In reducing a TACC you are advised to carefully weigh the economic impact of any such action on individual quota owners, those fishers dependent on obtaining annual

catch entitlement, and on the QMS generally. However, the reduction of the TACC is not rendered unlawful simply on the basis that the decision adversely impacts the property right inherent in the QMS. In the context of fisheries legislation, a property right constitutes a right to harvest, which is subject to your statutory powers. Accordingly, MFish considers that financial security of a property right is a valid but not irrefutable consideration in the context of your TAC/allocative decisions.

- 196 The actual financial costs associated with allocative decisions are to be assessed according to the nature of the fishery. A decline in the commercial allocation may impact on quota and lease price, thus impacting on potential new entrants and existing quota holders and owners. The setting of a TAC and allocative decisions in a general context impact on economic investment in terms of upgrading of plant and fleet structure.
- 197 Downstream impacts may result as a consequence of allocative decisions made in respect of both recreational and commercial stakeholders. In addition to the commercial harvesting and processing sector a significant number of service industries are linked to the fishing industry, including charter operators, sale of fishing gear, repair, and transport related services. Decisions may also impact on particular communities where the fishing and fishing related services provide a significant contribution to a local economy.
- 198 The impact on individual fishers may be difficult to assess and will be dependent on a range of factors, including the extent of any reduction; the extent of existing quota holdings; the level of debt; the species mix of quota held; and the ability of individual fishers to adapt.
- 199 It is not entirely clear as to the nature and extent of any cost benefit analysis required to be undertaken in any given situation. A cost benefit analysis may be in the form of an analysis of the economic impact to stakeholders and fishing related sectors of the economy. Equally it could include the factoring of environmental and social costs and benefits. The Court of Appeal stated that when considering any reduction in the TACC you must carefully weigh the economic impact of that action. Later in the same judgment the Court referred to a cost-benefit analysis in the context of implementing a decision of major economic impact.
- 200 A cost benefit analysis is designed to act as a tool for deriving the most efficient and productive solution. In itself such an analysis is not intended to impose a barrier to implementing measures considered necessary for fisheries management purposes. In many instances MFish is not in possession of the information necessary for a detailed cost benefit analysis to be undertaken. Invariably it is the stakeholders concerned who hold the relevant information. MFish has requested that stakeholders provide relevant information in the course of their submissions to you on management proposals. MFish considers that in all instances it is impractical and unnecessarily burdensome for the Crown to undertake an exercise for all fisheries. MFish considers that a balance ought to be adopted between the magnitude of the impact of the proposed decision, the information currently available and information readily obtainable, and the requirement to provide an analysis of the economic implications of the proposed solution.

- 201 Social impacts may include the effect of decisions on individuals and communities. There is no restriction on the nature of the social factors, which you may take into account. There is no explicit relationship in the Act between those classes of persons having an interest in a stock or the effects of fishing on the aquatic environment and the factors, which you may consider pursuant to s 13(3). The latter may be considered to be significantly wider in scope than the former. Non-extractive uses, social values and expectations, and political imperatives may therefore all constitute relevant considerations in the course of your decisions as to the setting of TACs and allocation of the TAC between fishing interests.
- 202 Reference to cultural factors in s 13(3) can be interpreted as encompassing both those provisions of the Act relating to the interests of Māori and tangata whenua but also cultural practices and values. The precise nature of those practices and values are to be determined by tangata whenua.

Consultation

- 203 Prior to making decisions under the Fisheries Act 1996 in regard to TACs, catch limits and other controls on fishing, you are required pursuant to s 12(1) to:
- a) consult with such persons or organisations as you consider are 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 Māori, environmental, commercial, and recreational interests;
 - b) provide for the input and participation of tangata whenua having:
 - i) a non-commercial interest in the stock concerned; or
 - ii) an interest in the effects of fishing on the aquatic environment in the area concerned—and have particular regard to Kaitiakitanga.
- 204 Tangata whenua is defined in relation to a particular area, as being the hapū, or iwi, that is Māori and holds mana whenua (customary authority) over that area. Mana whenua is defined as being customary authority exercised by an iwi or hapū in an identified area. Kaitiakitanga is the exercise of guardianship and in relation to any fisheries resources, includes the ethic of stewardship based on the nature of the resources, as exercised by the appropriate tangata whenua in accordance with tikanga Māori. Tikanga Māori is defined as customary Māori values and practices.
- 205 Under the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992, in acting in accordance with the principles of the Treaty of Waitangi, you are required to consult with tangata whenua about, and develop policies to help recognise, use and management practices of Māori in the exercise of non-commercial fishing rights. The principles that the Crown acts in good faith and makes informed decisions amount to a requirement to consult with Māori before making decisions that may affect their interests. The obligations of the Ministry of Fisheries under s 10(b) of the Settlement Act and the relevant sections of the Fisheries Act 1996 are obligations to tangata whenua.

- 206 Consultation with tangata whenua in accordance with the principles of the Treaty of Waitangi require that the following steps to be taken:
- a) identification of tangata whenua that are likely to be affected by any policy, decision or action;
 - b) hui or meetings with tangata whenua in the area concerned;
 - c) providing tangata whenua with the concise and meaningful information necessary for them to usefully participate in the consultation process;
 - d) fair consideration of the views of tangata whenua;
 - e) reporting back to tangata whenua as to how their views have been incorporated into the decisions that were made; and
 - f) adequate promulgation and education on any decisions, policies or actions that have been finalised.
- 207 The principle of partnership and the requirement to act in good faith towards the other Treaty partner extends an obligation on the Crown to also consider and act on any proposals put forward by tangata whenua for the management of their customary fisheries. Section 12 of the Fisheries Act 1996, which requires provision for the input and participation of tangata whenua in the making of sustainability decisions, reflects the obligations on the Crown to involve the Treaty partner in the management of fisheries, as envisioned in the preamble of the Settlement Act.
- 208 In order to keep the number of groups formally consulted to a reasonable level, MFish used six mechanisms in the sustainability measures process to facilitate consultation with sector groups:
- a) correspondence with national sector group representatives. The national sector groups (as identified below) are responsible for disseminating information to their constituents and developing coordinated responses from the persons or groups they represent. MFish recognises that at times the views of groups within a nationally represented organisation may differ from those of the majority of the organisation. No group has been precluded from attending consultative meetings or providing its own submission to you or MFish;
 - b) interaction between MFish regional staff and regionally based sector groups in regional liaison networks;
 - c) provision of particular documents by MFish to an individual or organisation following a specific request by that individual or organisation;
 - d) correspondence with groups or organisations that can establish they are representative of persons with an interest in a fishery and assert that they are not represented in any way by a nationally represented organisation;
 - e) correspondence with iwi representatives to obtain an indication of an expression of interest in receiving relevant documentation relating to those issue in which they express an interest (on receipt of an expression of interest documentation is forwarded to the iwi representative); and
 - f) correspondence with all other persons and organisations on the MFish database to obtain an expression of interest in receiving relevant

documentation relating to those issues in which they express an interest (on receipt of an expression of interest documentation is forwarded to the them).

209 For the purpose of this advice paper the groups below are recognised by MFish as being national sector group representatives of those with an interest in fisheries:

- a) Industry:
 - i) New Zealand Seafood Industry Council (SeaFIC);
 - ii) New Zealand Fishing Industry Guild; and
 - iii) New Zealand Federation of Commercial Fishermen (NZFCF).
- b) Māori:
 - i) Te Ohu Kai Moana (TOKM).
- c) Conservation:
 - i) Environment and Conservation Organisations of New Zealand (ECO);
 - ii) Greenpeace; and
 - iii) The New Zealand Royal Forest and Bird Protection Society (RFBPS).
- d) Recreation:
 - i) New Zealand Recreational Fishing Council (NZRFC).

210 It is noted that the parties who maybe consulted with in the context of s 12(1)(a) is not exhaustive. Where appropriate MFish consults with organisations such as the National Institute of Water and Atmospheric Research (NIWA) to ensure that the information relied upon is complete and accurate in its content.

211 In accordance with s 12(1) of the Fisheries Act 1996, in your letter of 9 July 2003 you formally consulted with those parties listed at paragraph 208 above, as to your initial views on those proposals included in the review of sustainability measures and other management controls for the 2003-04 fishing year. These persons received a copy of the Ministry's Initial Position paper and were invited to attend meetings conducted by MFish at various locations around the country to discuss the proposals being reviewing this year. Submissions were invited on those proposals. Final sector group submissions were to be received from 30 June to 30 July 2003.

212 The FAP is provided to you and subsequently to nationally representative organisations, tangata whenua, and those parties who had submitted a proposal, which has been considered prior to your consultative meeting with stakeholders. A letter to stakeholders setting out the reasons for your final decisions will be forwarded to relevant parties subsequent to the consultative meeting with stakeholders. It is MFish's view that this process fulfils your legal and statutory obligations to consult.

213 In *Port Louis Corp v A-G of Mauritius* [1965] AC 1111, 1124, the Privy Council accepted that the nature and object of consultation must be related to the circumstances which call for it. In *Wellington International Airport Ltd v Air NZ* [1993] 1 NZLR 671, the Court of Appeal accepted that statement and noted that while consultation did not require agreement, it required more than mere prior notification. The Court emphasised (page 676) that a consultation process is different from a

negotiation, in that the latter implies a process, which has the object of arriving at agreement, whereas the former does not. For consultation to be meaningful, adequate information must be provided so that a party can make useful responses.

214 In *Greenpeace NZ Inc v Minister of Fisheries* (HC, Wellington CP492/93, 27/11/95) Gallen J applied the above authorities and also noted (pages 16 and 17) that consultation is not only different from negotiation, but also different from an adversarial process. His Honour held that the Minister, under s 28D(2) of the Fisheries Act 1983, is not required to reconcile differing points of view. You are, however, obliged to make an informed decision, made in the light of the responses of those persons or organisations identified as appropriate to respond. You are not required to give all persons from whom a response is sought the opportunity to comment upon the responses of others. Nonetheless, the consultation is required to be genuine. In the respective sections following, the principal points made by those consulted by MFish in writing and in meetings, and by yourself through your statutory consultation letters, are summarised for your consideration and discussed in this FAP.

215 The key components relating to statutory consultation are as follows:

- a) a well defined proposal to be consulted on;
- b) provision of appropriate information to those being consulted to enable them to effectively participate in the consultation process (this should include the particular proposals up for discussion as well as the consultation process to be followed);
- c) adequate time allowed for those consulted to:
 - i) consider information provided;
 - ii) request further information or clarification;
 - iii) consult with those they represent; and
 - iv) formulate their ideas and responses.
- d) appropriate opportunity must be provided for those consulted to convey their views and due notice must be taken of those views;
- e) responses must be received with an open mind and due respect accorded those views before the decision is made; and
- f) provision of feedback on final decisions including how the views expressed in the consultation process have been incorporated or otherwise into those decisions.

Regulations and Notices

216 Any variation in the TAC, catch limit, or TACC shall be made by notice in the *Gazette*. All notices must be made before the commencement of the first fishing year to which it relates and shall come into force on the first day of that fishing year.

217 In respect of other management controls, such measures will be given effect by regulations under s 298 of the 1996 Act or by notice in the *Gazette*. The requirement of a 28 day time lapse between notice and commencement of a regulation is to be noted.

Effect of TACC Variation

- 218 Any TACC variation will be given effect by adjusting quota holdings. Where a TACC is increased, quota shall be allocated first to any person continuing to have preferential allocation rights under s 23 of the Act, and any remaining increase shall be allocated proportionately to all quota owners for the stock. Preferential rights arose where a person's provisional maximum individual transferable quota was reduced for certain stocks on introduction to the QMS.
- 219 In the case of a TACC decrease, the Chief Executive of the Ministry of Fisheries shall cancel any quota held by the Crown up to the amount of the reduction. Where the Crown does not hold any quota, or the amount of the reduction is greater than the amount cancelled, all quota for the stock shall be reduced on a proportionate basis, without compensation. As soon as possible after any quota is adjusted, the Chief Executive shall notify any affected quota holder.

Compensation

- 220 The Fisheries Act 1996 specifies that the Crown shall not be liable to pay compensation or damages to any person as a consequence of any action for the purpose of ensuring sustainability or the introduction of a fishstock to the QMS. Section 308 provides that nothing affected or authorised by various statutory provisions shall be regarded as making the Crown liable to pay compensation or damages to any person. In particular, s 308 sets out that any provision of the Act that provides for measures to ensure sustainability including sustainability measures and the variation of any TACC as a direct consequence of a variation in the corresponding TAC shall not be regarded as making the Crown liable to pay compensation or damages to any person.
- 221 Section 308 provides a general presumption that the Crown will not be held liable for compensation in certain circumstances. However it does not provide an 'iron-clad guarantee' against successful claims against the Crown. The presumption could be overturned on a case by case basis for example where a fisher could show that the measure was unreasonable or where the measure was made for allocative purposes, rather than sustainability purposes.

Legislation

Purpose and Obligations

- 1 The purpose and Crown obligations relate to all decisions made under the Fisheries Act 1996.

Section 8. Purpose—(1) The purpose of this Act is to provide for the utilisation of fisheries resources while ensuring sustainability.

(2) In this Act—

“Ensuring sustainability” means—

(a) Maintaining the potential of fisheries resources to meet the reasonably foreseeable needs of future generations; and

(b) Avoiding, remedying, or mitigating any adverse effects of fishing on the aquatic environment:

“Utilisation” means conserving, using, enhancing, and developing fisheries resources to enable people to provide for their social, economic, and cultural well-being:

Section 5. Application of international obligations and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992—This Act shall be interpreted, and all persons exercising or performing functions, duties, or powers conferred or imposed by or under it shall act, in a manner consistent with—

(a) New Zealand’s international obligations relating to fishing; and

(b) The provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992.

“**Fisheries resources**” means any one or more stocks or species of fish, aquatic life, or seaweed:

“**Effects**” means the direct or indirect effect of fishing; and includes—

(a) Any positive or adverse effect; and

(b) Any temporary or permanent effect; and

(c) Any past, present, or future effect; and

(d) Any cumulative effect which arises over time or in combination with other effects—

regardless of the scale, intensity, duration, or frequency of the effect; and also includes—

(e) Any potential effect of high probability; and

(f) Any potential effect of low probability which has a high potential impact:

“**Aquatic environment**”—

(a) Means the natural and biological resources comprising any aquatic ecosystem; and

(b) Includes all aquatic life and the oceans, seas, coastal areas, inter-tidal areas, estuaries, rivers, lakes, and other places where aquatic life exists:

Environmental and Information Principles

- 2 The environmental and information principles relate to all decisions under the Fisheries Act 1996. The environmental principles provide clear guidance on standards of ecosystem-based management. The information principles are often referred to as the precautionary approach. These principles are consistent with New Zealand's international obligations.

Section 9. Environmental principles—All persons exercising or performing functions, duties, or powers under this Act, in relation to the utilisation of fisheries resources or ensuring sustainability, shall take into account the following environmental principles:

- (a) Associated or dependent species should be maintained above a level that ensures their long-term viability:
- (b) Biological diversity of the aquatic environment should be maintained:
- (c) Habitat of particular significance for fisheries management should be protected.

Section 10. Information principles—All persons exercising or performing functions, duties, or powers under this Act, in relation to the utilisation of fisheries resources or ensuring sustainability, shall take into account the following information principles:

- (a) Decisions should be based on the best available information:
- (b) Decision makers should consider any uncertainty in the information available in any case:
- (c) Decision makers should be cautious when information is uncertain, unreliable, or inadequate:
- (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 this Act.

“**Associated or dependent species**” means any non-harvested species taken or otherwise affected by the taking of any harvested species:

“**Harvested species**” means any fish, aquatic life, or seaweed that may for the time being be taken with lawful authority:

“**Biological diversity**” means the variability among living organisms, including diversity within species, between species, and of ecosystems:

“**Best available information**” means the best information that, in the particular circumstances, is available without unreasonable cost, effort, or time:

Sustainability Measures

- 3 The TAC is the primary sustainability measure for quota management stocks. Sustainability measures are controls on fishing imposed for the purposes of ensuring sustainability. Other examples of sustainability measures include a catch limit for any stock not within the QMS, closed seasons, closed areas, fishing method controls, and recreational bag limits. Fisheries plans are also a sustainability measure.

Section 11. Sustainability measures—(1) The Minister may, from time to time, set or vary any sustainability measure for one or more stocks or areas, after taking into account—

- (a) Any effects of fishing on any stock and the aquatic environment; and
- (b) Any existing controls under this Act that apply to the stock or area concerned; and
- (c) The natural variability of the stock concerned.

(2) Before setting or varying any sustainability measure under subsection (1) of this section, the Minister shall have regard to any provisions of—

- (a) Any regional policy statement, regional plan, or proposed regional plan under the Resource Management Act 1991; and
- (b) Any management strategy or management plan under the Conservation Act 1987—

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

(2A) Before setting or varying any sustainability measure under this Part or making any decision or recommendation under this Act to regulate or control fishing, the Minister must take into account—

- (a) Any conservation services or fisheries services; and
- (b) Any relevant fisheries plan approved under this Part; and
- (c) Any decisions not to require conservation services or fisheries services.

(3) Without limiting the generality of subsection (1) of this section, sustainability measures may relate to—

- (a) The catch limit (including a commercial catch limit) for any stock or, in the case of a quota management stock that is subject to section 13 or section 14 of this Act, any total allowable catch for that stock;
- (b) The size, sex, or biological state of any fish, aquatic life, or seaweed of any stock that may be taken;
- (c) The areas from which any fish, aquatic life, or seaweed of any stock may be taken;
- (d) The fishing methods by which any fish, aquatic life, or seaweed of any stock may be taken or that may be used in any area;
- (e) The fishing season for any stock, area, fishing method, or fishing vessels.

(4) The Minister may,—

- (a) By notice in the Gazette, set or vary the catch limit (including the commercial catch limit) for any stock not within the quota management system;
- (b) Implement any sustainability measure or the variation of any sustainability measure, as set or varied under section (1),—
 - (i) By notice in the Gazette; or
 - (ii) By recommending the making of regulations under section 298.

(5) Without limiting subsection (4)(a) of this section, when setting or varying a catch limit (including a commercial catch limit) for any stock not within the quota management system, the Minister shall have regard to the matters referred to in section 13(2) or section 21(1) or both those sections, as the case may require.

“**Stock**” means any fish, aquatic life, or seaweed of one or more species that are treated as a unit for the purpose of fisheries management.

Fisheries Plans

Section 11A. Fisheries plans—

- (1) The Minister may from time to time approve, amend, or revoke a fisheries plan.
- (2) A fisheries plan approved under subsection (1) may relate to 1 or more stocks, fishing years, or areas, or any combination of these things.
- (3) Without limiting anything in subsection (2), a fisheries plan may include—
 - (a) Fisheries management objectives to support the purpose and principles of the Act:
 - (b) Strategies to achieve fisheries management objectives, which may include—
 - (i) Sustainability measures set or varied under any of sections 11, 13, 14, and 15:
 - (ii) Rules to manage the interaction between different fisheries sectors:
 - (c) Performance criteria to measure the achievement of the objectives and strategies:
 - (d) Conservation services or fisheries services:
 - (e) Contingency strategies to deal with foreseeable variations in circumstances.
- (4) Nothing in this section prevents the Minister from considering a proposal under Part IX.

Fishing-Related Mortality Measures

Section 15. Fishing-related mortality of marine mammals or other wildlife—(1) If a population management plan has been approved under section 14F of the Wildlife Act 1953 or section 3E of the Marine Mammals Protection Act 1978, the Minister—

- (a) Shall take all reasonable steps to ensure that the maximum allowable fishing-related mortality level set by the relevant population management plan is not exceeded:
 - (b) May take such other measures as he or she considers necessary to further avoid, remedy, or mitigate any adverse effects of fishing on the relevant protected species.
- (2) In the absence of a population management plan, the Minister may, after consultation with the Minister of Conservation, take such measures as he or she considers are necessary to avoid, remedy, or mitigate the effect of fishing-related mortality on any protected species, and such measures may include setting a limit on fishing-related mortality.
- (3) The Minister may require, or authorise the chief executive to require, any person or class of persons listed in section 189 of this Act to give to the Minister or the chief executive such information relating to fishing-related mortality as the Minister or chief executive, as the case may be, considers necessary, and may require, or authorise the chief executive to require, such information to be given in the approved manner and form.
- (4) The Minister may recommend the making of such regulations under section 298 of this Act as the Minister considers necessary or expedient for the purpose of implementing any measures referred to in subsection (1) or subsection (2) or subsection (3) of this section.

(5) The Minister may, by notice in the Gazette, prohibit all or any fishing or fishing methods in an area either—

(a) Under subsection (1)(a) of this section, for the purpose of ensuring the maximum allowable fishing-related mortality level set by the relevant population management plan is not exceeded; or

(b) Under subsection (2) of this section, for the purpose of ensuring that any limit on fishing-related mortality is not exceeded.

(6) Every person commits an offence and is liable to the penalty set out in section 252(5) of this Act who fails to comply with any notice given under subsection (5) of this section.

Setting a Total Allowable Catch

4 The Fisheries Act 1996 provides for the setting and variation of TAC for all quota management stocks. The Act contains a number of options as to the target level at which the TAC is to be set. Only section 13 is included in this paper. Section 13 includes the ability to make an in-season increase to the TAC. Sections 14, 14A and 14B have not been included as no proposals in the advice paper refer to these provisions.

Section 13. Total allowable catch—(1) Subject to this section, the Minister shall, by notice in the Gazette, set in respect of the quota management area relating to each quota management stock a total allowable catch for that stock, and that total allowable catch shall continue to apply in each fishing year for that stock unless varied under this section, or until an alteration of the quota management area for that stock takes effect in accordance with sections 25 and 26.

(2) The Minister shall set a total allowable catch that—

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

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

(i) In a way and at a rate that will result in the stock being restored to 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 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.

(3) In considering the way in which and rate at which a stock is moved towards or above a level that can produce maximum sustainable yield under paragraph (b) or paragraph (c) of subsection (2) of this section, the Minister shall have regard to such social, cultural, and economic factors as he or she considers relevant.

(4) The Minister may from time to time, by notice in the Gazette, vary any total allowable catch set for any quota management stock under this section by increasing or reducing the total allowable catch. When considering any variation, the Minister is to have regard to the matters specified in subsections (2) and (3).

(5) Without limiting subsection (1) or subsection (4) of this section, the Minister may set or vary any total allowable catch at, or to, zero.

(6) Except as provided in subsection (7) of this section, every setting or variation of a total allowable catch shall have effect on and from the first day of the next fishing year for the stock concerned.

(7) After considering information about the abundance during the current fishing year of any stock listed in the Second Schedule to this Act, and after having regard to the matters specified in subsections (2) and (3), the Minister may, by notice in the Gazette, increase the total allowable catch for the stock with effect from such date in the fishing year in which the notice is published as may be stated in the notice.

(8) If a total allowable catch for any stock has been increased during the fishing year under subsection (7) of this section, the total allowable catch for that stock shall, at the close of that fishing year, revert to the total allowable catch that applied to that stock at the beginning of that fishing year; but this subsection does not prevent a variation under subsection (4) of this section of the total allowable catch that applied at the beginning of the fishing year.

(9) The Governor-General may from time to time, by Order in Council, omit the name of any stock from the Second Schedule to this Act or add to that Schedule the name of any stock whose abundance is highly variable from year to year.

(10) Subsection (1) does not require the Minister to set an initial total allowable catch for any quota management area and stock unless the Minister also proposes to set or vary a total allowable commercial catch for that area and stock under section 20.

“**Maximum sustainable yield**” in relation to any stock, means the greatest yield that can be achieved over time while maintaining the stocks productive capacity, having regard to the population dynamics of the stock and any environmental factors that influence the stock:

Setting and Varying a Total Allowable Commercial Catch

5 The Fisheries Act provides for the setting and varying a TACC:

Section 20. Setting and variation of total allowable commercial catch— (1) Subject to this section, the Minister shall, by notice in the Gazette, set in respect of the quota management area relating to each quota management stock a total allowable commercial catch for that stock, and that total allowable commercial catch shall continue to apply in each fishing year for that stock unless varied under this section.

(2) The Minister may from time to time, by notice in the Gazette, vary any total allowable commercial catch set for any quota management stock by increasing or reducing that total allowable commercial catch.

(3) Without limiting the generality of subsections (1) and (2) of this section, the Minister may set or vary a total allowable commercial catch at, or to, zero.

(4) Every total allowable commercial catch set or varied under this section shall have effect on and from the first day of the next fishing year for the quota management stock concerned.

(5) A total allowable commercial catch for any quota management stock shall not—

- (a) Be set unless the total allowable catch for that stock has been set under section 13 or section 14 of this Act; or
- (b) Be greater than the total allowable catch set for that stock.

Section 21. Matters to be taken into account in setting or varying any total allowable commercial catch—(1) In setting or varying any total allowable commercial catch for any quota management stock, the Minister shall have regard to the total allowable catch for that stock and shall allow for—

(a) The following non-commercial fishing interests in that stock, namely—

(i) Māori customary non-commercial fishing interests; and

(ii) Recreational interests; and

(b) All other mortality to that stock caused by fishing.

(2) Before setting or varying a total allowable commercial catch for any quota management stock, the Minister shall consult such persons and organisations as the Minister considers are representative of those classes of persons having an interest in this section, including Māori, environmental, commercial, and recreational interests.

(3) After setting or varying any total allowable commercial catch under section 20 of this Act, the Minister shall, as soon as practicable, give to the parties consulted under subsection (2) of this section reasons in writing for his or her decision.

(4) When allowing for Māori customary non-commercial interests under subsection (1), the Minister must take into account

(a) any mātaihai reserve in the relevant quota management area declared by the Minister by notice in the *Gazette* under regulations made for the purpose under section 186 of this Act:

(b) Any area closure or any fishing method restriction or prohibition in the relevant quota management area that is imposed by the Minister by notice in the *Gazette* made under section 186A.

(5) When allowing for recreational interests under subsection (1) of this section, the Minister shall take into account any regulations that prohibit or restrict fishing in any area for which regulations have been made following a recommendation made by the Minister under section 311 of this Act.

Setting a Foreign Allowable Catch

Section 81. Calculation of foreign allowable catch— (1) The Minister shall from time to time determine—

(a) The portion of the total allowable commercial catch for each quota management stock that may be taken within the exclusive economic zone; and

(b) The portion of the total catch limit (if any) for any stock not subject to the quota management system (including any highly migratory stock) that may be taken within the exclusive economic zone; and

(c) The foreign allowable catch for each stock in the exclusive economic zone.

(2) The foreign allowable catch for any quota management stock shall be the lesser of—

(a) The portion of the total allowable commercial catch for the time being determined for the stock under subsection (1)(a) of this section:

(b) The Crown's available annual catch entitlement for the stock.

(3) For the purposes of subsection (2)(b) of this section, the Crown's available annual catch entitlement for a stock shall be the Crown's holding of annual catch entitlement for the stock that is generated from unencumbered quota held by the Crown as at the beginning of the relevant fishing year for the stock, which annual catch entitlement remains unsold after the Crown has offered the annual catch entitlement for sale to persons entitled to own quota.

- (4) The foreign allowable catch for any stock not subject to the quota management system shall be the lesser of—
- (a) The portion of the total catch limit (if any) for the time being determined under subsection (1)(b) of this section;
 - (b) A catch that is sustainable after taking into account the total catch limit (if any) for, and the domestic harvesting capacity of, the stock.
- (5) For the purposes of this section, the term “domestic harvesting capacity”, in relation to any stock not subject to the quota management system, means the total domestic commercial catch reported as having been taken in the previous fishing year for the stock by New Zealand fishing vessels within New Zealand fisheries waters, with an appropriate adjustment to allow for—
- (a) Any changes in the harvesting capacity of the domestic commercial fishing fleet due to—
 - (i) Recent investment in fishing vessels and fishing equipment; and
 - (ii) Catch trends; and
 - (b) Non-commercial take and scientific take.
- (6) If the foreign allowable catch for any quota management stock has been determined under subsection (1)(c) of this section in accordance with subsection (2) of this section, the Minister shall set aside an amount of the Crown's holding of annual catch entitlement for the stock that is equivalent to the amount of the foreign allowable catch, and such annual catch entitlement shall not be used for fishing.

Consultation

Section 12. Consultation—(1) Before doing anything under any of sections 11(1), 11(4), 11A(1), 13(1), 13(4), 13(7), 14(1), 14(3), 14(6), 14B(1), 15(1), and 15(2) of this Act or recommending the making of an Order in Council under section 13(9) or section 14(8) or section 14A(1) of this Act, the Minister shall—

- (a) Consult with such persons or organisations as the Minister considers are 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 Māori, environmental, commercial, and recreational interests; and
- (b) Provide for the input and participation of tangata whenua having—
 - (i) A non-commercial interest in the stock concerned; or
 - (ii) An interest in the effects of fishing on the aquatic environment in the area concerned—
 and have particular regard to Kaitiakitanga.

(2) After setting or varying any sustainability measure, or after approving, amending, or revoking any fisheries plan, the Minister shall, as soon as practicable, give to the parties consulted in accordance with subsection (1) of this section reasons in writing for his or her decision.

(3) This section does not apply in respect of emergency measures under section 16 of this Act.

“**Tangata whenua**” in relation to a particular area, means the hapū, or iwi, that is Māori and holds mana whenua over that area:

“**Mana whenua**” means customary authority exercised by an iwi or hapū in an identified area:

“**Kaitiakitanga**” means the exercise of guardianship; and, in relation to any fisheries resources, includes the ethic of stewardship based on the nature of the resources, as exercised by the appropriate tangata whenua in accordance with tikanga Māori:

“**Tikanga Māori**” means Māori customary values and practices:

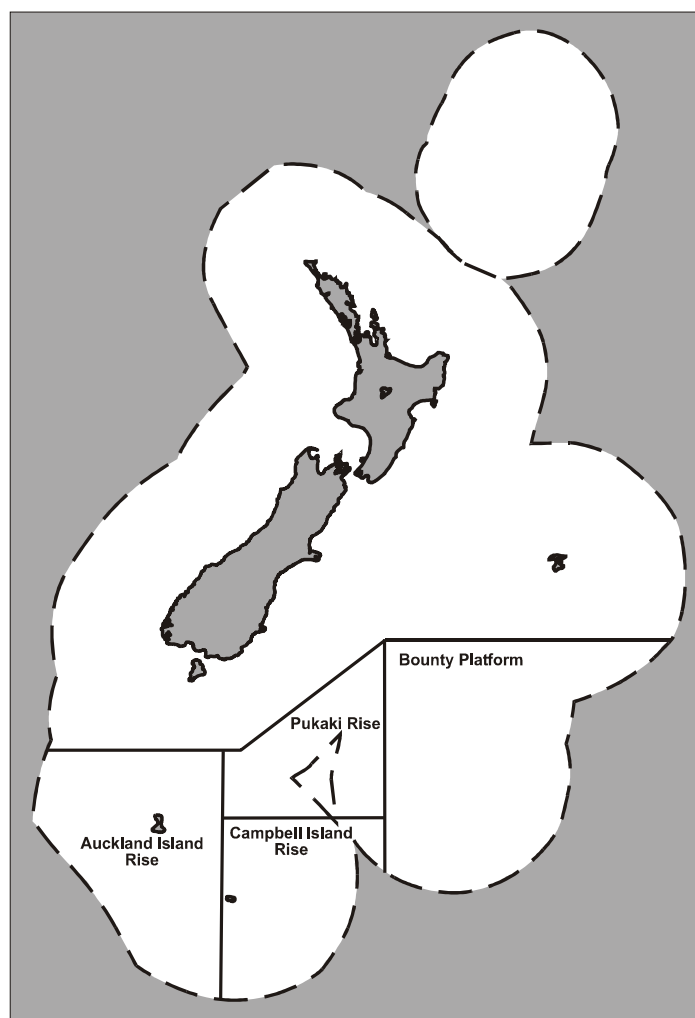
ATTACHMENT B

Obligations under the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992

- 1 The Fisheries Act 1996 is to be interpreted in a manner that best furthers the agreements expressed in the Deed of Settlement referred to in the Preamble of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992.
- 2 These agreements are:
 - a) Māori would enter into a joint venture with Brierley Investments Limited to acquire Sealord Products Limited, a major fishing company; and
 - b) The Crown would pay to Māori a sum of \$150 million to be used for the development and involvement of Māori in the New Zealand fishing industry, including participation in the acquisition of Sealord Products Limited; and
 - c) The Crown would introduce legislation to ensure that Māori were allocated 20% of all quota for species henceforth brought within the quota management system; and
 - d) The Crown would introduce legislation empowering the making of regulations recognising and providing for customary food gathering and the special relationship between the tangata whenua and places of importance for customary food gathering (including tauranga ika and mahinga mātaītai), to the extent that such food gathering is not commercial in any way nor involves commercial gain or trade; and
 - e) The Crown would introduce legislation to reconstitute the Māori Fisheries Commission as TOKM; and
 - f) TOKM would consider the resolutions in respect of the assets held by the Commission at the settlement date specified in the deed, as adopted by the Annual General Meeting of the Commission on the 25th day of July 1992, and consider how best to give effect to the resolutions, and would be empowered to allocate those assets; and
 - g) Following consultation with Māori, TOKM would devise and report to the Crown on a scheme for the distribution of the Commission's assets other than those referred to in subparagraph (f) of this paragraph; and
 - h) The implementation of the deed through legislation and the continuing relationship between the Crown and Māori would constitute a full and final settlement of all Māori claims to commercial fishing rights and would change the status of non-commercial fishing rights so that they no longer give rise to rights in Māori or obligations on the Crown having legal effect but would continue to be subject to the principles of the Treaty of Waitangi and give rise to Treaty obligations on the Crown.

SOUTHERN BLUE WHITING - CAMPBELL ISLAND RISE (SBW 6I) – INITIAL POSITION PAPER

Figure 1: Quota Management Areas (QMAs) for Southern Blue Whiting.



Key issues to be considered

- 1 The key sustainability and management issues to be considered for the Campbell Island Rise southern blue whiting stock (SBW 6I) are:
 - a) the Minister's decision made in May 2003 to manage southern blue whiting fisheries based on stock assessment information delayed by one fishing year, necessitated by the relative timing of fishing activity, stock surveys, the plenary assessment, and the fishing year;
 - b) the biology of southern blue whiting (a schooling species that is caught during spawning aggregations), that is relatively long-lived (possibly reaching 25 years), with several year classes in the fishery, and displays high inter-annual recruitment variability; other details are provided in Appendix One;

- c) the reduction to the TACC for SBW 6I that was made for the current (April 2003 to March 2004) fishing year (reduced from 30 000 tonnes to 25 000 tonnes);
- d) the updated stock assessment available for SBW 6I (based on the acoustic survey of 2002) that indicates declining biomass under catches at the level of the current TACC (stock assessment details are provided in Appendix Two);
- e) the stock assessment trajectories that indicate the probability of the biomass dropping below the reference threshold 1991 biomass (B_{1991}) reaches 10 % by 2005 at catches of about 15 000 tonnes for basecase 1, or 10 000 to 15 000 tonnes for basecase 2. The probability of biomass falling below B_{1991} by 2005 reaches 18 % for basecase 1 and 34 % for basecase 2 if catches at the level of the current TAC/TACC of 25 000 tonnes are taken.

Initial management proposal

2 The following management actions are proposed:

- a) a staged response to the current assessment, whereby the Minister would:
 - i) reduce the TAC and TACC for SBW 6I for the April 2004 – March 2005 fishing year to 20 000 t;
 - ii) consider a further reduction of the TAC and TACC for the April 2005 – March 2006 fishing year, to be informed by updated information, including that from industry acoustic surveys and data from the 2003 and 2004 fishing seasons (after review by the relevant working groups);
- b) set zero allowances within the TAC for customary Māori and recreational fishery interests, and for other sources of fishing-related mortality - the TAC would therefore equal the TACC.

Rationale for management proposal

Stock assessment results

- 3 The proposed reduction to the TAC/TACC is based on the updated stock assessment that is reported in the “Report from the Fishery Assessment Plenary, May 2003: stock assessments and yield estimates” (Annala *et al.* 2003), as extracted in Appendix Two. The stock assessment represents the best available information on the projected performance of the SBW stock under a range of constant catch levels, including the current 25 000 tonnes TACC.
- 4 The current assessment reveals similar trends to the 2000 assessment, and indicates that the SBW 6I stock biomass showed a steady decline from the early 1980s until 1993, followed by a large increase to 1996, and a slight decline thereafter. The very strong 1991 year class still makes a large contribution to the commercial catch (especially by weight), and has been joined by the 1995, 1996, and 1998 year classes, all of which also appear to be moderately strong.

- 5 The key element of uncertainty in the assessment is the much higher coefficient of variation (CV) from the 2002 acoustic survey than from previous surveys. The greater CV resulted mainly because high density aggregations of fish were found on only a few transects within each of the two ‘snapshot’ surveys of spawning and post-spawning aggregations. It is not possible to determine whether fish were there, but not found, or if they were absent.
- 6 MFish is aware that industry collected acoustic data during the 2003-04 fishing season. This information has not yet been submitted to the appropriate working group and therefore does not inform this management advice. Industry is invited to present relevant findings, once reviewed by the appropriate working group, as part of the consultation process.
- 7 The 2003 assessment model was used to make forward projections of stock biomass, assuming fixed future catch levels from 10 000 tonnes to 30 000 tonnes per year, and assuming that the TACC of 25 000 tonnes for SBW 6I will be taken in the current SBW fishing year (reported landings to date indicate that this assumption is realistic). Recruitments were drawn randomly from the distribution of year class strengths estimated by the model over the period 1977 to 2000.
- 8 As an alternative to the CAY estimates reported in previous assessments, the results from the 2003 assessment have been presented in the form of decision tables. For the SBW 6I stock, the probability of biomass remaining above the reference year (1991) is presented for alternative fixed catch levels and for each of two basecase model runs (see Table 1).

Table 1: Probability that the projected mid-season vulnerable biomass for 2004 and 2005 will be less than the mid-season vulnerable biomass in 1991, and the median projected biomass as a% B_{1991} , for different constant catch levels for the two basecase runs for the Campbell stock, assuming a 25 000 tonne catch in 2003.

Constant catch (t)	Probability ($B_{proj} < B_{1991}$)*		Median biomass as % B_{1991} *	
	2004	2005	2004	2005
Basecase 1				
10 000	0.08	0.07	200	217
15 000	0.09	0.10	196	202
20 000	0.09	0.13	191	187
25 000	0.11	0.18	185	173
30 000	0.12	0.24	180	157
Basecase 2				
10 000	0.13	0.09	166	181
15 000	0.15	0.16	160	164
20 000	0.17	0.26	155	146
25 000	0.21	0.34	149	130
30 000	0.23	0.43	144	113

* extracted from “Report from the Fishery Assessment Plenary, May 2003: stock assessments and yield estimates” (Annala *et al.* 2003)

- 9 Table 1 shows that the probability of the biomass dropping below the threshold (the 1991 biomass, B_{1991}) reaches 10 % by 2005 at catches of about 15 000 tonnes for basecase 1, or 10 000 to 15 000 tonnes for basecase 2. The probability of biomass falling below B_{1991} by 2005 reaches 18 % for basecase 1 and 34 % for basecase 2 if catches at the current TAC/TACC of 25 000 tonnes are taken.

TAC and TACC

- 10 The TAC/TACC for SBW 6I was reduced from 30 000 tonnes to 25 000 tonnes for the April 2002- March 2003 fishing year in response to the assessed decline in the biomass after two years of catch at the 30 000 tonne level. MFish's initial proposal for the fishing year beginning on 1 April 2004, is that the Minister considers a staged response to the current assessment, and sets the TAC at 20 000 tonnes, makes zero allowances for Māori customary interests, recreational interests, or other sources of fishing-related mortality, and therefore sets the TACC at 20 000 tonnes. The second stage of the proposal would be to consider a further reduction of the TAC and TACC for the April 2005 fishing year, to be informed by updated information from industry acoustic surveys and data from the 2003 and 2004 fishing seasons. MFish believes that this represents the preferred response to the stock assessment results.
- 11 The biomass in 1991 (B_{1991}) was the minimum biomass observed, yet subsequently gave rise to good recruitment and stock recovery. On that basis, B_{1991} was chosen as a safe reference threshold biomass. Future management should aim to maintain the SBW 6I biomass above the reference level, rather than managing to that level. The likelihood that the current biomass might fall below the reference biomass under alternative harvest levels provides the probabilistic information used for risk assessment.
- 12 An important finding from the assessment results is that a substantial risk is predicted of biomass declining to below B_{1991} (probability of 18 or 34 % under basecase 1 and 2 assumptions, respectively) should catches remain at the current TACC level of 25 000 tonnes. The stock assessment established a probability of 10% as the threshold for comparison. On that basis, MFish proposes that a reduction to the current TAC/TACC is required for the 2004-05 SBW fishing year in order to achieve the management aim of maintaining the SBW 6I biomass above the reference biomass level.
- 13 The current assessment projects that there is a 10 % probability of the biomass declining below B_{1991} by 2005 under catch levels of 15 000 tonnes (basecase 1) or 10 000 tonnes to 15 000 tonnes (basecase 2). However, there is uncertainty in the assessment (as described in Appendix Two), and there are substantial economic implications of a TAC reduction to 15 000 tonnes. Reducing the TACC to 20 000 tonnes for the April 2004 year, as part of a phased reduction, is considered to be an appropriate response to the assessment in order to achieve the management objective of maintaining the stock above the established B_{1991} threshold level. Interpreting Table 1, a 20 000 tonnes TACC implies a 13 % to 26 % probability that the projected 2005 biomass will fall below the reference 1991 biomass.
- 14 The risk to the management objective could be re-evaluated before the start of the April 2005 fishing year. A stock assessment for SBW 6I is to be reviewed on an annual basis and presented in the 2004 Plenary. Information from the fishery in 2004

(including catch-at-age data from 2003 and 2004) would be available to update the assessment model and inform the decision maker about appropriate catch levels for the 2005-06 fishing year. At present, there are no plans for additional acoustic surveys in the SBW fishery.

Economic and social implications

- 15 The SBW 6I fishery is characterised by high volumes of catch and relatively low per unit raw product values. All vessels targeting SBW in the Campbell fishery are believed to be charter vessels, many of which rely upon SBW as one of several fisheries undertaken during the year. The availability of fishing opportunities such as SBW sequenced over the year allows New Zealand fishing companies to efficiently augment harvest capacity with charter vessels where it may not be economically practical to invest in additional vessels. Coordinating charter vessels can require commitments a year in advance.
- 16 The predictability of SBW fishing opportunities thus becomes an important consideration in a more complex array of charter vessel arrangements in other fisheries over the course of a year. The majority of the SBW 6I fishery is conducted in a relatively short time span during September and October when spawning aggregations occur. If SBW cannot be taken in sufficiently high volumes, the economic incentive for fishers to operate in the fishery is reduced.
- 17 MFish recognizes that the proposed 5 000 tonnes reduction to the SBW 6I TACC will have a direct economic effect on industry, also acknowledging the 5 000 tonnes reduction in the TACC from the 2002-03 to 2003-04 fishing years. The 2003-04 port price for SBW is \$100 per tonne based on the 2003 Licensed Fish Receiver survey, down from \$590 tonnes reported in the 2002 survey.¹ The proposed 5 000 tonnes reduction in catch would represent a further 20% decline (\$ 0.5 million at \$100 per tonne) in gross raw product value based on the reported port price.
- 18 A reduction in the TACC would be expected to reduce export earnings, as well. A significant portion of SBW is processed into higher valued forms, primarily surimi and frozen fillets. The reported New Zealand FOB export value of SBW products for the 2002 calendar year totalled approximately \$29.3 million, indicating relatively high value added contributions relative to the greenweight value. The SBW 6I fishery accounts for about 90 % of total SBW catch in New Zealand, and is thus an important contributor to these export earnings.
- 19 The economic effect would also extend to losses that might be associated with vessel lease (and other) costs if catching and processing capacity goes unused. Preliminary analysis of fishing activity as at January 2004 indicates the number of vessels targeting southern blue whiting in SBW 6I declined from 18 vessels during 2002-03, to 15 vessels in the 2003-04 season, possibly due to the 5 000 tonnes reduction in TACC last season.
- 20 MFish is also aware that catch reductions can have social implications when employment opportunities for catching and processing staff are reduced. However,

¹ The 2003 port price is set in 2003 from data collected from the 2002 fishing year, and used in the 2003/04 levy order.

MFish has no estimates of the scale of effects on cultural or social factors such as employment or income that might arise from the proposed decrease in then TACC.

- 21 Further analysis of economic implications is provided in Appendix One.

Recreational and Māori customary interests

- 22 There is no known recreational or Māori customary fishery for SBW 6I. MFish proposes that the Minister sets allowances of 0 tonnes for recreational and Māori customary fishing.

Other sources of fishing-related mortality

- 23 MFish proposes that the known level of other sources of fishing-related mortality is sufficiently low that the Minister does not need to set an allowance to account for it within the TAC. Further information on other sources of fishing-related mortality is provided in Appendix One.

Environmental considerations

Marine Mammals

- 24 MFish considers that the proposed reduction of the TACC for SBW 6I will have no adverse implications for fur seals and other marine mammals. Further information on fur seal capture is provided in Appendix One.

Seabirds

- 25 MFish considers that the proposed reduction in the TACC for SBW 6I has no adverse implications for seabirds. Further information on seabird capture issues is provided in Appendix One.

Fish bycatch

- 26 The SBW 6I is a midwater trawl fishery with very low bycatch of other species. The proposed reduction in the TACC has no adverse implications for fish bycatch. Details of fish bycatch are provided in Appendix One.

Statutory considerations

- 27 MFish considers that the proposed management actions are consistent with the statutory considerations under the Fisheries Act 1996, as discussed below.

Section 8 – sets out the purpose of the 1996 Act as being “*to provide for the utilisation of fisheries resources while ensuring sustainability*”. The initial proposal seeks to achieve that purpose by setting a TAC and TACC for the SBW 6I stock. The level of the proposed TAC/TACC will provide for utilisation while ensuring sustainability. Achieving the sustainability obligation is guided by the agreed management objective for the stock (to maintain biomass above the reference threshold level of the biomass in 1991).

Section 13 – prescribes the considerations for setting the TAC in order to obtain the maximum sustainable yield from the stock.

Section 13(2) - requires that the TAC should be set at a level that maintains the stock at or above the level that can produce the maximum sustainable yield (MSY), or moves it towards or above that level, having regard to the interdependence of stocks. The details of the current stock assessment and the implications for setting the TAC are discussed above.

While there are likely to be interactions between southern blue whiting and other species/stocks, there is no evidence of interdependence between stocks that is of significant magnitude to impact on the setting of the TAC.

MFish considers that the proposed TAC options satisfy the requirements of s 13.

Section 13(2)(b)(ii) – requires that, where a stock is determined to be below the level that would produce the MSY, the TAC is set to restore the stock to or above the B_{MSY} level within a period appropriate to the stock, having regard to the biological characteristics of the stock and any environmental conditions affecting the stock.

The *biological* characteristics of the stock mean that SBW 6I can experience marked inter-annual changes in recruitment, and subsequent biomass levels. The longevity of the species (maximum age of up to 25 years) means that there are several year classes in the fishery - recruits to the fishery contribute to the biomass for several years. Natural mortality is low after maturity, so after strong recruitment, the biomass can be fished down progressively over time. Recovery of a depleted stock will, however, be strongly dependent on the relatively unpredictable recruitment.

The Plenary report provides no indication of specific environmental conditions having been identified as affecting the stock or recruitment.

Section 13(3) – requires the Minister to have regard to the social, cultural, and economic factors he considers to be relevant, when considering the way in which, and rate at which, to move a stock towards the B_{MSY} level.

There will be social and economic consequences from the proposed reduction to the TAC/TACC for SBW 6I. The expected economic effects have been noted in the relevant part of this advice (see paragraphs 15 to 21, and Appendix One), but the precise extent of those effects has not been quantified. Economic effects can result in social effects, following on from the reduction in catching and processing capacity that would be likely to accompany a reduction in the TAC/TACC of the scale proposed. The proposal to reduce the TAC/TACC in stages should serve to mitigate the economic and social effects of reduced catch limits.

Section 11(1)(c) – requires that the Minister takes into account the natural variability of the stock. Southern blue whiting stocks can display large inter-annual variability in recruitment, which can give rise to substantial fluctuations in biomass. The fishery in recent years appears to have been supported by a very large recruitment in 1991,

followed by moderately strong recruitment in 1995, 1996, and 1998. Further information is contained in the stock assessment results presented in Appendix Two.

Section 9 – requires that decisions take into account the environmental principles set out in:

s 9(a) - specifies that associated or dependent species should be maintained above a level that ensures their long-term viability. The recorded bycatch in the SBW 6I fishery shows that the fishery takes relatively little bycatch (it is a 'clean' fishery). There are no known concerns regarding the viability of associated or dependent species.

s 9(b) – requires that the biological diversity of the aquatic environment should be maintained. SBW 6I is relatively has low bycatch as discussed above, and there is no evidence of adverse effects of the SBW 6I fishery on the maintenance of biodiversity.

s 9(c) – stipulates that habitats of particular significance to fisheries management should be protected. Midwater trawling generally is not known to have effects on the benthos, as the gear comes into contact with the sea floor only accidentally. No habitats of particular significance for fisheries management have been identified within SBW 6I.

Section 11(1)(a) – requires that the Minister takes into account any effects of fishing on the stock and the aquatic environment before setting or varying any sustainability measure. The direct effects of target fishing on the SBW 6I stock are considered in the assessment, and support the proposed management action. The fishery is relatively discrete, and the known effects of other target fisheries on the SBW 6I stock or its environment, and any environmental effects of the target SBW fishery, are not considered to have particular significance for setting the TAC/TACC at this time.

Section 5 – requires that decisions should be consistent with New Zealand's international obligations relating to fishing, and the provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992. There is a wide range of international obligations relating to fishing (including sustainability and utilisation of fishstocks and maintaining biodiversity). MFish considers issues arising under international obligations and the provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 are adequately addressed in the management proposal for SBW 6I.

Section 11(1)(b) – requires that the Minister shall set or vary a sustainability measure only after taking into account any existing controls that apply to the stock or area concerned. A TAC and TACC (25 000 tonnes) are in place for SBW 6I. Those are the key controls under consideration for change. Other existing controls are a minimum trawl mesh size of 60 mm within the Sub-Antarctic Fishery management area (including SBW 6I). General restrictions regarding the use of trawl net mesh layers, liners, etc., also apply. Trawling in specified seamount areas is prohibited, and one specified area lies within SBW 6I (at the southern extent of the QMA). The use of net-sonde monitor cables is prohibited on all New Zealand fishing vessels or foreign-owned New Zealand fishing vessels. Those restrictions on trawling have applied for

some time and MFish does not consider that they materially affect the Minister's consideration of the proposed change to the TAC/TACC. No changes to existing controls beyond the TAC/TACC are proposed.

Section 11(2A)(b) - requires that, before setting any sustainability measure, the Minister must take into account any relevant fisheries plan approved under s 11. No existing or proposed fisheries plan for SBW 6I is known to MFish.

Section 11(2A)(a) & (c) – before setting a sustainability measure, the Minister must take into account any conservation services or fisheries services, and any decisions not to require conservation or fisheries services. Any relevant conservation or fisheries services have been considered in this paper (see Appendix One – observer coverage, seabirds, fur seals, research). No decision has been made not to require a service in this fishery.

Section 11(2)(a) and (b) – stipulate that the Minister, before setting or varying any sustainability measure, must have regard to the provisions applicable to the coastal marine area known to exist in any policy statement or plan under the Resource Management Act 1991, or any relevant management strategy or plan under the Conservation Act 1987. No such statements, strategies or plans that are relevant to the setting or varying of any sustainability measure for SBW 6I are known to MFish.

Sections 21(1)(a and b), (4)(i and ii), and (5) – prescribes the matters to be taken into account when setting or varying the TACC, including making allowances within the TAC for non-commercial Māori customary fishing, recreational fishing, and other sources of fishing-related mortality.

The nature of the SBW 6I fishery and the interests of the respective fishing sectors have been considered in setting the TACC. There are no known Māori customary or recreational fishing interests in the SBW 6I fishery, and no and allowances are proposed. The known fishing-related mortality beyond the landed catch is small, and an allowance is not proposed.

No mātaimai exists in the SBW 6I QMA. No area has been closed or fishing method restricted under s 186A for customary fishing purposes in SBW 6I. No restrictions have been placed on fishing in any area within the QMA for recreational interests.

Section 10 – prescribes the information principles that are to be taken into account when exercising powers and functions under the Act. Decision makers should use the best available information, consider uncertainty in that information, be cautious when information is uncertain, unreliable, or inadequate, and that the absence or uncertainty of information should not be used as a reason to postpone or fail to make decisions.

MFish considers that the primary information supporting the proposed management action is provided by the current stock assessment for SBW 6I, as reported in the May 2003 Plenary report (Annala *et al.* 2003). That assessment represents the best available information about the performance of the fishery under the presented range of future catch levels. MFish notes that there is uncertainty in the assessment. A contributor to that uncertainty is the high CV associated with the most recent 2002 reported acoustic biomass estimate. MFish notes that more recent acoustic data might

be presented by industry in time for it to be included in final advice, once the relevant working groups have considered that information.

Despite the uncertainty in the information, MFish considers that the assessment provides adequate indication of the need to reduce the TAC/TACC in order to achieve the agreed sustainability objective for SBW 6I (to maintain biomass above the threshold B_{1991} level).

Future management

Management framework

- 28 MFish considers that the TAC/TACC for SBW 6I is managed on the basis that the current biomass is maintained above the reference year biomass (1991) with a high level of certainty. 1991 is established as the reference year on the recognition that biomass in that year fell to the lowest observed levels, yet subsequently gave rise to good recruitment and stock recovery. Future management should aim to maintain the SBW 6I biomass above the threshold level, rather than managing to that level.
- 29 MFish has previously noted the difficulty in incorporating SBW stock survey information obtained in September/October with the working group fishery assessment process in time to accommodate changes in management actions prior to the beginning of the next SBW season commencing in April. Based on MFish advice and industry submissions from the 2003 review of the SBW fishery, the Minister decided in May 2003 to delay the use of stock assessment information by one fishing year.
- 30 MFish notes the previously expressed stakeholders' views about the planning and resourcing problems presented by the nature of the SBW fishery. MFish encourages rights holders in the SBW 6I fishery to explore the potential of the fisheries plan framework (provided by s 11A of the Act) to deliver solutions to the particular challenges of the SBW fishery.

Observer coverage

- 31 MFish will continue to monitor the catch of fur seals and seabirds in the SBW fisheries through the observer programme. A total of 240 observer days are programmed for the current business year (July 2003 to June 2004) to be applied across all SBW stocks. These observer services provide various information concerning catch composition, species characteristics, conversion rates, and the bycatch of marine mammals and birds. New information gained over time will be available for consideration in future management decisions.

Research

- 32 An update of the stock assessment for the SBW 6I stock is planned for the 2003-04 business year (SBW 2004/01). Results should be available by June 2004, and will provide the basis for updated assessment of the SBW 6I fishery applicable to the 2005-06 fishing year. A subsequent stock assessment of SBW has been proposed for 2004/05.

Conclusion

- 33 The TAC/TACC for SBW 6I was reduced from 30 000 tonnes to 25 000 tonnes for the April 2003- March 2004 fishing year, in response to the assessed decline in the biomass after two years of catch at the 30 000 tonne level.
- 34 The indication from the current stock assessment is that biomass has declined further. A substantial risk (probability of 18 or 34 % from basecases 1 and 2, respectively) of biomass declining to below the B_{1991} threshold is predicted should catches remain at the current TACC level of 25 000 tonnes. On that basis, MFish proposes that a reduction to the current TAC/TACC is required for the 2004-05 SBW fishing year in order to achieve the management aim of maintaining the SBW 6I biomass above the threshold level.
- 35 MFish's initial proposal for the fishing year beginning on 1 April 2004 is that the Minister considers a staged response to the current assessment, and sets the TAC at 20 000 tonnes, makes zero allowances for Māori customary interests, recreational interests, or other sources of fishing-related mortality, and therefore sets the SBW 6I TACC at 20 000 tonnes.
- 36 The second stage of the proposal would be to consider a further reduction of the TAC and TACC for the April 2005 fishing year, to be informed by updated information, including that from industry acoustic surveys and catch data from the 2003 and 2004 fishing seasons.
- 37 MFish is aware that industry collected acoustic data from the SBW 6I during the 2003-04 fishing season. If that data is analysed to produce an abundance estimate that can be reviewed and agreed on through the middle depth working group, then that will assist with determining the size of the stock available this year, and the relevance of the biomass projections at various catch levels presented in the current assessment. That information is not yet available to inform advice presented here, although industry is invited to present relevant findings as part of the consultation process.
- 38 MFish considers that a 20 000 tonnes TACC represents the preferred response to the stock assessment results based on the best information available.

Preliminary recommendations

- 39 MFish proposes that a staged reduction of the TAC and TACC be considered for SBW 6I, to be given effect by:
- a) For the fishing year commencing on 1 April 2004, the southern blue whiting TAC be reduced to 20 000 tonnes, and within the TAC;
 - i) an allowance of 0 tonnes be made for non-commercial Māori customary fishing interests;
 - ii) an allowance of 0 tonnes be made for recreational fishing interests;
 - iii) an allowance of 0 tonnes be made for other sources of fishing-related mortality;
 - iv) the TACC be set at 20 000 tonnes.

- b) A further reduction of the TAC and TACC be considered for the fishing year commencing on 1 April 2005, dependent on the results of an updated assessment (available in June 2004) that will incorporate information from the fishery in 2003 and 2004, including available acoustic survey results.

APPENDIX ONE – FISHERY SUMMARY

Catch information

40 The following table illustrates the catches from the southern blue whiting fisheries by area for 1978 to 2003-04 from vessel logbooks and fishing returns.

Table 1: Estimated catches (t) of southern blue whiting by area for the period 1978 to 2003-04 from vessel logbooks and QMRs. No catch limit was in place until the 1992-93 fishing year. Estimates for 2003-04 are preliminary estimates of reported landings to end November 2003. Before 1997-98 there was no separate catch limit for the Auckland Islands stock.

Fishing Year	Bounty Platform		Campbell Rise		Pukaki Rise		Auckland Is		Total	
	Catch	Limit	Catch	Limit	Catch	Limit	Catch	Limit	Catch	Limit
1978 ^f	0		6 403		79		15		6 497	
1978-79+	1 211		25 305		601		1 019		28 136	
1979-80+	16		12 828		5 602		187		18 633	
1980-81+	8		5 989		2 380		89		8 466	
1981-82+	8 325		7 915		1 250		105		17 595	
1982-83+	3 864		12 803		7 388		184		24 239	
1983-84+	348		10 777		2 150		99		13 374	
1984-85+	0		7 490		1 724		121		9 335	
1985-86+	0		15 252		552		15		15 819	
1986-87+	0		12 804		845		61		13 710	
1987-88+	18		17 422		157		4		17 601	
1988-89+	8		26 611		1 219		1		27 839	
1989-90+	4 430		16 542		1 393		2		22 367	
1990-91+	10 897		21 314		4 652		7		36 870	
1991-92+	58 928		14 208		3 046		73		76 255	
1992-93+	11 908	15 000	9 316	11 000	5 341	6 000	1 143		27 708	32 000
1993-94+	3 877	15 000	11 668	11 000	2 306	6 000	709		18 560	32 000
1994-95+	6 386	15 000	9 492	11 000	1 158	6 000	441		17 477	32 000
1995-96+	6 508	8 000	14 959	21 000	772	3 000	40		22 279	32 000
1996-97+	1 761	20 200	15 685	30 100	1 806	7 700	895		20 147	58 000
1997-98+	5 647	15 400	24 273	35 460	1 245	5 500	0	1 640	31 165	58 000
1998-00†	8 741	15 400	30 386	35 460	1 049	5 500	750	1 640	40 926	58 000
2000-01#	3 997	8 000	18 049	20 000	2 864	5 500	19	1 640	24 929	35 148‡
2001-02#	2 261	8 000	29 999	30 000	230	5 500	10	1 640	32 500	45 148‡
2002-03#	7 438	8 000	28 742	30 000	16	5 500	20	1 640	36 876	45 148‡
2003-04#	3 806	8 000	23 337	25 000	46	5 500	42	1 640	36 876	

^f 1 April-30 September

⁺ 1 October-30 September

[†] 1 October 1998-31 March 2000

[#] 1 April -31 March

[‡] SBW 1 (all EEZ areas outside QMA6) has a TACC of 8 tonnes.

41 Small catches in the Pukaki Rise and Auckland Island fisheries in the 2001-02 and 2002-03 fishing years reflect the amount of effort put into these fisheries rather than any sustainability concerns.

SBW stock structure

42 For the purposes of stock assessment it is assumed that there are four stocks of SBW with fidelity within stocks: the Bounty Platform stock (SBW 6B), the Pukaki Rise stock (SBW 6R), the Auckland Islands stock (SBW 6A), and the Campbell Island stock (SBW 6I). A decision was made on introduction of this species into the QMS in

1999 to manage the four sub-Antarctic fisheries as separate stocks on the basis of the biological characteristics of the discrete fisheries.

Management strategy for SBW

- 43 Since 1997, management of the Bounty and Campbell fisheries has been based on a CAY strategy with the B_{MAY} being used as a proxy for B_{MSY} . A CAY strategy takes into account the biological characteristics of the stock and the current status of the stock based on, in the case of SBW, bi-annual research undertaken in the fishery. Ageing studies have shown that SBW stocks have very high recruitment variability. This variability translates into large fluctuations in biomass. A management strategy based on CAY provides the opportunity to maximise yield from the fishery over time by taking into account fluctuations in biomass. Regular acoustic surveys (primarily focusing on the principal fishing grounds of Bounty and Campbell) and stock assessments provide estimates of biomass and available yields that minimise risk to the fishery while maximising available yield.

Commercial fishery

- 44 The fishery for SBW is almost entirely concentrated on the August-September spawning aggregations, with over 90% of the catch taken within six to eight weeks, although, in recent years, fishing has extended into October. The method of catching SBW is trawling (primarily midwater).
- 45 A total commercial catch limit of 32 000 tonnes, with area sub-limits, was introduced for SBW in the 1992–93 fishing year. SBW 6 was introduced into the QMS by legislation on 1 November 1999 after completion of the 1999 fishing season. SBW 1 was introduced into the QMS on 1 April 2000.
- 46 The catch limits for the Bounty and Campbell fisheries have been under-caught in most years since their introduction into the QMS, although catch did increase relative to the TACCs in the 2002-03 season. The under-catch in these fisheries may reflect the relative economic value of the fish and difficulties in timing experienced by operators in this fishery rather than low stock sizes. The SBW fishery is predominantly fished by vessels following completion of the hoki fishery. A poor hoki season may result in vessels remaining longer on the hoki grounds and missing the commencement of the SBW fishing season.
- 47 Industry has noted that the limited duration of the season, coupled with long distances between fishing areas and significant search times to locate fish, works against the ability of the fishing industry to fish effectively in all four SBW 6 QMAs and against all four TACCs in any one season. Even in years of high fish abundance, fleet managers recognise that they lose some fishing time due to poor weather and to exploration in search of suitable fish aggregations.

Economic effects

- 48 The Campbell fishery is characterised by high volumes of catch and low prices. Thus, if fish cannot be taken in high volumes, the economic incentive for fishers to operate in the fishery is reduced and fishers may look to move into more lucrative fisheries.

- 49 An estimation of the value of the SBW6I fishery can be undertaken by an examination of port prices and TACC level. The 2003-04 port price for SBW is reported to be \$100 per tonne, down significantly from the 2002-03 port price of \$590 per tonne. The landed catch for the SBW 6I fishery in 2002-03 was about 30 000 tonnes, resulting in a gross raw product value of approximately \$17.7 million. Reductions in both port price and TACC for the 2003-04 season are expected to reduce this gross value significantly, due primarily to the sharp decline in port price.
- 50 A comparison of the value of catch over the five years to 2002-03 indicates that the average gross value from the SBW 6I fishery was \$12.9 million (at \$490/tonne). At the 2003-04 estimated port price of \$100 per tonne for the SBW 6I fishery, the 2003-04 port value will decline to \$2.5 million (25 000 tonnes at \$100/tonne), substantially less than the average. The proposed reduction in catch of 5 000 tonnes for 2004-05 would represent a reduction in revenue of \$ 0.5 million at the port price of \$100/tonne.
- 51 SeaFIC figures show that, for the 2002 Calendar year, the total free on board value (FOB, basic value of exports) of SBW was about \$29 million, including surimi, frozen fillet, and frozen head and gutted product. In 2002, SBW 6I contributed roughly 90% of all SBW catch, thus accounting for the vast majority of \$29 million in export earnings.
- 52 MFish has no estimates of the effects on cultural or social factors such as employment or income that would be associated with an increase or decrease in catch levels.

Recreational fishery

- 53 There is no known recreational fishery for SBW in any stock.

Māori customary fishery

- 54 There is no known non-commercial Māori customary take of SBW in any stock.

Other Sources of fishing-related mortality

- 55 Scientific observers have reported discards of undersize fish and accidental loss from torn or burst codends.
- 56 NIWA estimated discards in the SBW fishery for the 1994-95 and 1995-96 fishing years. Some 39 756 tonnes of SBW were landed in those years. NIWA estimated that 616 tonnes (95% confidence intervals 295-1 145 tonnes) or 1.5% of the total SBW catch was discarded in that period.

Observer coverage

- 57 In the 2003-04 fishing year, observer coverage was planned to cover about 350 days (100 of which are DoC CSL observer days). This compares to the 2001-02 fishing year there where there were 408 observer days in the SBW fisheries. Note that an observer day is defined as a 12 hour shift. Normally there are two observers on board a vessel allowing 24 hour coverage to be completed.

- 58 Observer coverage in SBW 6 in the 2001-02 fishing year was at a level in excess of 30% so that a robust assessment can be carried out into the number of fur seals and/or seabirds killed over the whole fishery. In the Campbell Rise (SBW 6I) fishery there were 755 tows for SBW and 403 were observed (53%), while in the Bounty Rise (SBW 6B) fishery there were 34 tows of which 25 were observed (74%).
- 59 MFish will continue to monitor the number of fur seals and seabirds captured in the SBW fishery through the observer programme.

Environmental Considerations

Fur Seals

- 60 A final research report for the Ministry of Fisheries (FAR 2001/14) reports the number of fur seals killed in the 1999-2000 SBW fishing year. An estimated 14 fur seals (c.v. = 43%) were killed at the Campbell Plateau fishery (SBW 6I), based on four confirmed deaths reported in the 27% observer coverage of the 789 tows conducted in that season. The report concluded that fur sea bycatch rate was significantly lower in the Campbell Plateau compared to the Bounty Platform.
- 61 Application of a marine mammal exclusion device has been trialed in the Auckland Islands squid fishery. Extension of use of this device for other fisheries could be considered subject to the device proving effective. Fishers in the SBW fishery currently implement a voluntary code of practice that is designed to reduce the capture of marine mammals.

Seabirds

- 62 A final research report for the Ministry of Fisheries shows that for the 1999-2000 fishing year two seabirds were landed dead from tows off the northeastern edge of the Campbell Plateau (Baird S J, Sept 2001). Both birds were identified as male Grey petrels. Grey petrels are considered to have a threat status of “at risk” (draft Seabird National Plan of Action (NPOA) on Seabirds).
- 63 Grey petrels breed at the Campbell Islands group and the Antipodes Islands with New Zealand. In 1984 the New Zealand population was estimated to be 10 000 – 50 000 pairs. The size of the total global population is not currently known. Grey petrels are known to breed on six islands outside New Zealand. In the 1998-99 fishing year one seabird was observed caught and released alive from the Bounty Platform.

Fish bycatch

- 64 The effects of fishing on any stock and the aquatic environment in general as a consequence of the SBW 6I fishery are unknown. Although there is information on incidental catch of associated or dependent species, this is insufficient information to assess the impact current levels of fishing for SBW 6I might be having on these species or the biological diversity of the aquatic environment of the SBW 6I fishery.
- 65 However, the latest research results (in preliminary form, reporting on project ENV2002/02) confirm that the southern blue whiting fishery is characterized by relatively clean catches of the target species. Based on data collected between 1990

and 2002, preliminary results show that the three main bycatch species in the southern blue whiting fishery are hoki (0.2 % of SBW catch), ling (0.2 %) and hake (0.1 %). Given those data and the estimated target species discard proportion of 1.5 %, the southern blue whiting fishery appears to have the least wasteful of those New Zealand trawl fisheries examined.

Research

- 66 An acoustic survey of the Campbell fishery was completed in winter 2002. This survey has been incorporated into a new stock assessment, reported in the May 2003 Plenary Report (see Appendix Two).
- 67 Industry has reportedly completed acoustic surveys during the current fishing season. Industry could produce abundance estimates from their acoustic data to include in final advice after consideration by the relevant working groups.

Compliance information

- 68 There are unlikely to be significant compliance concerns in this fishery. However, large bags taken in these fisheries are likely to contain damaged and undersized fish, potentially resulting in dumping and high grading of fish. Misreporting of catches between areas is also possible, given the large differences in the catch limits between adjacent fishery areas or stocks.

APPENDIX TWO – STOCK ASSESSMENT

- 69 Updated estimates of biomass and yield are provided for the Campbell stock based on analyses using catch-at-age from the commercial fishery, acoustic survey data, and estimates of biological parameters. New information since the 2001 assessment included the results of an acoustic survey carried out in 2002, and two years of observer proportions-at-age data.

Estimates of fishery parameters and abundance indices

- 70 Acoustic surveys of southern blue whiting have been carried out since 1993. Target strength work has continued each year as part of these acoustic surveys. Additional estimates from in situ data were reported in 2002, which indicate that the slope in the target strength – fish length relationship may be steeper than previously used (Dunford 2001a,b). However, the Working Group was unable to resolve the inconsistencies between the various data sources (swimbladder modelling, in situ data and recent results from work on northern blue whiting). Therefore it was agreed to retain the original relationship between target strength and fish length from the Northern hemisphere for blue whiting (Monstad et al., 1992) as used previously in New Zealand assessments. The Working Group noted that if the slope in this relationship is kept the same, the value of q changes in the model but relative abundance indices are still valid, whereas if a different slope of the relationship is used the data must be reanalysed.
- 71 A further acoustic survey of the Campbell stock was completed in August/September 2002. Two snapshots were carried out on spawning and post-spawning aggregations on the Campbell Island Rise. The two snapshots biomass estimates were averaged and decomposed to biomass at age (Table 4). This survey gave a much higher CV than previous surveys, mainly because high-density aggregations of fish were found on only a few transects within each snapshot.
- 72 An aggregation east of the survey area was also surveyed acoustically but biomass from this area was not included in the time series of relative abundance indices as this would not be consistent with the spatial coverage of previous surveys. The addition of the extra stratum where this aggregation was found would add only about 2.5% to the 2002 biomass index.

Table 4: Estimates of biomass (000 t) for age 1, 2, 3 and 4+ fish from acoustic surveys of Bounty Platform, Pukaki Rise, and Campbell Island Rise, and CPUE indices. – no data.

Year	Bounty Platform				Pukaki Rise				Campbell Island Rise				CPUE
	1	2	3	4+	1	2	3	4+	1	2	3	4+	
1986	–	–	–	–	–	–	–	–	–	–	–	–	1.00
1987	–	–	–	–	–	–	–	–	–	–	–	–	0.72
1988	–	–	–	–	–	–	–	–	–	–	–	–	0.59
1989	–	–	–	–	–	–	–	–	–	–	–	–	0.60
1990	–	–	–	–	–	–	–	–	–	–	–	–	0.52
1991	–	–	–	–	–	–	–	–	–	–	–	–	0.52
1992	–	–	–	–	–	–	–	–	–	–	–	–	0.27
1993	8.81	6.87	1.41	62.86	0.58	26.85	9.32	31.15	1.82	71.90	14.78	24.03	0.69
1994	0.09	5.87	32.07	27.67	0.01	1.19	6.36	35.97	0.33	12.26	139.55	28.84	0.74
1995	59.28	4.86	6.66	30.77	0.00	0.10	0.78	11.74	0.00	11.18	23.23	130.54	1.30
1996	–	–	–	–	–	–	–	–	–	–	–	–	1.54
1997	1.68	4.14	24.60	37.52	0.02	2.84	0.86	34.09	–	–	–	–	1.03
1998	–	–	–	–	–	–	–	–	2.28	13.14	28.02	167.67	0.99
1999	0.43	0.75	4.97	42.72	–	–	–	–	–	–	–	–	–
2000	–	–	–	–	0.06	3.04	2.07	29.45	0.96	10.46	8.42	135.61	–
2001	0.14	2.55	6.01	21.68	–	–	–	–	–	–	–	–	–
2002	–	–	–	–	–	–	–	–	3.06	3.73	11.55	148.19	–

73 The results of a standardised CPUE analysis of the Campbell Island Rise are also shown in Table 4. There is concern that because of the highly aggregated nature of the fishery, and the associated difficulty in finding and maintaining contact with the highly mobile schools in some years, the CPUE series may not be monitoring abundance. This has not been updated since 1998 and the indices are not used in the stock assessment.

Biomass estimates for the Campbell Island stock

74 The stock assessment model partitions the Campbell stock into two sexes and age groups 2–11, with a plus group at age 11. There are two time steps in the model (Table 5). In the first time step 90% of natural mortality takes place. In the second time step, fish ages are incremented, the 2-year-olds are recruited to the population, which is then subjected to fishing mortality and the remaining 10% of natural mortality.

Table 5: Annual cycle of the stock model, showing the processes taking place at each step, and the available observations. Fishing mortality (F) and natural mortality (M) that occur within a time step occur after all other processes. M, proportion of M occurring in that time step.

Period	Process	M	Length at age	Observations
1. Nov–Aug	Natural mortality	0.9	–	–
2. Sep–Oct	Age, recruitment, F, M	0.1	Matrix applies here	Proportion at age, acoustic indices

75 The model assumes that the fishing selectivity after age 4 is 1.0, and estimates selectivity for each sex for ages 2 to 4. Selectivities were assumed constant over all years in the fishery, and hence there was no allowance for annual changes in selectivity. In line with previous assessments no stock-recruitment relationship is assumed in the model. The proportion of males at recruitment (age 2) was assumed to be 0.5 of all recruits. As it is a spawning fishery the maturity ogive was assumed to be the same as the selectivity ogive estimated in the model. Note that the maturity ogive is only used to report spawning stock biomass. The maximum exploitation rate (U_{max})

was set at a value of 0.7. The choice of the maximum exploitation rate has the effect of determining the minimum possible virgin biomass allowed by the model. Because of the large inter-annual differences in growth, caused by the occurrence of the strong and weak year classes, length-at-age vectors were calculated for each year, and used in the modelling. Lengths-at-age were converted to weights-at-age in the model using the length-weight relationship given in Table 3.

- 76 The model was fitted to the acoustic biomass estimates of ages 2, 3, and 4+ fish given in Table 6 and the proportions-at-age data from the commercial fishery. The acoustic survey estimates were used as relative estimates of mid-season biomass (i.e., after half the catch has been removed), with associated c.v.s estimated from the survey analysis. Catch-at-age observations were available from the commercial fishery for the period 1979 to 2002. Catch-at-age data were fitted to the model as proportions-at-age, where estimates of the proportions-at-age and associated c.v.s by age were estimated using the NIWA catch-at-age software by bootstrap (Bull & Dunn 2002). Zero values were replaced with the value 0.0002 with an associated c.v. of 1.5. Ageing error was assumed to be zero.
- 77 Lognormal errors, with known c.v.s were assumed for the relative biomass and proportions-at-age data. The c.v.s available for these data allow for sampling error only. However, additional variance assumed to arise from differences between model simplifications and real world variation, was added to the sampling variance. The additional variance, termed process error, was estimated in an initial run of the model using all the available data. A process error of 0.4 was estimated for the proportions-at-age data and was added to each observation for all subsequent model runs. The process error estimated for the acoustic indices was zero.

Table 6: Decomposed biomass estimates (t) and c.v.s by survey and age group used for the Campbell Island Rise stock assessment.

Year	Age 2		Age 3		Age 4+	
	Biomass	c.v.	Biomass	c.v.	Biomass	c.v.
1993	71 902	23	14 781	22	24 033	21
1994	12 259	38	139 552	37	28 841	36
1995	11 176	25	23 228	28	130 535	30
1998	13 142	20	28 022	19	167 668	18
2000	10 460	23	8 421	20	135 612	17
2002	3 732	76	11 549	72	148 189	68

Estimation

- 78 Model parameters were estimated using Bayesian methods implemented using the NIWA stock assessment program CASAL v1.02 (Bull et al., 2002). For initial runs only the mode of the joint posterior distribution was sampled. For the final runs presented here the full posterior distribution was sampled using Markov Chain Monte Carlo (MCMC) methods, based on the Metropolis-Hastings algorithm.
- 79 MCMC chains were estimated using a burn-in length of 5×10^5 iterations, with every 5 000th sample taken from the next 5×10^6 iterations (i.e., a final sample of length 1000 was taken from the Bayesian posterior). Tests for autocorrelations and single chain convergence (Heidelberger & Welch 1983, Geweke 1992) were applied to resulting chains to look for evidence of non-convergence.

80 Equilibrium virgin biomass is equal to the population that there would have been if all the YCS were equal to 1 and there was no fishing. However, there was a period of unknown (and possibly large) catches from the Campbell stock before 1979, and there is high recruitment variability in the stock, so the initial 1979 biomass was allowed to differ from the equilibrium virgin biomass. The initial population in 1979 (ages 3 to 11+) was estimated for each sex. Year class strengths were estimated for all years from 1977 to 2000, under the assumption that the estimates from the model should average one.

Prior distributions and penalty functions

81 The assumed prior distributions used in the assessment are given in Table 7. Most priors were intended to be uninformed, and had wide bounds. However, a log-normal prior was used for natural mortality and in basecase 2 for the acoustic survey 4+ q .

Table 7: The distributions, priors, and bounds assumed for the various parameters being estimated. The parameters are mean and c.v. for lognormal; and mean and s.d. for normal. Note acoustic q s were treated as nuisance parameters in basecase 1.

Parameter Basecase 1	N	Distribution	Values		Bounds	
			Mean	c.v. / s.d.	Lower	Upper
B_0	1	Uniform-log	–	–	30 000	1 000 000
Acoustic q s	3	Uniform-log	–	–	0.1	2.8
YCS	24	Lognormal	1.00	1.30	0.01	10
Initial population	18	Uniform-log	–	–	1	1 000 000
Selectivity ages 2-4 (by sex)	6	Uniform	–	–	0.0001	1
M (average)	1	Lognormal	0.20	0.20	0.07	0.35
M (difference)	1	Normal	0.00	0.05	-0.2	0.2
Basecase 2						
Acoustic 4+ q	1	Lognormal	1.40	0.20	0.1	2.8

82 The informed prior for the adult (4+) acoustic q was obtained using the approach of Cordue (1996). Uncertainty over various factors including mean target strength, acoustic system calibration, target identification, shadow or dead zone correction, and areal availability were all taken into account. In addition to obtaining the bounds, a mean for each factor was also assumed. The factors were then multiplied together. This independent evaluation of the bounds on the acoustic q suggested a range of 0.65–2.8, with a mean of 1.4 and a c.v. of 0.2. As the 90% confidence bounds of q from preliminary MCMC runs extended lower than 0.65 the Working Group agreed to extend the lower bound to 0.1.

83 The prior on natural mortality was determined by assuming that the true value could differ from the current value by about 0.05, and not more than 0.1. Natural mortality was parameterised by the average of male and female, with the difference estimated with an associated normal prior with mean 0.0 and standard deviation 0.05. Penalty functions were used to constrain the model so that any combinations of parameters that did not allow the historical catch to be taken were strongly penalised. A small penalty was applied to encourage the estimates of year class strengths to average to 1.

Basecase runs and sensitivity tests

84 The Working Group considered a number of alternative assessments and agreed on the two basecase runs described in Table 8. In recent stock assessments of SBW the estimates of current biomass have been driven to a large extent by the estimate of the 4+ (adult) acoustic q . In the 2002 assessments of the Bounty and Pukaki stocks estimated values for the 4+ acoustic q were considered to be unrealistic by the Working Group and runs with q fixed (or with informed priors) were used instead. Therefore, in basecase 1 the 4+ acoustic q was estimated with an uninformed (uniform-log) prior. In the second basecase the 4+ acoustic q was estimated with an informed (lognormal) prior as described earlier. In both cases natural mortality was estimated within the model.

Table 8: Model run labels and descriptions for the basecase and sensitivity runs.

Model label	Description
Basecase 1	Basecase model with uniform-log q , M estimated in the model, lognormal error structure, and selectivity estimated for ages 2–4 for both sexes.
Basecase 2	Basecase model with lognormal q , M estimated in the model, lognormal error structure, and selectivity estimated for ages 2–4 for both sexes.

85 For each model run, MPD fits were obtained and qualitatively evaluated. MCMC estimates of the median posterior and 90% credible intervals are reported for virgin biomass, B_{2002} , and B_{2002} (as $\%B_{1991}$). B_{1991} was chosen as a reference threshold biomass because this biomass was the lowest observed and subsequently gave rise to good recruitment and stock recovery. As such, the WG agreed that it can be regarded as a safe threshold; future management should aim to keep the biomass above this level.

Results

86 The estimated MCMC marginal posterior distributions for spawning stock biomass by year are shown for the two basecases in Figures 1 and 2, and are summarised in Table 9. The population trajectories are very similar for both basecases. The main difference between them lies in the median estimates of current biomass, and the bounds on the biomass estimates since the mid 1990s. In basecase 1, q was estimated as 0.99, whereas in basecase 2, q was estimated as 1.24.

87 Both runs suggest that the stock biomass showed a steady decline from the early 1980s until 1993 followed by a large increase to 1996, and a slight decline thereafter. The 1991 year class still makes a large contribution to the commercial catch (especially by weight), and has been joined by the 1995, 1996, and 1998 year classes, all of which also appear to be moderately strong (Figure 3). (Note that the year class strength estimates are almost identical between the two models, so only one of them is shown here.)

Table 9: Bayesian median and credible intervals of B_0 , B_{2002} (in '000 t), and B_{2002} as a percentage of B_{1991} for the reference cases. Median estimates of M and the adult 4+ acoustic q are also provided.

Model run	B_0	B_{2002}	B_{2002} ($\%B_{1991}$)	M	q
Basecase 1	242 (205–308)	109 (60–216)	234 (145–373)	0.20	0.99
Basecase 2	238 (199–285)	85 (54–137)	205 (134–309)	0.17	1.24

Figure 1: Estimated posterior distributions of biomass trajectories for the Campbell stock for basecase 1.

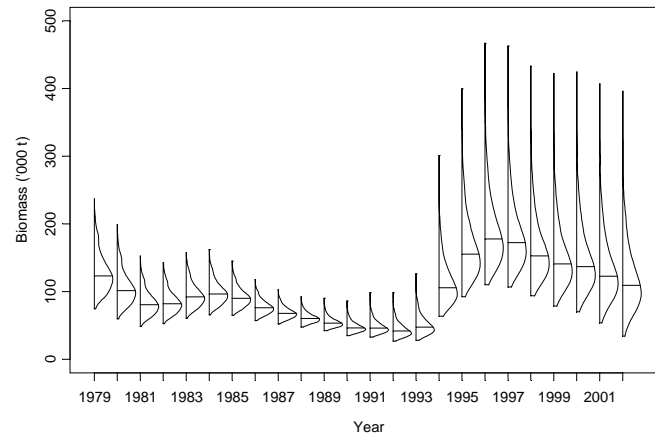
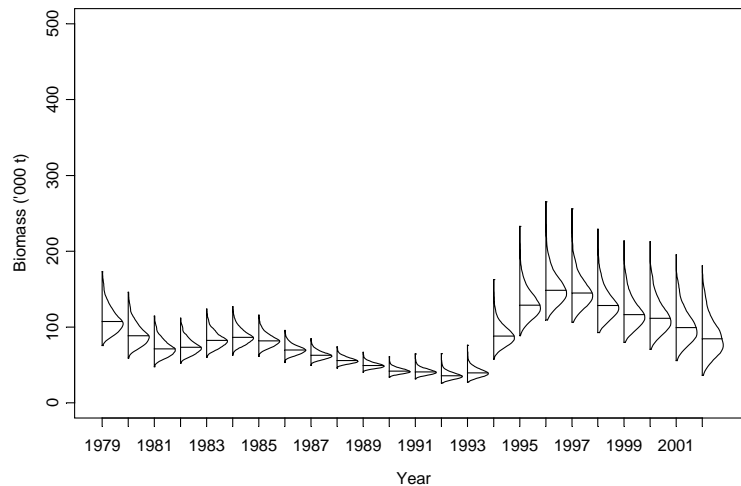
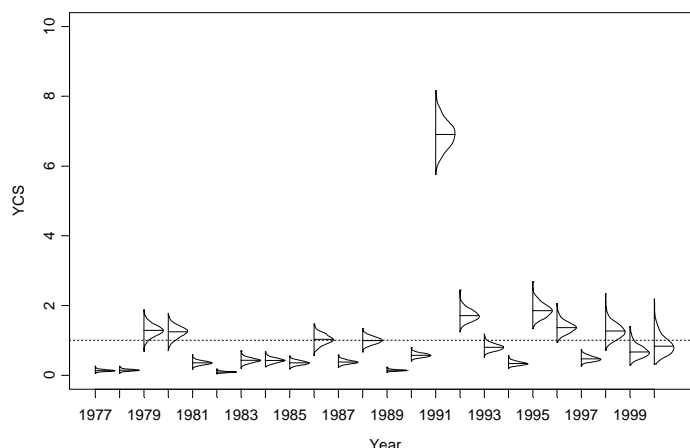


Figure 2: Estimated posterior distributions of biomass trajectories for the Campbell stock for basecase 2.



88 Sensitivity runs were made for a number of cases with M fixed at 0.2; using a multinomial error structure for the age data, having maturity in the partition, and freeing up the age 5+ selectivity for females made little difference to the results. When M was fixed in the model, median estimates of current biomass were slightly higher for both basecases.

Figure 3: Estimated posterior distributions of year class strengths for the Campbell stock for basecase 1.



89 Projections were made assuming fixed catch levels from 10 000 to 30 000 tonnes per year using the MCMC samples, and assuming the TACC of 25 000 tonnes will be taken in 2003–04. Recruitments were drawn randomly from the distribution of year class strengths estimated by the model over the period 1977 to 2000. The probability that the mid-season biomass for the specified year will be less than the mid-season biomass in 1991 is given for the two basecase runs in Table 10. The probability of dropping below the threshold biomass reaches the 10% level by 2005 at catches of about 15 000 tonnes (basecase 1) or 10 000–15 000 tonnes (basecase 2).

Table 10: Probability that the projected mid-season vulnerable biomass for 2004 and 2005 will be less than the mid-season vulnerable biomass in 1991, and the median projected biomass as a% B_{1991} , for different constant catch levels for the two basecase runs for the Campbell stock, assuming a 25 000 tonne catch in 2003.

Constant catch (t)	Year	Probability ($B_{proj} < B_{1991}$)		Median biomass as % B_{1991}	
		2004	2005	2004	2005
Basecase 1					
10 000		0.08	0.07	200	217
15 000		0.09	0.10	196	202
20 000		0.09	0.13	191	187
25 000		0.11	0.18	185	173
30 000		0.12	0.24	180	157
Basecase 2					
10 000		0.13	0.09	166	181
15 000		0.15	0.16	160	164
20 000		0.17	0.26	155	146
25 000		0.21	0.34	149	130
30 000		0.23	0.43	144	113

Other yield estimates and stock assessment results

90 As an alternative to the CAY estimates, the results have been presented in the form of decision tables. In the Campbell assessment the probability of biomass remaining above a reference year (1991) is presented for alternative catch levels from 10 000 to 30 000 tonnes (Table 10).

STATUS OF THE CAMPBELL ISLAND STOCK

- 91 A new assessment is available for the Campbell Island Rise stock. No new assessments are available for the Bounty Platform, Pukaki Rise, and Auckland Islands stocks. The years given in this section refer to the August-September spawning/fishing season.
- 92 The model indicates that biomass in 2002 was more than double the biomass in the reference year (1991). This year was chosen as a reference threshold biomass because biomass in 1991 was the lowest observed but gave rise to good recruitment and subsequent stock recovery. The very strong 1991 year class persisted in the fishery in 2002 but above average recruitment also entered the fishery from the 1995, 1996, and 1998 year classes. The TACC was reduced to 25 000 tonnes from 1 April 2003; at catches at this level the biomass is projected to decline (Table 10).

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SOUTHERN BLUE WHITING (SBW 6I) – FINAL ADVICE

Overview

- 1 In the Initial Position Paper (IPP) circulated to stakeholders on 22 January 2004, MFish proposed that the Total Allowable Catch (TAC) for the Southern Blue Whiting fishery in the Campbell Island Rise area (SBW 6I) be reduced from 25 000 to 20 000 tonnes. This position was based on information presented in the fishery assessment plenary report that indicated there was an 11% - 21% probability (depending upon assumptions used in the research assessment), that continued harvest in the 2004-05 fishing year at 25 000 tonnes would lead the stock to decline below the reference biomass level. The reference biomass in this case is the lowest known previous stock level for the SBW 6I fishery, from which the fishery subsequently recovered.
- 2 Submissions from industry have noted three principal areas of concern with this advice:
 - a) Uncertainty in the assessment;
 - b) Socio-economic impacts of the proposed reduction in harvest;
 - c) Additional information forthcoming from a planned SBW 6I research survey in 2004.
- 3 Detailed analyses of industry submissions are contained in the body of this document. Further consideration of these submissions has resulted in the development of a second MFish proposal to retain the TAC at 25 000 tonnes for the 2004-05 season. A summary of the options and key supporting rationale is outlined below.

Option 1 – reduce the SBW 6I TAC to 20 000 tonnes

- MFish considers that the option to reduce the TAC to 20 000 tonnes remains valid. While there is uncertainty in the assessment, it remains the best available information concerning sustainability of the fishery. The stock assessment indicates that the biomass of the SBW 6I fishstock is likely to decline in 2004 at the present TAC of 25 000 tonnes.
- You are obliged to move the biomass of stocks managed under s 13 of the Fisheries Act 1996 to levels at or above the level that would support the maximum sustainable yield (MSY).
- The stock assessment does not contain reference to the MSY or the stock size to support it. There is therefore uncertainty about the relationship of the SBW 6I stock size to legislative target levels. Based on available information, the long-term harvest level of the fishery is likely to be between 15 000 and 20 000 tonnes, under a strategy that aims to maximize catch over time (current annual yield or CAY).
- Subsequent analysis of the current assessment results by MFish suggests that the stock may be above or slightly below the size that would support the long-term maximum average catch (maximum average yield or MAY). However, this information has not been reviewed by the working group, and should be treated

with caution.

- MFish considers that there is justification for moving the TAC towards the likely long-term sustainable yield in the fishery. Option 1 provides the opportunity for the catch to be reduced incrementally towards the long-term yield. Incremental reduction has the potential to avoid the potentially more severe socio-economic effects associated with a greater reduction as might be required if no action is taken until 2005.

Option 2 – defer a catch reduction and retain the TAC at 25 000 tonnes

- Industry submissions strongly support deferral of a TAC reduction in 2004 on the basis of adverse socio-economic impacts arising from lower anticipated harvest revenues and underutilization of harvest capacity associated with the proposed 5 000 tonne cut in the SBW 6I TAC. Industry also notes that the levied cost recovery for a stock survey in 2004 becomes uneconomic at the lower TAC.
- MFish does not consider that retaining the current TAC will place the stock at risk in relation to your legislative obligations (moving the stock size to or above the level that would support the MSY) over the coming 2004-05 fishing year. However, current information suggests that the risk increases in subsequent years if the TAC is not reduced.
- Management options can be reconsidered for the following 2005-06 SBW fishing year. Importantly, that reconsideration will have the benefit of the results of a new acoustic biomass survey scheduled for completion in 2004. The survey will provide an updated estimate of biomass present in the fishery area, and might remove some of the uncertainty around the current state of the SBW 6I stock and the available catch. That new information will allow the risk to the stock from existing catch levels to be re-evaluated. MFish will work with the stock assessment working group to incorporate information from this survey for decisions applicable to the 2005-06 fishing year.

Preferred recommendation

- On balance, given the near-term risk to the stock, the anticipated availability of new information, your ability to act on current or new information in 2005, and the adverse socioeconomic impacts arising from a TAC reduction, MFish's preference is to defer the proposed TAC reduction for this year as proposed in Option 2. MFish considers that Option 1 is a more cautious approach in light of the stock assessment.

Management options for consideration

- 4 MFish proposed in the Initial Position Paper (IPP) the following management actions:
- a) a staged response to the current assessment, whereby the Minister would:
 - i) reduce the TAC and TACC for SBW 6I for the April 2004 – March 2005 fishing year to 20 000 t;
 - ii) consider a further reduction of the TAC and TACC for the April 2005– March 2006 fishing year, to be informed by updated information, including that from industry acoustic surveys and data from the 2003

and 2004 fishing seasons (after review by the relevant working groups);

- b) set zero allowances within the TAC for customary Māori and recreational fishery interests, and for other sources of fishing-related mortality - the TAC would therefore equal the TACC.
- 5 Stakeholders' submissions on the IPP proposals are summarised under relevant headings below, and copies of the full texts of submissions are provided in Appendix One to this final advice paper.
- 6 MFish has considered stakeholders' submissions regarding economic impacts, uncertainties in the stock assessment, and cost-effectiveness of the research methodology. In light of issues raised, and further evaluation of the available stock assessment results, an alternative management option is proposed as the MFish preferred option. That alternative is to retain the SBW 6I TAC and TACC at 25 000 tonnes for the 2004-05 season, and defer changes in the current TAC and TACC, pending the results of the 2004 research acoustic survey of this fishstock.
- 7 The alternative 25 000 tonne TACC option is discussed in detail in this final advice, following the summary of stakeholders' submissions, and MFish response to these submissions.

Submissions on the IPP management option

Rationale for TAC and TACC

Submissions

- 8 **Aurora Fisheries Limited** (Aurora) submits that the TACC should remain at 25 000 tonnes for 2004-05. Aurora submits that it has gained considerable operating experience in the southern blue whiting fishery since 1991. Aurora notes that there "is nothing to suggest from our own CPUE (*catch per unit effort* – MFish insertion) data or size composition that the stock isn't anything but robust". Aurora's submission notes the uncertainty surrounding the setting of TACCs for southern blue whiting.
- 9 The **Hoki Fishery Management Company Ltd** (Hoki Company) submission is made on behalf of quota holders in the southern blue whiting fishery, after consultation with them and the New Zealand Seafood Industry Council (SeaFIC). It submits that it is not prepared to support the IPP proposal for a reduction of 5 000 tonnes to the TAC/TACC for SBW 6I for the 2004-05 year.
- 10 The Hoki Company submits that it is "a little uncomfortable" with the stock assessment used to support the IPP proposals. The submission raises doubts about the assessment, and notes that the assessment suggests the stock is declining due to a lack of strong year classes recruiting into the fishery since the early 1990s. However, the submission also notes that the reported assessment reveals little evidence of the "moderately strong" 1995, 1996, and 1998 year classes having any effect on the estimated and predicted biomass trajectories.

- 11 The submission proposes that a reasonable conclusion from the time series of (research) acoustic surveys since 1995 is that there is no indication of any decline in stock size since 1995. Given those results, the Hoki Company submits the view that a TACC of 25 000 tonnes for 2004 poses no threat to the sustainability of the resource. It is also submitted that there is no reason for a further reduction to the TACC for 2005.
- 12 The Hoki Company also submits concerns about the omission from the 2002 biomass estimate of information from the spawning ground in the eastern part of SBW 6I that was located in 2002. The submission notes that the omission was based upon an analysis that revealed inclusion of acoustic survey data from that stratum would only make a 2.5 % biomass difference to the assessment. The Hoki Company submits that a single vessel took over 4 000 tonnes from the eastern fishery even before the nominal spawning aggregation events occurred, and a further 1 000 tonnes during the spawning season. The submission suggests, therefore, that there must have been a very substantial body of fish present.
- 13 The submission notes further that it would have been unlikely that the fish in the eastern spawning fishery subsequently would have moved into the main north or south Campbell aggregations and been assessed there. The Hoki Company submits its belief, therefore, that the 2002 (research) acoustic survey missed a large body of fish, and notes that it is unfortunate that the 2003 industry acoustic survey is not able to clear up the issue of the eastern spawning biomass.
- 14 **Sanford Limited** (Sanford) notes that it is a shareholder in the Hoki Fishery Management Company Ltd, and that it supports that company's submission to oppose the proposed reduction of the SBW 6I TAC/TACC from 25 000 tonnes to 20 000 tonnes for the 2004-05 year.
- 15 Sanford submits its support for the Hoki Company's submission. Sanford notes that historical catch levels confirm the inconclusive and inconsistent results from previous years' surveys. Sanford also notes that the reasons for fluctuations in historical catch levels are not considered to be sustainability concerns.
- 16 Sanford submits that fisheries management decisions should be based on good science, and that all science should flow through a transparent peer review process such as the Fisheries Assessment Working Groups. Sanford's submission further is that the science should then flow through to an IPP to be discussed at a plenary, before developing final advice. Sanford submits that the science provided for the SBW 6I IPP proposal requires urgent review, and that, in the interim, the TACC should remain at 25 000 tonnes for the 2004-05 year, as catch levels are sustainable.
- 17 **Sealord Group Limited** (Sealord) submits its recommendation that there should be no change to the SBW 6I TACC for the 2004 year, and that the catch level be maintained at 25 000 tonnes.
- 18 Sealord submits its recommendation that no change be made to the SBW 6I TACC for the 2004 season, and the catch level be maintained at 25 000 tonnes. Sealord supports its recommendation by noting that the current stock is well above the threshold level of the 1991 biomass, and that the stock trajectory is still uncertain. Sealord submits that it does not want to be in the situation of losing 5 000 tonnes of TACC in the

critical year of 2004 then increasing it again in 2005 or 2006 when it is realised that the stock was in a more robust state than the assessment projected.

- 19 Sealord submits that although the assessment indicates a small probability of the stock declining below the 1991 level, it does not believe that the additional 2 % risk of maintaining the TACC at 25 000 tonnes is sufficient to warrant a further reduction to the TACC for the coming season.
- 20 Sealord notes that the 1991 year class still made a large contribution to the catch in 2003 and has been joined by the 1995, 1996 and 1998 year classes, which also appear to be above average strength. Sealord comments that it is also very notable that in the 2002 Acoustic survey by *Tangaroa*, the 2001 year class was identified as being the strongest ever recorded (NZFARD 2003/44, September 2003). This year class showed up significantly in the 2003 catch during September, and is the first time in the past two decades that fish of this size (25-30 cm) have appeared in the commercial catch in such abundance. Sealord submits that this year class could be the strongest ever recorded in the stock, and, if so, will significantly increase the stock over the next few years. Sealord notes that this has not been taken into account in the current projections, as the fish are still only two years old.
- 21 Sealord notes the industry acoustic surveys that were undertaken for the Hoki Company in association with NIWA during September 2003, and the invitation to industry to present relevant findings as part of the consultation process once reviewed by the appropriate working group. Sealord notes that the Working Group met on February 23 to review the information from the 2003 season, but there was not sufficient time to undertake any assessments using the survey results.
- 22 The company submits its view about important issues arising from these results, and notes its previous comments on the problems with acoustic surveys on southern blue whiting, especially in 2002 when a large aggregation was fished outside the normal fishing (and survey) area. Sealord notes its conclusion after 17 years' experience in this fishery, is that acoustic surveys count **“some of the fish some of the years, potentially all of the fish some years, but not all of the fish all of the years.”**
- 23 Sealord notes that in the 2003 industry acoustic survey, a northern aggregation surveyed (by *Aoraki*) extended to the east of the traditional survey area, but not as far east as where fish were located in 2002. Significant quantities of fish were not located in that far east area in 2003, although exploration was done only for a few hours in early September, and more time could not be invested in trying to locate this eastern aggregation. Sealord notes that the spawning season in 2003 was quite late, with spawning beginning on about 16 September, compared with early September the year before. Sealord's view is that it is highly likely that this aggregation formed up later in the 2003 season, and hence was not surveyed.
- 24 Sealord notes that it is of interest in 2003 that the biomass estimate in the northern area was 34 000-63 000 tonnes compared with the 15 000-21 000 tonnes found in the acoustic survey of 2002. This northern aggregation was surveyed at the peak of spawning, when the fish are tightly aggregated. The size of the southern aggregation is less certain, as it was surveyed prior to spawning. The vessels that were fishing here had to return to port to unload, and none were fishing at the time the aggregation would have spawned, so we do not know how many more fish would have joined.

- Sealord notes that the Working Group has discussed these results, but has not agreed how a minimum biomass estimate can be used in the assessment at this stage.
- 25 Sealord submits that it is abundantly clear now that when the acoustic marks from the far eastern area in 2002 and 2003 are compared, there was a very large biomass in 2002, in excess of 40 000 tonnes, that has not been taken into account in the current assessment.
- 26 **Te Ohu Kai Moana (TOKM)** submits that it reserves its position, and is not prepared to support or negate the IPP proposal for a reduction of 5 000 tonnes in the TAC/TACC levels for the SBW 6I fishery for the 2004-05 year.
- 27 TOKM submits that, in light of the 2003 Plenary Report assessment of the SBW 6I fishery, it would at first glance be inclined to support, on sustainability grounds, a further reduction in the TAC/TACC levels for 2004-05 as proposed in the IPP. However, it notes that it is “more than a little uncomfortable with the assessment as reported”. That discomfort is submitted to stem from the little evidence for the allegedly “moderately strong” 1995, 1996, and 1998 year classes having had any significant effects on the predicted biomass trajectories. TOKM submits that the data available (at the time of its submission, prior to the working group’s review of 2003 industry acoustic survey data) did not allow a clear picture to be obtained on the state of the SBW 6I stock.
- 28 TOKM submits further that it finds it difficult to accept that the “newly located eastern Campbells’ spawning ground”, which yielded a catch of around 5 000 tonnes to one vessel during 2002-03, should have been excluded from the assessment. TOKM notes the reported reason for the exclusion being that acoustic survey data from the stratum suggested that inclusion would only make a 2.5 % biomass difference to the assessment. TOKM’s view is that if one vessel could take over 4 000 tonnes from the eastern fishery before the nominal spawning aggregation events, and a further 1 000 tonnes during spawning, then there must have been a very substantial body of fish present when the vessel fished. TOKM submits that, unless it is assumed that the survivors of the far eastern fishery moved into the main north and south Campbell aggregations and were assessed there (not commented on in the Plenary Report), the catch data suggests that the research acoustic survey (in 2002) missed a large group of fish.
- 29 TOKM submits that the results of the 2003 industry acoustic survey could settle the above doubts. Its submission notes its desire to see a summary of the 2003 data before expressing a firm view on whether or not to support the IPP proposal for 2004-05. No further submission from TOKM to update its views now that the 2003 survey data has been reviewed by the working group, has been received.
- 30 **Te Runanga o Otakou** submits its support for the submission by Te Runanga o Ngai Tahu, but provided no further detail in its submission. MFish notes that no submission was received from Te Runanga o Ngai Tahu.

MFish discussion

- 31 MFish notes the submissions that describe submitters as being ‘uncomfortable’ with the current stock assessment, as reported, for various reasons. The status of the

assessment and MFish's response to submissions is provided in the following paragraphs.

- 32 The current stock assessment and stock status are reported in the *Report from the Fishery Assessment Plenary, May 2003: stock assessments and yield estimates* (Annala et al. 2003). The Report is produced after in-depth scientific review through the recognised process of Fishery Assessment Working Group review and the annual Plenary session. The Working Group and Plenary sessions consider three sources of information – “Draft Reports” tabled at meetings, formal Draft Fisheries Assessment Research Documents (FARDs), and additional data and contributions provided by MFish staff, science providers, and stakeholder representatives. The purpose of the process is to provide objective and independent review of the stock assessments presented, and to reach consensus on the current state of fish stocks. Given that rigorous process for review and consideration of data and views from scientific and stakeholder sources, MFish considers that the Plenary Report contains the best available scientific information on stock assessment and status for SBW 6I at this time.
- 33 Counting fish in the marine environment is a difficult task, and any estimate of biomass and stock assessment will have a degree of uncertainty. The information principles of the Fisheries Act 1996 (s 10) require that decisions consider any uncertainty in the available information, and that decision makers should be cautious when information is uncertain, unreliable, or inadequate. While MFish recognises the uncertainties in the current SBW 6I assessment, it remains the best available information on which to base management decisions.
- 34 Submissions question the assessment predicting a declining stock due to the absence of strong year classes recruiting into the fishery since the early 1990s, and note that the assessment reveals little evidence of the moderately strong year classes in 1995, 1996, and 1998 having any effect on the estimated and predicted biomass trajectories.
- 35 MFish notes that the recent yields from the fishery have been largely dependent on the very strong 1991 year class (more than six times the average estimated year class strength). In contrast, the moderately strong year classes in 1995, 1996, and 1998 were much closer to the mean year class strength (no more than twice the mean). MFish proposes that the effect of those moderately strong year classes is indeed reflected in the modelled biomass trajectories, by slowing the decline that would otherwise have been predicted. Without the 1995, 1996, and 1998 year classes, the biomass would probably have declined more rapidly under the levels of catch taken.
- 36 It is also clear from the notable strength of the 1991 year class that it is unlikely to sustain the fishery over the longer term at catches of 25 000 to 30 000 tonnes. MFish suggests that catches at those levels were supported by the exceptional recruitment from the 1991 year class, and that the likelihood of future recruitment at that level is unknown and cannot be relied upon.
- 37 MFish notes the Hoki Company submission that it is a reasonable conclusion from the time series of acoustic survey biomass estimates (refer to Table 6 in Appendix Two of the IPP) that there is no indication of any decline in stock size since 1995. A matter to note in response is that the acoustic survey biomass estimate in 2002 was characterised by considerable uncertainty (a CV of 68 % compared with previous

survey CVs of 17 to 36 %). The 2002 estimate was used in the model, so there is uncertainty about whether or not the modelled biomass projections using it are optimistic or pessimistic. It should be noted, however, that the stock assessment model also uses the population age structure for SBW 6I determined from the fishery (by scientific observer sampling). The changes in age structure inform the model's prediction that the stock is declining at current catch levels.

- 38 Submitters also raise doubts about the current assessment because of purported failings in the past acoustic surveys to include all areas where the fish might have been distributed, and the failure to include information from the spawning aggregation discovered (and from which a substantial catch was taken) in the eastern part of SBW 6I in 2002.
- 39 MFish notes that the Plenary Report discusses the acoustic estimate from the eastern aggregation. The reason for not including that information was to maintain consistency with the spatial coverage of previous surveys. The research acoustic surveys provide estimates of relative abundance, and it is important that consistency is maintained to maintain the relativity of estimates.
- 40 MFish notes that the precise relationship between the aggregation discovered in the eastern area in 2002 and the 'traditional' fishing/spawning areas within SBW 6I cannot be determined from available information. However, MFish notes that the area had been explored before, and briefly in 2003, without finding aggregations of fish. There is no information to support Sealord's contention that it is "highly likely" that the far eastern aggregation would have formed up later in the 2003 season.
- 41 As submitted by Sealord, the Working Group discussed the results of the 2003 industry acoustic survey, but agreed that the biomass estimate from that survey could not be used in the formal assessment. It was clear from the Working Group discussion of the 2003 industry survey results, however, that the 2003 biomass estimate is considered to be a minimum estimate, but is consistent with the modelled stock biomass trajectories.
- 42 Sealord submits that there is no reason to reduce the TACC for the 2004 season because the stock trajectory is uncertain and the biomass is well above the 1991 threshold level. It should be noted that the 1991 biomass level is the lowest biomass observed, yet it gave rise to good recruitment and subsequent stock recovery. For that reason, it has been accepted as a safe threshold level, and management should aim to keep the biomass **above** the 1991 level, rather than fish it down towards that level. The stock assessment provides information about the respective risk of falling below the threshold 1991 biomass level associated with different levels of catch in the 2004 and 2005 seasons (Table 1 in the IPP, reproduced below).

Table 1: Probability that the projected mid-season vulnerable biomass for 2004 and 2005 will be less than the mid-season vulnerable biomass in 1991, and the median projected biomass as a% B_{1991} , for different constant catch levels for the two basecase runs for the Campbell stock, assuming a 25 000 tonne catch in 2003.

Constant catch (t)	Probability ($B_{proj} < B_{1991}$)*		Median biomass as % B_{1991} *	
	2004	2005	2004	2005
Basecase 1				
10 000	0.08	0.07	200	217
15 000	0.09	0.10	196	202
20 000	0.09	0.13	191	187
25 000	0.11	0.18	185	173
30 000	0.12	0.24	180	157
Basecase 2				
10 000	0.13	0.09	166	181
15 000	0.15	0.16	160	164
20 000	0.17	0.26	155	146
25 000	0.21	0.34	149	130
30 000	0.23	0.43	144	113

* extracted from "Report from the Fishery Assessment Plenary, May 2003: stock assessments and yield estimates" (Annala *et al.* 2003)

- 43 The Plenary Report notes that the probability of dropping below the threshold level reaches 10 % (a value used for purposes of comparison) by 2005 at catches of about 15 000 tonnes (basecase 1) or 10 000 to 15 000 tonnes (basecase 2). A reduction in the TAC to about 15 000 tonnes would provide greater certainty that the management objective of remaining above the 1991 threshold would be achieved. However, the IPP proposal already takes into account that there is uncertainty in the assessment and substantial economic implications of a TAC reduction to 15 000 tonnes for 2004. The proposal was to reduce the TAC to 20 000 tonnes for 2004 as part of a phased reduction, with a further reduction to be considered for 2005, and informed by new information available this year. The management risk associated with the IPP proposal reaches 26 % (basecase 2) in 2005, significantly above the 10% threshold risk level, if catches were to be maintained at 20 000 tonnes in that year.
- 44 Submitters note that there is only a 2 % greater risk (11% as opposed to 9%) of retaining the TAC at 25 000 tonnes, rather than reducing it to 20 000 tonnes. As is evident from Table 1 above, that represents only the risk estimated from basecase 1. The risk under basecase 2 assumptions is greater – 21% risk in 2004 rising to 34% in 2005. MFish acknowledges that the relative difference between the levels of risk in the first year is small, and this will be evaluated later in this advice paper.
- 45 Sealord comments that the 2001 year class was identified as being the strongest ever recorded in acoustic surveys by *Tangaroa*. However, acoustic surveys have only surveyed 6 separate year classes at 1 year old and the extremely strong 1991 year class was not surveyed when 1 year old. The strongest year class previously surveyed at 1 year of age by the acoustic series was the 1997 year class (1 year old in 1998) and this has proved subsequently to be below average strength. The assumption in the model is that the 2001 year class is of average strength. Even this may be optimistic as the acoustic indices of 1 year old SBW have proved unreliable as an indicator of year class strength, having high CV and fitting poorly in the model.

Social, cultural, and economic factors

Submissions

- 46 No submissions directly relating to social or cultural issues were received. Submissions on economic implications are summarised below.
- 47 **Aurora** submits that a reduction of the TACC for 2004-05 to 20 000 tonnes will have a significant economic effect on the industry. The submission notes that the 2004 research acoustic survey will be charged to the following levy year.
- 48 The **Hoki Company** submits that the subdivision of the SBW fishery into four areas at its introduction into the QMS effectively made two of these areas uneconomic (SBW6A – Auckland Islands and SBW 6R – Pukaki Rise). The reduction in the TAC/TACC last year for SBW 6B has created a similar situation there, and it will now be impossible to do large-scale acoustic surveys as they will be too expensive relative to the value of the fishery.
- 49 The Hoki Company submits that this effectively leaves a single fishery (SBW 6I) that has any significant TACC, but that MFish is now proposing a cut for 2004-05 in this stock, and possibly a further reduction in 2005-06. Given that this fishery supports a number of factory trawlers that operate in the middle-depth fishery for the months of September and October, the Hoki Company submits that it is essential that the TACC in this fishery (SBW 6I) remains at 25 000 tonnes to ensure that the industry has a small chance of keeping the middle-depth fleet economic over the next 24 months.
- 50 Initial indications from the key hoki indicator surveys conducted by NIWA (Subantarctic and Chatham Rise) suggest that the hoki fishery may also suffer a substantial TAC reduction in 2004-05. Should this occur, and be added to a significant reduction in the SBW 6I fishery, the Hoki Company submits that the impact on the middle-depth fishery will be severe, with significant job losses and fleet reduction.
- 51 **Sealord** submits that it has made major investments in the southern blue whiting fishery over the past 15 years, to develop a viable fishery that can return economic benefits to NZ.
- 52 Sealord submits that it noted last year that if the TACC for SBW 6I were to be reduced it would be unable to bring the *Koyo Maru # 8* (a foreign charter vessel) to New Zealand, because there would be insufficient quota available. The *Koyo Maru # 8* did not come to New Zealand in 2003 because of this TACC reduction. Sealord notes the substantial financial commitment of that vessel into developing year-round catching capability for southern blue whiting, and its location in 2002 of a completely new spawning aggregation in an area never previously fished or surveyed.
- 53 Sealord also notes that it deployed a fillet freezer vessel in the fishery in the 2003 season, which undertook fishing on the Campbell Plateau during September 2003. Sealord notes the significant cost to Sealord of this deployment, done to ensure an acoustic survey could be undertaken.
- 54 The submission points out that the NZ Seafood Industry is in a very difficult financial position at present, caused by the high exchange rate, and the low abundance of hoki.

- 55 Sealord notes that the Hoki Company is discussing a range of new measures to improve and rebuild the hoki fishery. Currently catch rates for the factory trawler fleet have fallen to a very low level. The submitted Sealord view is that it will need to have further substantial catch reductions this year, and consideration of closed areas and seasons. Sealord submits that it is because of this that southern blue whiting now becomes critical to the future economic viability of the New Zealand factory trawler fleet. Sealord notes its intention to deploy a number of factory trawlers in the September southern blue whiting fishery this year, possibly including the Sealord vessels *Paerangi*, *Aorere*, *Rehua*, and *Aoraki*.
- 56 However, Sealord submits that if it deploys those vessels, with a reduced southern blue whiting TACC, there will be insufficient quota available for the company's Ukrainian fleet. That fleet is an important component of Sealord's business and it requires southern blue whiting to balance out the fishing year in squid and hoki. Sealord notes that if it could not provide this in 2004, it would be unable to hold the vessels for the squid fishery. However, should the TACC for SBW 6I be maintained, it will be able to deploy its factory trawlers in this fishery, and undertake a substantial acoustic survey programme, potentially in association with NIWA.

MFish discussion

- 57 MFish notes the dual purpose of the Fisheries Act 1996 as being to 'provide for the utilisation of fisheries resources while ensuring sustainability' (refer to the 'Statutory considerations' section of the IPP). The Act defines 'utilisation' as "conserving, using, enhancing, and developing fisheries resources to enable people to provide for their social, economic and cultural wellbeing".
- 58 The economic issues raised in submissions are utilisation issues that are not new to the fishery. However, the concerns have intensified because of measures proposed to ensure sustainability. Reducing the potential output from a fishery below a certain level can have the effect of rendering the fishery uneconomic. Overcapitalisation can occur if existing catching capacity (vessels owned, operated, or chartered) exceeds the requirement of a fishery at a reduced output level. Research costs required to optimise yields from a fishery over time via a current annual yield (CAY) harvest strategy (as employed in SBW 6I) can contribute to this situation, as noted by submitters.
- 59 Longer-term solutions to these issues will need to be developed with stakeholders via stock strategies or by stakeholders through fishery plans. Further discussion of future management is provided under that heading below.
- 60 Although those steps can be taken to improve management in the future, the utilisation problems noted in submissions need to be addressed for the current year, if that is possible without compromising the fishery's sustainability. MFish also advises that industry concerns over excess fleet capacity not be viewed strictly in the context of TACC-related constraints. To the extent long term excess capacity exists within the SBW or other fisheries, industry bears responsibility for addressing such matters beyond solutions requiring higher TACC levels set for these fishstocks. Discussion of an alternative management option to address these matters is provided after the full consideration of submissions below.

Environmental considerations

Submissions

61 No submissions dealing with environmental considerations were received.

MFish discussion

62 The IPP provides discussion of environmental considerations and associated statutory obligations.

Future management

Submissions

63 **Aurora** submits that the science programme, in its present form and cost, is unsustainable. The submission notes previously-stated concerns about the reliance on a single vessel acoustic survey as the basis for establishing the TACC, and proposes that there should be a review of alternative models (and their relative cost) for setting TACCs in the fishery.

64 The **Hoki Company** submits that it would be more efficient and cost-effective to undertake an industry-based acoustic survey using two to three vessels this year rather than using the Tangaroa (NIWA vessel). The differential in cost would be in the order of \$250 000 (for the industry-based survey), versus \$1 600 000 (using a NIWA vessel). The economics of this particular fishery do not justify the use of a Tangaroa survey, particularly when the same scientific staff (from NIWA) would likely be used in the industry survey.

65 **Sealord** submits that last year it requested a delay in the setting of any TACC until June 1 2004 to allow the working group to discuss the results from 2003. Sealord notes that MFish would not allow this, preferring to rely on assessment information from only 2002 to reach a decision. Sealord submits that MFish's approach to management of southern blue whiting appears much more concerned with meeting the timetable of staff in NIWA and MFish, and paying lip service to the principle of using the best available information for responsible management of the fishery in the interests of New Zealand.

66 Sealord submits that it does not support the current proposal for a 2004 scientific acoustic survey by NIWA as the cost is excessive in the current commercial environment. However, Sealord submits that if the survey goes ahead, it understands that any contract will not specify that results must be provided for review by the Working Group prior to any TACC decision for the 2005 season. Sealord notes that it does not accept this as being reasonable, and suggests that there are service providers available that could complete the assessment in sufficient time (including NIWA) to allow consideration of information from the 2004 season.

67 **Sanford** submits that fisheries management decisions should be based on good science, and that all science should flow through a transparent peer review process, such as the Fisheries Assessment Working Group (FAWG) process. The process should then flow to an Initial Position Paper including the updated science from the

FAWG and then discussed at a plenary, before a Final Advice Paper. This includes both industry and stakeholder scientific research.

- 68 Sanford submits further its concern with the overall management and process in establishing the SBW TACC. Sanford believes that the acoustic surveys used for setting the SBW TACC are not the most cost-effective method available, because the reliance of one vessel to undertake the estimate, and the weightings given to the annual surveys, give inconsistent results. Sanford suggests that to provide consistent results, the science process should be reviewed.
- 69 Sanford submits that this should include reviewing industry-initiated and undertaken research to ensure good science is collected, in a cost-effective manner to make management decisions. Further, Sanford submits its concern that the research being undertaken in this fishery is not economically sustainable and asks that future research be centralised between industry and MFish to ensure the best available, cost-effective research is undertaken.

MFish discussion

- 70 MFish notes that many of the issues raised in submissions have been considered previously, and were decided through the 2003 sustainability review.
- 71 In the 2003 review of southern blue whiting fisheries, industry stakeholders rejected the option of managing the fisheries so as to allow for adjustments of the TAC within a season or fishing year.
- 72 The other available option, which received support from some stakeholders, was to delay the use of stock assessment information by one year. The effect is to allow information from an acoustic survey in year one to be developed into a stock assessment in year two, which would provide the best information to inform management decisions that would be in effect for year three. That option was agreed on in order to address the timing constraints associated with MFish's advice preparation processes, and industry's need for forward planning of its catching capacity, given that a substantial component of capacity is sourced via charters.
- 73 MFish also considered the proposal to change the fishing year to a 1 June start. MFish's advice, and the previous Minister's decision, was to retain the 1 April start to the fishing year. Changing the fishing year was considered to have significant costs, and would not improve industry's ability to forward plan its requirements for catching capacity.
- 74 MFish notes that industry stakeholders have supported a CAY strategy for SBW 6I (although not supported for the stocks where catch limits are smaller). MFish has also supported a CAY strategy since it provides for sustainable yields to be maximised over time in response to natural variability in the stock's biomass. To deliver a CAY strategy, there must be ongoing assessments of stock size and yield. The strategy for SBW 6I includes updated acoustic surveys and revised stock assessments every two years, and these will be included in the annual process for developing the required fisheries services. The research acoustic survey for 2004 has been through the prescribed research planning and prioritisation process, and was determined to be a required research service. As such, it has already been through the tender process and

the services are about to be purchased (the final details of survey design and implementation are still being discussed with the provider). MFish considers that the 2004 survey forms an important part of the management regime for SBW 6I, if it is to continue to be harvested according to a CAY strategy.

- 75 Industry submissions also note their views that the current research acoustic surveys are not delivering the best or most cost-effective solutions. Industry stakeholders previously have suggested that greater use could be made of industry vessels, and cost savings delivered. MFish notes that the Working Group has discussed the results of the 2003 industry acoustic survey using industry vessels. While the survey determined that satisfactory results can be obtained from industry vessels (that are equipped with the appropriate acoustic systems), it was also concluded that it was unlikely that coverage of the entire survey area would be possible with industry vessels. Those vessels use hull-mounted acoustic transducers, which cannot achieve the required results in adverse weather conditions, and so limit survey capability. In addition, survey requirements impede commercial fishing activities, and vice versa. The fishing trade-offs that would be required to achieve the survey goals might negate the potential benefits of using industry vessels, and some combined effort between industry and research vessels might be required. In conclusion, a comprehensive acoustic survey using industry vessels has not yet been shown to be a feasible alternative under the existing research and management arrangements.
- 76 As to future management options, MFish's goal is to maximise the value all New Zealanders obtain from fisheries resources. Its primary tool for achieving that goal is to provide fisheries management frameworks that facilitate stakeholder participation in management. Stock harvesting strategies for deepwater stocks are to be developed this year, and will describe the management arrangements that MFish will operate to deliver the stated objectives for a fishery. An alternative framework is provided for stakeholders in a fishery or group of fisheries to develop a fishery plan that details their objectives and management arrangements. Both frameworks will be expected to satisfy the same standards for meeting the obligations under the Act.
- 77 Changes to the management regime for SBW 6I (and other stocks) and the associated delivery of required research services are matters that could be developed under a stock harvesting strategy by MFish in collaboration with stakeholders, or by stakeholders themselves within a fishery plan (subject to Ministerial approval). MFish will develop stock harvesting strategies for southern blue whiting stocks during the course of 2004, and it will be important to work closely with stakeholders to develop management arrangements for the fishery that address the issues and provide the desired outcomes. It is likely that stock harvesting strategies will focus on meeting the Crown's core responsibilities. Should stakeholders desire specific outcomes that extend beyond the Crown's core role, the fishery plan framework is the vehicle through which they can most effectively participate in management and derive their best value from a fishery over time. MFish encourages stakeholders in the SBW fishery to consider and develop a fishery plan in the near future as a means of introducing fine scale management solutions in the SBW fishery.
- 78 MFish notes its advice last year that research services need to be pre-approved by MFish, and to be designed and conducted by approved research providers.

Statutory considerations

Submissions

79 No submissions dealing with specific statutory considerations were received.

MFish discussion

80 Advice on statutory considerations is provided in the IPP.

Other management issues

Submissions

81 Sealord notes that there is no consideration of the Bounty TACC this year, despite its submission last year that the TACC should have been maintained at 8 000 tonnes. Sealord notes that the fishery performed above expectations last year, and that the catch of last season, added to the previous seasons catch, clearly shows that the base case assessment used for this stock was unduly pessimistic. Sealord notes that it was this base case that MFish used to justify the TACC reduction to 3 500 tonnes. Sealord submits that the failure of the MFish Observer Programme to place observers on surimi vessels last season meant that no catch and age data were collected from the fishery.

82 TOKM notes that, once again, MFish has so compressed the consultation period for this document that the date cited for a response does not permit any consultation with Iwi by the Commission. TOKM again records its dissatisfaction at this situation while acknowledging that the responsibility for consultation with all 78 recognised Iwi rests under s 12(1) of the Fisheries Act 1996 with the Ministry.

83 In that context, TOKM reminds MFish that, in terms of the Waitangi Tribunal's Reports (WAI22 and WAI27) on the Muriwhenua Fishing Claim and the Ngai Tahu Sea Fisheries Claim, all Maori via their Iwi have a development right in offshore fisheries such as the Campbell Islands southern blue whiting fishery and, accordingly, a right to be consulted on the management of such fisheries. TOKM notes that, as a result of the lack of consultation time, its submission is limited to the views of the Commission itself.

MFish discussion

84 MFish notes that there was no new assessment information to support a review of the SBW 6B fishery on the Bounty Platform for the April 2004 – March 2005 fishing year.

85 MFish acknowledges that the timetables for developing advice on SBW 6I are tight. MFish notes that the IPP was circulated to such persons or organisations that were representative of persons having an interest in SBW 6I. MFish also notes that it is implementing its strategy for delivering on its obligations under the Treaty of Waitangi, and that improvements in the capacity of Maori to participate in fisheries management are an objective of the strategy.

Consideration of an alternative management option

- 86 Industry submissions outline three main points of concern regarding the IPP proposal, and the information that supports it:
- Uncertainty with the stock assessment
 - Effects on the economics of the fishery
 - Cost-effectiveness of the research methodology.
- 87 In view of the these considerations relating to both utilisation and sustainability concerns, MFish proposes that you consider a second option to retain the SBW6I TACC at the current level of 25 000 tonnes, conditioned with the following understanding.
- 88 MFish considers that the current stock assessment provides the best available information to support your decision on sustainability measures for the SBW 6I fishery for the April 2004 to March 2005 fishing year.
- 89 MFish's view is that the matters raised in submissions do not alter the rationale provided in the IPP for the proposal to reduce the TAC/TACC for SBW 6I to 20 000 tonnes for the 2004-05 fishing year, and to consider a further reduction for 2005-06. The assessment predicts that the stock biomass will decline at a range of catch levels, and that the risk of the biomass falling below the 1991 threshold level reaches 10 % at catches of about 15 000 tonnes (basecase 1) and 10 000 to 15 000 tonnes (basecase 2) in the 2004-05 year. The risks increase in the 2005-06 year unless catches are reduced further.
- 90 In the IPP proposal, MFish took into account the uncertainty within the assessment, and the availability of new information from the 2003 industry acoustic survey to assist with your decision for 2004-05. MFish also considered the balance between sustainability risks and the economic impact of a larger reduction than that proposed. While the results from the 2003 survey cannot be used in the assessment model, they provide confirmation of the assessment model's prediction of 2003 biomass, and do not suggest that there was either more or less biomass available. MFish considers, therefore, that the interpretation of the assessment provided to support the IPP proposal is appropriate, and provides a reasonable basis for your decision.
- 91 However, MFish acknowledges submitters' views regarding the relative risk of failing to achieve the management objective (maintaining the stock biomass above the threshold level) of different TAC levels. Table 1 provides the range of probabilities associated with the various catch levels and basecases. Table 2 below reproduces the values for TAC/TACC levels of 20 000 tonnes as proposed in the IPP, and industry's proposals for maintaining the current TAC/TACC of 25 000 tonnes.

Table 2: Probability that the projected mid-season vulnerable biomass for 2004 and 2005 will be less than the mid-season vulnerable biomass in 1991, and the median projected biomass as a % B_{1991} , for constant catch levels of 20 000 tonnes and 25 000 tonnes for the two basecase runs for the Campbell stock, assuming a 25 000 tonne catch in 2003.

Constant catch (t)	Probability ($B_{proj} < B_{1991}$)*		Median biomass as % B_{1991} *	
	2004	2005	2004	2005
Basecase 1				
20 000	0.09	0.13	191	187
25 000	0.11	0.18	185	173
Basecase 2				
20 000	0.17	0.26	155	146
25 000	0.21	0.34	149	130

- 92 Compared with the IPP proposal, maintaining the TAC/TACC at the current 25 000 tonnes level for 2004 increases the risk from 9 to 11 % (basecase 1) and from 17 to 21 % (basecase 2). MFish acknowledges that the relative increase in risk of between 2 % and 4 % for 2004 could be balanced against the utilisation issues facing industry stakeholders. However, MFish is more concerned about the risk scenario for 2005, should the TAC/TACC be retained at 25 000 tonnes for that season. Table 2 reveals that, while the relative risk increases by between 5 and 8 % if catches of 25 000 tonnes were to be taken in 2005, the estimated risk of falling below the threshold biomass level reaches 34 % (basecase 2). MFish considers that risk to be unacceptable, and would propose that if the TAC/TACC is maintained at 25 000 tonnes for 2004, then a substantial reduction would be required for 2005 in order to reduce the risk to an acceptable level given the present assessment. Interpolation of Table 1 suggests that removing a total of 40 000 tonnes from the stock in the 2004 and 2005 seasons carries a risk of between 13 and 26 % of the stock size falling below the threshold. If that were to be the greatest acceptable risk, and 25 000 tonnes is taken in 2004, then it would be suggested that the TAC/TACC for 2005 be reduced to 15 000 tonnes. Industry stakeholders need to be aware of that possibility.
- 93 Section 13 of the Fisheries Act 1996 prescribes that you shall set the TAC for a stock in order to maintain the stock biomass at, or move it towards or above, the biomass level that would support the maximum sustainable yield (B_{MSY}). MFish notes that the Act (s 13(3)) provides for your discretion when making your decisions about the rate at which to move the stock biomass towards the target level, and that you have the ability to balance utilisation and sustainability issues as noted above.
- 94 The IPP explains that southern blue whiting can experience marked inter-annual changes in recruitment and subsequent biomass levels. The longevity of the species (as much as 25 years) means that recruits to the fishery contribute to the stock biomass for several years, allowing it to be fished down over time. The variability inherent in the stock favours a CAY harvest strategy to enable the maximum yield to be taken over time. The (theoretical) sustainable catch from the biomass available to the fishery each year is determined, and the average of those annual yields (maximum average yield or MAY) approximates the MSY. For those reasons, the available assessment does not specifically refer to a target biomass level that will support the MSY (because it is always changing). However, analysis of the biomass values from

the assessment suggest that the biomass in 2002 was probably above the long-term B_{MSY} , and that it is likely that a TAC and TACC of 25 000 tonnes in 2004 will move the stock biomass further downward towards that B_{MSY} , although at a faster rate of change than if the TAC/TACC was reduced.

- 95 Any increased sustainability risks associated with retaining the 25 000 tonnes TAC/TACC would be mitigated by the new information from the 2004 research acoustic survey. A relative estimate of stock biomass will be derived from that survey, and can be used to inform your decision about whether or not a further reduction in the TAC/TACC for 2005 is necessary for sustainability reasons, and the extent of any reduction. That information will enable you to make a decision to adjust the TAC/TACC for SBW 6I for the 2004-05 season in order to continue moving the biomass towards the B_{MSY} level, and so satisfy your obligations under s 13 of the Act.
- 96 MFish proposes that, should you decide to set the TAC/TACC for 2004-05 at the current 25 000 tonnes level, you make a decision in principle to reduce the TAC/TACC for the 2005 season. Your decision in principle would be informed by the best available information, which is the current stock assessment. MFish proposes further that you would make a final decision for the 2005 season using the best available information at that time. A decision rule could be developed through the Working Group to assist with determining how the 2004 acoustic survey biomass estimate would be used. MFish proposes that if there is no agreement on a decision rule, your final decision would be informed by the available stock assessment.

Conclusion

- 97 MFish considers that the current stock assessment provides the best available information to support your decision on sustainability measures for the SBW 6I fishery for the April 2004 to March 2005 fishing year. No significant new information has been brought to light that would alter the rationale provided in the IPP. MFish considers, therefore, that the interpretation of the assessment provided to support the IPP proposal is appropriate, and provides a reasonable basis for your decision.
- 98 However, MFish acknowledges industry views regarding economic impacts of a TACC reduction, and the relative risk to the stock of maintaining the TAC/TACC at the current 25 000 tonnes level for the 2004-05 season versus the proposed reduction. Since the current assessment reveals an increased risk of between 2 % and 4 % should the TAC/TACC of 25 000 tonnes be retained for 2004, MFish considers that an alternative decision to retain the current TAC/TACC for 2004 would be reasonable.
- 99 On balance, MFish advises that the preferred option is to retain the SBW6I TACC at 25 000 tonnes for the 2004-05 season, and defer changes in the current TACC pending the results of the 2004 research survey.
- 100 MFish notes that if you agreed to retain the current TAC/TACC of 25 000 tonnes for the 2004-05 season, your decision would tip the balance in favour of utilisation imperatives in the short term, while being able to mitigate longer-term sustainability risk by using the 2004 research survey results (and other available information) to inform your decision on appropriate sustainability measures for 2005-06.

- 101 MFish will facilitate discussion through the Working Group of an appropriate decision rule to guide the use of the 2004 survey results between now and the end of 2004. However, should a decision rule not be agreed, MFish proposes that your decision will rely on the current stock assessment as the best available scientific information.

Final recommendations

- 102 MFish recommends that you:

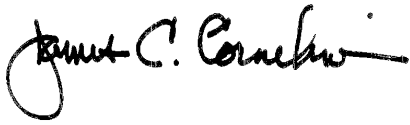
EITHER

- a) **Agree** to set the TAC for SBW 6I at 20 000 tonnes for the fishing year commencing on 1 April 2004, and within the TAC;
 - i) **Set** an allowance of 0 tonnes or non-commercial Māori customary fishing interests;
 - ii) **Set** an allowance of 0 tonnes for recreational fishing interests;
 - iii) **Set** an allowance of 0 tonnes for other sources of fishing-related mortality;
 - iv) **Set** the TACC at 20 000 tonnes.
- b) **Agree**, in principle, to consider a further reduction of the TAC and TACC for the fishing year commencing on 1 April 2005, to be informed by the available stock assessment and the results of the research acoustic survey and the relative biomass estimate provided from those results;
- c) **Agree** that if a decision rule (to guide how the survey estimate is used) cannot be agreed by the relevant Fishery Assessment Working Group, then you will base your decision on the best information, including the formal stock assessment, that is available to you at the time.

OR (MFish preferred option)

- d) **Agree** to set the TAC for SBW 6I at 25 000 tonnes for the fishing year commencing on 1 April 2004, and within the TAC;
 - i) **Set** an allowance of 0 tonnes or non-commercial Māori customary fishing interests;
 - ii) **Set** an allowance of 0 tonnes for recreational fishing interests;
 - iii) **Set** an allowance of 0 tonnes for other sources of fishing-related mortality;
 - iv) **Set** the TACC at 25 000 tonnes;
- e) **Agree**, in principle, to consider a reduction of the TAC and TACC for the fishing year commencing on 1 April 2005, to be informed by the available stock assessment and the results of the research acoustic survey and the relative biomass estimate provided from those results;
- f) **Agree** that if a decision rule (to guide how the survey estimate is used) cannot be agreed by the relevant Fishery Assessment Working Group, then you will

base your decision on the best information, including the formal stock assessment, that is available to you at the time.



Jim Cornelius
for Chief Executive
Ministry of Fisheries

APPROVED / NOT APPROVED / APPROVED AS AMENDED

Hon David Benson-Pope
Minister of Fisheries

/ / 2004